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The sales effect of in-store product displays: The special case of total product relocation

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Real sales data; in-store product displays; product placement; replacement; economic relevance

Abstract

Purpose of the research: Special product displays are expected to increase sales of the products they contain. Opposite to the rich existing literature on the impact of product in-store displays, we investigate the case of total product relocation instead of using the display location as an additional sales spot (secondary location strategy).

Design/methodology: In our setting, products are fully taken off the usual shelf and put into special displays close to the checkout area. We use data from a field experiment conducted in 214 stores of a German perfumery chain, in which eight products were moved to an in-store display.

Results/findings: Compared to the control group, the treated products placed in display boxes show a statistically significant increase in sales. The precise effect differs markedly between the investigated products, ranging from 80% to 478%. Accumulated sales increased by 217.69€ per week on average due to the installation of product displays. We can conclude that complete relocation, indeed, boosts sales, but the precise magnitude seems to be driven by factors not covered in this study.

Practical implications and Conclusions: Based on the product selection, the results seem transferable to both other perfumery stores as well as general supermarkets. However, given the low additional revenues, retailers must consider all the additional costs associated with the implementation of product displays such as the costs of installing and maintaining the display, the costs of removing tags and rearranging the former shelf, and any opportunity costs. If these costs do not exceed the estimated effect, then the installation could be of economic importance.

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1 Introduction

Understanding the determinants and economic importance of special product in-store displays (subsequently called “displays”) is highly relevant from both an academic as well as a practitioner perspective. Recently, Mou et al. (2018) emphasized the importance of aisle management and display placement for store profitability. While marketing research primarily seeks an understanding of individual purchase decisions, retail store management attempts to optimize product placement through displays. Such displays are typically placed at the end of an aisle or close to the checkout area. They are qualified to boost impulse buying (Asuquo and Igbongidi, 2015; Rook, 1987; Yu and Bastin, 2010; Zhou and Wong, 2004). Such spontaneous purchase decisions in the checkout area are hardly the result of an extensive decision process (Ebster et al., 2006). Accordingly, displays are a classical tool for triggering sales of selected products from the regular assortment, especially at the checkout (Stern, 1962).

While past empirical literature on the relationship between sales and displays is rich, it primarily focuses on one scenario, namely, additional product placement (e.g., Chandukala et al., 2017; Chevalier,

1975; Cunningham and Connor, 1968; van Heerde et al., 2004; Pires, 2016; Wilkinson et al., 1982). In this common “secondary location” setting, products are partially relocated to a display, while simultaneously being offered on the usual shelf. However, store managers also use total relocation for various reasons. The most common contexts for total relocation are 1) special offers for bundles of products, 2) special test/promotional offers, 3) the movement of event-related products (offered the whole year) to event displays such as those for Easter or Christmas, 4) a quick sale of a discontinued product to clear the shelf for another product, and 5) an attempt to increase sales of certain products (e.g., products with a high margin such as the store’s own brands). While such a total relocation to the checkout area can attract additional purchases by customers waiting in line or induce spill-over effects among the products offered in the display, it could also potentially reduce sales since customers might avoid making a purchase when they cannot find the sought-after product at its usual place (Park et al., 1989). Therefore, it remains unclear whether a total relocation strategy leads to similar effects compared to partially/additional replacements, since no empirical test of such setting exists so far.

Based on the scarce empirical evidence on total product relocation, we were able to use a large set of point-of-sale (POS) scanner data from all 214 retail stores of a German perfumery and cosmetics chain to answer this question. POS data allows to determine a function of causal variables, such as product price, display activities, and feature advertising, on product sales and the profitability of marketing investments (Blattberg and Neslin, 1990). More precisely, we analyze eight weeks of sales data for eight products. These products were totally relocated into new display boxes near the checkout area after week four and sold at the same price as previously. The present scenario enables us to answer the following research question: How strong is the sales impact of in-store product displays in the case of total product relocation?

Difference-in-differences estimations show a statistically significant increase in unit sales for products relocated from their usual position on the shelf to displays in the checkout area, with increases in sales varying by product. We conclude that total product relocation into display boxes can boost sales statistically similar to secondary-location strategies, while store managers still have to consider the costs associated with total product relocation within the store.

2 The Impact of In-Store Displays on Sales

To embed our research in the line of literature, this chapter offers an overview on the sales impact of product displays in general, while it also explains and motivates the specific features of total product relocation.

2.1 Sales Impact of In-store Product Displays

Retailers aim to increase the number of purchases by special in-store product display boxes, price promotions, or a combination of the two.¹ Both displays and price promotion have been investigated intensively in theoretical and empirical marketing research. Their potential to trigger impulse buying was discussed as early as 1962 by Stern, who determined the factors that presumptively influence impulse buying. According to Rook (1987, p. 191), impulse buying occurs “when a consumer experiences a sudden, often powerful and persistent urge to buy something immediately.” For the year 1999, the Point of Purchase Advertising Institute (POPAI) found that a little more than half of all purchase decisions in Germany are not made prior to entering the store, but inside the store.

The intensive involvement of marketing research in this field of consumer behavior analysis is covered by several meta-analytic literature reviews (Amos et al., 2014; Kalla and Arora, 2011; Murugantham and Bhakat, 2013). Recent research has increasingly focused on topics beyond such established research paths, capturing the influence of culture on impulse buying behavior (Kacen and Lee, 2002), impulse buying behavior in emerging markets (Mittal et al., 2015), or impulse buying behavior in online shopping (Chan et al., 2017; Lim and Yazdanifard, 2015). According to Inman et al. (2009), special product displays increase unplanned purchases by 40%. Although impulse buying tendencies vary among individuals (e.g., due to different resources or normative evaluations; see Rook and Fisher, 1995 and Vohs and Faber, 2007) and may differ between product types (Jones et al., 2003), the basic impact of displays is pivotal to retailers with respect to space management. Recent research also suggests benefits of displays towards eco-friendly shopping behavior (Wang et al. 2020). Even the handedness seems important for product display arrangements (Gould, Goldsmith and Lee, 2020). Displays in the checkout area are primarily used to boost sales of products that are simultaneously offered in their usual location within the store. Zhang

¹ For a more detailed overview of instruments for retailer promotions, which distinguished between price promotions, supportive non-price promotions and true non-price promotions, see Gedenk et al. (2010).

et al. (2007, p. 80) pointed out that it has become a “standard promotional practice for retailers to arrange certain items near checkout points in efforts to entice consumers into impulse purchases.” The exposed presentation of products at or around the checkout register implies increased attention from customers. Campo et al. (2000) agree that the allocation of store space can lead to a significant increase in overall chain profitability. Therefore, we expect a statistically positive impact of displays on the sales of products (Hoyer and MacInnis, 2004).

Promoting products through displays triggers the question about what kinds of monetary gains result from such measures. The importance of empirically evaluating the profitability of alternative shelf-space assignments, including displays, was discussed early in the literature (e.g., Anderson, 1979). Based on an empirical study of the cross-category effects of aisle and display placements, Bezawada et al. (2009) emphasized the significance of display decisions and provided empirical evidence of remarkable revenue gains. Breugelmans and Campo (2011) examined the effectiveness of displays in an online grocery store and observed that little is known about the determining factors behind sales.

2.2 Total Relocation to In-store Product Displays

Based on the prevailing assumption that displays boost sales, several studies have empirically investigated their impact over the last decades. We identified 21 studies that used an empirical approach to quantify the relation between displays and sales (see Table 1). The majority used data from grocery stores and supermarkets. Probably related to data disclosure, the average time lag between data collection and the date the research was published was 7.6 years. Fewer than half of the studies generated data from at least two stores, and the majority observed fewer than two products. In contrast with the high number of specific studies, only four studies used a field experimental design to uncover the impact of displays on sales, leaving room for further field experimental evidence. Among the 17 studies that did not use an experimental design, 13 used household/store panel data (e.g., Nielsen, IRI Group). Furthermore, four studies did not use real sales data. Among the four experimental studies, two used additional price promotions. Only five studies discussed the precise average effects of displays. Chevalier (1975) measured the highest average effect of 572% (with price promotion), while Wilkinson et al. (1982) reported the second highest impact with 290% (no price promotion).² Most of the studies used more than one product type and report noticeable effect differences between products.

While existing studies offer a large variety of different settings in which the impact of displays has been tested, to the best of the authors' knowledge, no study has investigated a complete temporary total relocation of products to a display so far. All existing studies measured the impact of placing products into additional displays (secondary location), while also offering the product on the regular shelf. This scenario seems to be the most common one. However, stores already use total relocation of products, especially near the checkout register, for various reasons. First, single units are often sold on special displays near the checkout, while the regular product (containing several single units) is available only on the regular shelf (e.g., sweets and small product samples). Second, special product bundles or promotional products (e.g., for a test period) might temporarily be offered only on special displays and then be removed from the store after a certain period.

² Note that in fast moving markets price promotion accounts for much of the volume sold (Abraham and Lodish, 1987).

Table 1: Literature overview: Published research considering the effect of special product displays

Study/Authors	Year	Store Type	Year of Data Collection	Stores	# Products Types	Field Experiment	Real Sales	Total Relocation	Price Promotion	Average % Effect
This paper	2020	Perfumery	2014	214	7	Yes	Yes	Yes	Yes	217%
Seiler, Yao	2017	Grocery	2006	1	-	No	Yes	No	No	-
Hong, Misra, Vilcassim	2016	Grocery	2007	5	2	No	Yes	No	-	-
Pires	2016	Grocery	2006	23	1	No	Yes	No	-	-
Kacen, Hess, Walker	2012	Grocery	-	1	-	No	Yes	No	-	-
Haans, Gijbrecchts	2011	Grocery	-	103	4	No	Yes	No	-	-
Hultén, Vanyushyn	2011	Grocery	2008	-	-	No	No	No	-	-
Inman, Winer, Ferraro	2009	Grocery	1995	28	-	No	No	No	-	-
Bezawada et al.	2009	Supermarket	1997	79	2	No	Yes	No	No	-
Van Heerde, Leeftang, Wittink	2004	Grocery	-	52	4	No	Yes	No	No	116%
Boatwright, Dhar, Rossi	2004	Grocery	-	97	1	No	Yes	No	-	-
Erdem, Sun	2002	Grocery	1994	-	2	No	Yes	No	No	-
Lemon, Nowlis	2002	Grocery	1985	3	1	No	Yes	No	Yes	-
Narasimhan, Neslin, Sen	1996	Grocery	1988	2400	108	No	Yes	No	No	-
Fader, Lodish	1990	Grocery	1986	12	331	No	Yes	No	-	-
Abratt, Goodey	1990	Grocery	1986	15	2	No	No	No	-	-
Kumar, Leone	1988	Retailer	-	10	1	No	Yes	No	No	-
Gupta	1988	Grocery	1982	1	1	No	No	No	-	-
Wilkinson, Mason, Paksoy	1982	Supermarket	1978	1	4	Yes	Yes	No	Yes	290%
Chevalier	1975	Supermarket	1973	4	8	Yes	Yes	No	No	572%
McClure, West	1969	Drug Store	1967	8	1	Yes	Yes	No	Yes	20%
Cunningham, Connor	1968	Supermarket	-	8	1	Yes	Yes	No	No	57%

Note: "- " = no clear description in the paper

Third, products related to special events (e. g., Easter, Christmas, New Year, and the start of the school year) are temporarily offered on special displays. While most of these products are offered only before the special event, other products are always offered in the store but are moved to special display locations in the time before the event. For instance, paint for coloring eggs is often offered year around; however, it is relocated to a special display in the time before Easter. Fourth, store managers might seek a quick sale of discontinued products to clear the former shelf position for new (and potentially more profitable) products or in case of a store reorganization. Fifth, products might be relocated to special in-store displays to guide the attention of customers to products such as those that are purchased less frequently (but have high margins) or to cross-sales or spillover-sales. For instance, customers buying sunscreen could also be exposed to body spray if it is part of the display and might decide to buy both. Considering the latter scenario, the question arises of whether an increase in additional cross-sales or spill over-sales can compensate for foregone sales from the usual shelf. Losses could occur if customers do not find their intended product at the regular place and react with consumption avoidance or the purchase of substitutes (Park et al., 1989). According to our literature analysis, there is no existing empirical evidence on total relocation in connection with in-store displays thus we empirically investigate the total relocation scenario for the first time.

3 Empirical analysis

3.1 Experimental Setting

We make use of scanner data provided by a German perfumery and cosmetics retailing company. The retailer offers a wide range of cosmetic, perfumery, and body hygiene products. Moreover, the retailer usually had few displays in the stores and mostly used price promotion for specific product categories as a promotional tool. Using a display box near the checkout area had not been used previously. Starting in week 16 of 2013, weekly sales data was collected for eight weeks in all 214 stores. After week four of the observation period (week 20 in 2013), the retailer introduced in-store product displays in front of the checkout register simultaneously in every store (simple, transparent, multi-product acrylic boxes with no fancy design). No such display boxes had existed previously, and the products sold out of the display boxes in the checkout area were temporarily removed from their usual place on the shelf, leading to a different experimental setting compared to past research (see Table 1). Our sample covers the sales data for eight products put into these displays as well as the accumulated sales of all other products in every store. Thus, we had information on the relocation, the product category, the prices, and the presentation (same boxes and location in every store). We are aware of the no-control design, as the experiment was planned by the company. This also comes in tandem with the possibility that the selected products were not randomly selected by the company. However, one might argue that this drawback in internal validity is partly substituted by a high external validity due to the large variety of stores, the simultaneous installation, the purchases, and the homogenous execution.

The eight single relocated products were one type of BODY SPRAY (2.95 €, part of a portfolio for 12 months), one type of HAND CREAM (1.95 €, 3 months), one type of LIP GLOSS (7.95 €, 12 months), one type of MASCARA (10.95 €, 8 months), one type of NAIL POLISH (9.95 €, 3 months), two types of PERFUME (9.95 € and 14.95 €, both 3 months), and one type of SUNSCREEN (6.95 €, 5 months).³ A pre-test classified body spray, hand cream, and sunscreen as mainly utilitarian products, while the other products showed more hedonistic characteristics.⁴ Each display box contained all eight treated products. Prices were identical during the whole observation period to reduce further exogeneity (combining display and price promotion proves inefficient according to Lemon and Nowlis (2002)). Such a setting fits a pre-test/post-test design with a control group (products not moved) as sales were determined before and after the introduction of the in-store displays (Campbell and Stanley, 1963).⁵

³ Note that not all body sprays, lip gloss, etc., were relocated but only one of the SKUs. The chain offers a variety of different products in all categories.

⁴ Products can serve hedonic or utilitarian purposes, or both. Utilitarian products are typically bought after a thought-out purchase decision to fulfill functionality-related goals, while hedonic products are associated with the pursuit of pleasure and enjoyment (Bayley & Nancarrow, 1998; Chitturi et al., 2008; Hirschman & Holbrook, 1982). Exposed product placement in the checkout area is expected to enhance sales of hedonic products at a higher rate than the sales of utilitarian products (Kacen et al., 2012).

⁵ Using a pre-test/post-test design with a control group, we can forgo controlling for drivers of sales such as seasonality or weather as they impact sales independent of being sold out of a display box or from the shelf. This setting is superior to one where a fraction of stores installs display boxes since there is no need to ensure that the

3.2 Variables

Raw sales information was provided as weekly sales per store in € (SALES). Since data is missing in some cases, the data sample represents an unbalanced panel. Table 2 reports that an average store generated weekly sales of 5,509 € with sales ranging between 0 € and 267,544 €. While sales of the non-treated products (N = 1,704) range from 6,797 € to 267,543 € per week (mean = 40,668 €), sales of the eight treated products (N = 10,917) are, not surprisingly, much smaller, ranging from 0 € to 577 € per week with a mean of 28.19 €. Since SALES is a right skewed variable, we use the logarithm of SALES as the dependent variable (LN SALES) in the subsequent analysis.⁶

Table 2: Descriptive statistics (N=12,621)

Variable	Item	Mean	SD	Min	Max
SALES	Weekly € sales	5,509	17,415	0.00	267,544
LN SALES	Log of SALES	3.82	2.81	0.67	12.50
TREATMENT WEEKS	1=weeks of displays introduction	0.50	0.50	0.00	1.00
REPLACEMENT (RP)	1=sales from replaced products	0.86	0.34	0.00	1.00
VISITORS/100	Store visitors per week (in 100s)	44.66	34.00	6.65	310.13
HOLIDAY	1=week with five sales days	0.44	0.50	0.00	1.00
SHOPPING CENTER	1=Store within a shopping center	0.43	0.49	0.00	1.00
SALES AREA/100	Store size in m ² (in 100s)	2.79	1.90	0.70	13.80
STATE	Federal state of store location	-	-	-	-

Although we use a control group design (which generally eliminates most of the unobserved heterogeneity), we incorporate two time-variant and three time-invariant covariates for 1) robustness reasons and 2) to maximize variance explanation of sales. First, VISITORS/100 reflects the visitor inflow into the store, determined by a camera counting system (divided by 100 for interpreting purposes). On average, 4,466 visitors per week entered the stores. Irrespective of the display activities, we expect a positive correlation between visitors and sales.⁷ Second, HOLIDAY is a dummy variable taking the value of one if the week of observation had only five instead of six sale days due to a public holiday (e.g., May 1st, Whit Monday, Ascension of Christ, and Corpus Christi in six states). A five-day week might actually lead to an increase in sales, assuming customers stockpile or take a day off in a week with a public holiday (Smith, 1999). Third, SHOPPING CENTER is time-invariant and indicates whether a store was located in a shopping center building or in a pedestrian zone. According to Table 2, 43% of the stores were located in a shopping center. Fourth, the time-invariant variable SALES AREA/100 (divided by 100 for interpreting purposes) indicates a store's size, ranging from very small (a minimum of 70 m² ~ 753 sq. ft.) to large (a maximum of 1,380 m² ~ 14,854 sq. ft.) with an average store size of about 280 m² ~ 3,003 sq. ft. Accordingly, the more time customers need to browse through the store to search for their planned purchase items, the more unplanned purchases they tend to make (Haans and Gijsbrechts, 2011; Kollat and Willett, 1967). Fifth, the time-invariant and nominal variable STATE contains information about the federal state where a store was located (out of 16 federal states in Germany).

The correlation matrix (Table 3) draws attention to some variables that correlate quite highly, that is, SALES, VISITORS, and SALES AREA. Most importantly, the correlation between SALES and TREATMENT WEEKS is visibly larger for the treated products ($r = 0.01$ vs. $r = 0.58$), giving a first impression of the treatment effect. Therefore, the correlations between SALES and the other variables are smaller for the treated products as the treatment effect is the main driver of sales.

two groups (those who do and those who do not install display boxes) do not systematically differ from one another.

⁶ To calculate the logarithm without losing observations with zero sales per week, we added the minimum in sales for every product (in all cases, the price of the product) to all observations of the product as a constant.

⁷ However, additional visitors may result in overcrowding and longer lines in the checkout area, potentially enhancing purchasing activity in this area of the store.

Table 3: Correlation matrix

	1	2	3	4	5	6
Weekly € SALES control						
SALES	1.00					
TREATMENT WEEKS	0.01	1.00				
VISITORS/100	0.77	-0.01	1.00			
HOLIDAY	0.05	-0.11	0.03	1.00		
SHOPPING CENTER	0.17	0.00	0.18	-0.01	1.00	
SALES AREA/100	0.70	0.00	0.79	0.00	0.06	1.00
Weekly € SALES treated						
SALES	1.00					
TREATMENT WEEKS	0.58	1.00				
VISITORS/100	0.10	-0.01	1.00			
HOLIDAY	0.00	-0.09	0.02	1.00		
SHOPPING CENTER	0.02	0.00	0.17	-0.02	1.00	
SALES AREA/100	0.08	0.00	0.79	0.00	0.04	1.00

Note: The lower correlation between store characteristics and sales in the treatment group is a result of the treatment which captures most of the variance.

3.3 Estimation Strategy

Given the pre-test/post-test design with a control group, we run difference-in-differences (DID) estimations, where the sales of products selected for the store displays are the treatment group, and the sales of all other (non-treated) products serve as the control group. This mitigates the potential problem of correlation between the treatment and other exogenous factors which affect both the control products well as the treated products (e.g. changes in the store, the city, the customers, or the weather). In contrast to our within-store treatment, a between store-treatment (varying the treatment of the eight products between stores), indeed, would have the advantage to explore an actual variation within the tested products. However, such a design would require a random selection of stores, which would probably lead to a reduction in the sample of stores (due to high coordination costs if all 214 stores should be treated specially). Such a reduction would increase the sample selection effect of stores into the treatment and rise random error effects associated with the selected stores. Therefore, from our point of view, a within-store treatment design containing every store should be as equally valid as between-store treatment design with a small sample of stores. To set up the DID structure, we generated the dummy variable TREATMENT WEEKS (TW), which equals one in weeks where the treated products were relocated from their regular positions on the shelf to the display boxes (weeks 20–23). In addition, REPLACEMENT (RP) is a dummy variable identifying the treated products. To capture the difference-in-difference effect (treatment effect), we generate an interaction term between TW and RP.

We present estimations with both store fixed effects and random effects. Fixed-effect models with store ID as the observation unit reduce unobserved time-invariant heterogeneity between stores.⁸ Since price, product category, presentation (same boxes in every store) and newness (replacement in every store) were identical in every week and every store (i.e. time and store invariance throughout the study period), these determinants had to be dropped from the models. In addition to the fixed-effect models, random effects estimations allow us to include the time-invariant but store-variant variables SHOPPING CENTER, SALES AREA/100, and STATE, all of which are excluded from the fixed-effect models. We run estimations for accumulative sales data for all products from the display as well as a separate analysis for each product. All models are estimated using robust standard errors (White, 1980). Since we use a log-level design, the β -coefficients of continuous variables (VISITORS/100 and SALES AREA/100) can be interpreted as a $100*\beta$ percentage change in SALES, when the explanatory variable is increased by one unit. For the dummy variables (TW, RP, Treatment effect TW#RP, HOLIDAY, and SHOPPING CENTER), the estimated coefficients must be transformed first ($100*(e^\beta - 1)$) before achieving the percentage change in SALES (Halvorsen and Palmquist, 1980).

⁸ Mattila and Wirtz (2008) found staff friendliness to increase impulse buying. However, because our data covered only two consecutive four-week periods, we expected few personnel changes and a steady behavior from the staff throughout the observation period.

While the random effects estimation also includes the time-invariant variables SHOPPING CENTER, SALES AREA, and STATE, the basic fixed effects estimation is specified as follows:⁹

$$\text{LN WEEKLY } \epsilon \text{ SALES} = \alpha_0 + \alpha_1 \text{TREATMENT WEEKS} + \alpha_2 \text{REPLACEMENT} + \alpha_3 \text{TREATMENT WEEKS} * \text{REPLACEMENT} + \alpha_4 \text{VISITORS} + \alpha_5 \text{HOLIDAYS} + \epsilon$$

3.4 Results

The DID estimations with store fixed effects are presented in Table 4, while the random effect results are reported in Table 5. While model 1 covers the control group data as well as the sales data for all treated products (pooled regression), models 2 to 8 focus on the impact of displays on sales for the product categories separately. The R^2 within is very high, predominantly to the large spread in sales between the control group and the treatment group. In an attempt to adjust the R^2 to a more appropriate measurement of the variance explanation, we generated the R^2 for all models with a z-score of sales¹⁰ as a dependent variable to reduce the spread between the control and the treatment group. These R^2 values range between 0.31 and 0.48 (which is similar to the R^2 reported by Kumar and Leone, 1988) in the fixed effect models and between 0.16 and 0.46 in the random effect models.

In the TREATMENT WEEKS, sales generally increased between 3.2% and 1.8% (Table 4). As depicted by the random effects model, this effect ranges between 1.7% and 2.7% (Table 5). This small increase is statistically significant with $p < 0.001$. Most of the variance in LN WEEKLY SALES is explained by REPLACEMENT, which is statistically significant with $p < 0.001$.¹¹ The high negative coefficient reflects the large difference in sales between the treated products and all other products in the store.

⁹ Since we have no information about the product characteristics, product prices, and the time on the sales portfolio for the control group products, we cannot use this information for the treated products in the DID estimation.

¹⁰ Standardization on group and store level with MEAN = 0 and SD = 1.

¹¹ Since the products placed in the display boxes account for only a very small portion of the product variety offered.

Table 4: Difference-in-differences store FIXED EFFECTS regression

DV: LN WEEKLY € SALES	(1) All	(2) BODY SPRAY	(3) HAND CREAM	(4) LIP GLOSS	(5) MASCARA	(6) NAIL POLISH	(7) PERFUM	(8) SUNSCREEN
TREATMENT WEEKS (TW)	0.024 (0.005) [0.000]	0.019 (0.005) [0.000]	0.020 (0.005) [0.000]	0.026 (0.005) [0.000]	0.022 (0.005) [0.000]	0.018 (0.004) [0.000]	0.026 (0.004) [0.000]	0.032 (0.006) [0.000]
REPLACEMENT (RP)	-8.278 (0.033) [0.000]	-9.103 (0.039) [0.000]	-9.757 (0.041) [0.000]	-8.244 (0.038) [0.000]	-7.666 (0.041) [0.000]	-8.187 (0.042) [0.000]	-8.073 (0.036) [0.000]	-7.323 (0.040) [0.000]
TW#RP	1.222 (0.015) [0.000]	1.384 (0.033) [0.000]	1.170 (0.031) [0.000]	1.754 (0.029) [0.000]	0.586 (0.027) [0.000]	0.865 (0.016) [0.000]	1.517 (0.027) [0.000]	0.607 (0.037) [0.000]
VISITORS/100	0.009 (0.001) [0.000]	0.011 (0.001) [0.000]	0.010 (0.001) [0.000]	0.009 (0.002) [0.000]	0.011 (0.001) [0.000]	0.009 (0.002) [0.000]	0.010 (0.001) [0.000]	0.022 (0.002) [0.000]
HOLIDAY	0.087 (0.010) [0.000]	0.030 (0.013) [0.019]	0.036 (0.011) [0.001]	0.110 (0.012) [0.000]	0.052 (0.012) [0.000]	0.033 (0.010) [0.001]	0.094 (0.010) [0.000]	0.052 (0.016) [0.002]
Constant	10.012 (0.054) [0.000]	9.962 (0.060) [0.000]	9.965 (0.068) [0.000]	9.990 (0.074) [0.000]	9.937 (0.064) [0.000]	10.027 (0.077) [0.000]	9.947 (0.057) [0.000]	9.448 (0.074) [0.000]
N	12,621	3,340	2,826	3,297	2,842	2,650	4,648	3,242
R2 Within	0.917	0.991	0.994	0.987	0.988	0.993	0.987	0.982
R2 with z-score as DV	0.473	0.437	0.426	0.447	0.307	0.438	0.481	0.320
TREATMENT EFFECT	239.4%	299.1%	222.2%	477.8%	79.7 %	137.5%	355.9%	83.5 %

Note: Reported are the raw coefficients without the Halvorsen and Palmquist (1980) correction for dummy variables. Control group = WEEKLY SALES in € of all non-treated products sold at the store of observation. TREATMENT EFFECT reflects the Halvorsen and Palmquist (1980) correction for interpreting dummy variables in log-level models and is defined as $100 \cdot e^{\beta_{TW\#RP}}$.

Table 5: Difference-in-differences store RANDOM EFFECTS regression

DV: LN WEEKLY € SALES	(9) All	(10) BODY SPRAY	(11) HAND CREAM	(12) LIP GLOSS	(13) MASCARA	(14) NAIL POLISH	(15) PERFUM	(16) SUNSCREEN
TREATMENT WEEKS (TW)	0.021 (0.005) [0.000]	0.017 (0.005) [0.000]	0.018 (0.005) [0.000]	0.025 (0.005) [0.000]	0.020 (0.005) [0.000]	0.017 (0.004) [0.000]	0.023 (0.005) [0.000]	0.027 (0.005) [0.000]
REPLACEMENT (RP)	-8.276 (0.033) [0.000]	-9.102 (0.040) [0.000]	-9.754 (0.040) [0.000]	-8.244 (0.038) [0.000]	-7.666 (0.041) [0.000]	-8.184 (0.042) [0.000]	-8.070 (0.037) [0.000]	-7.319 (0.040) [0.000]
TW#RP	1.224 (0.015) [0.000]	1.385 (0.033) [0.000]	1.171 (0.031) [0.000]	1.754 (0.029) [0.000]	0.589 (0.027) [0.000]	0.867 (0.016) [0.000]	1.519 (0.027) [0.000]	0.608 (0.037) [0.000]
VISITORS/100	0.005 (0.001) [0.000]	0.008 (0.001) [0.000]	0.008 (0.001) [0.000]	0.007 (0.001) [0.000]	0.008 (0.001) [0.000]	0.008 (0.001) [0.000]	0.006 (0.001) [0.000]	0.015 (0.002) [0.000]
HOLIDAY	0.095 (0.010) [0.000]	0.036 (0.012) [0.003]	0.041 (0.011) [0.000]	0.115 (0.011) [0.000]	0.058 (0.012) [0.000]	0.035 (0.009) [0.000]	0.102 (0.010) [0.000]	0.071 (0.017) [0.000]
SHOPPING CENTER	-0.002 (0.026) [0.951]	0.030 (0.037) [0.423]	-0.019 (0.045) [0.677]	0.011 (0.032) [0.725]	-0.016 (0.041) [0.701]	0.009 (0.047) [0.855]	0.000 (0.029) [0.987]	-0.110 (0.056) [0.048]
SALES AREA/100	0.003 (0.010) [0.744]	0.027 (0.014) [0.053]	0.033 (0.013) [0.008]	0.036 (0.014) [0.009]	0.021 (0.013) [0.009]	0.030 (0.014) [0.037]	0.011 (0.012) [0.354]	-0.034 (0.023) [0.126]
STATE Dummies	Incl.							
Constant	10.180 (0.058) [0.000]	10.010 (0.077) [0.000]	10.049 (0.077) [0.000]	10.022 (0.071) [0.000]	10.096 (0.073) [0.000]	10.079 (0.078) [0.000]	10.064 (0.070) [0.000]	9.991 (0.110) [0.000]
N	12,621	3,340	2,826	3,297	2,842	2,650	4,648	3,242
R2 Within	0.917	0.991	0.994	0.987	0.988	0.993	0.987	0.982
R2 with z-score as DV	0.456	0.345	0.303	0.363	0.187	0.316	0.431	0.156
TREATMENT EFFECT	240.1%	299.5%	222.5%	477.8%	80.2%	138.0%	356.8%	83.7%

Note: Reported are the raw coefficients without the Halvorsen and Palmquist (1980) correction for dummy variables. Control group = WEEKLY SALES in € of all non-treated products sold at the store of observation. TREATMENT EFFECT reflects the Halvorsen and Palmquist (1980) correction for interpreting dummy variables in log-level models and is defined as $100 \cdot e^{\beta_{TW\#RP}} - 1$.

In all the models, the interaction term (treatment effect) between time and treatment group dummy variables (TREATMENT WEEKS*REPLACEMENT) is statistically significant and positive with $p < 0.001$. Moving products from the shelf and selling them from displays in the checkout area is associated with additional sales of 239.4% ($100 * e^{1.224} - 1$) over all treated products. Models 2 to 8 report a variation between the treated products regarding the estimated treatment effect. The effect of completely relocating the products was largest for LIP GLOSS with an additional growth of 477.8% in sales. The second largest effect was detected for PERFUMES with a DID treatment effect of an additional 355.9%, followed by BODY SPRAY (+299.1%), and HAND CREAM (+222.2%). The effect was smallest (but positive and statistically significant) for NAIL POLISH (+137.5%), SUNSCREEN (+83.5%), and MASCARA (+79.7%). Using a random effects model with additional time-variant covariates (Table 5) changed the estimated treatment effects only marginally.

Besides the main (treatment) effect and store fixed effects, the variables VISITORS/100 and HOLIDAY are statistically significant ($p < 0.001$) to explain variance within SALES and are positively correlated in both the fixed and random effects models (Tables 4 and 5). Regarding the time invariant variable SALES AREA/100, random effect estimations (Table 5) revealed some statistically significant ($p < 0.01$) effects (HAND CREAM, LIP GLOSS, NAIL POLISH, and BODY SPRAY) and some effects with higher p-values, suggesting that the assumption of any effect would cause an alpha-error with high probability (MASCARA, PERFUME, and SUNSCREEN). Sales seem to be affected only by a store's location (shopping center vs. pedestrian zone) when it comes to SUNSCREEN, leading to lower sales (-10.4%) in shopping center environments ($p = 0.048$).

4 Discussion

With the research question in mind, our empirical results reveal clear sales benefits when completely relocating products to a display near the checkout. On average, sales of the relocated products increased by 239%, which is somewhat close to the findings for products that were offered in a display in addition to their usual location in the store (Wilkinson et al., 1982; +290%). However, some products performed noticeably better than other products (see Table 6 for an overview). While sales of LIP GLOSS almost quintupled, revenues from SUNSCREEN and MASCARA did not even double. Such a large difference in sales between displayed products is in line with the past literature on second-location display replacements (Chevalier, 1975; Wilkinson et al., 1982). Looking at differences between the treated products (character, price, and time in portfolio), we cannot detect any clear pattern in explaining the differences in the treatment effect (Table 6). Thus, we can conclude that complete relocation, indeed, boosts sales, but the precise magnitude seems to be driven by factors not covered in this study, which gives room for future research.

Table 6: Summary of average weekly SALES per product category

Category	Average weekly sales before	Average weekly sales after	Price	Character	Time in sales portfolio
BODY SPRAY	4.63 €	19.29 €	2.95 €	Utilitarian	12 months
HAND CREAM	2.20 €	7.98 €	1.95 €	Utilitarian	3 months
LIP GLOSS	9.46 €	66.21 €	7.95 €	Hedonistic	12 months
MASCARA	18.82 €	32.87 €	10.95 €	Hedonistic	8 months
NAIL POLISH	10.24 €	26.21 €	9.95 €	Hedonistic	3 months
PERFUME	11.58 €	60.77 €	9.95 €/14.95 €	Hedonistic	3 months
SUNSCREEN	34.00 €	56.79 €	6.95 €	Utilitarian	5 months

Note: Average weekly sales of the treatment group increased from 90.93 € to 270.12 € (197.07%). Average weekly sales of the control group increased from 40,559.09 € to 40,778.80 € (0.54%).

Following these results, the effect of additional (probably unplanned) sales of co-offered (and probably less frequently purchased) products in the display seems to compensate for potential losses in sales from customers who refrain from making a purchase when they do not find the sought-after product on its usual shelf (Inman et al., 2009). Based on the product selection, the results seem transferable to both other perfumery stores/chains as well as supermarkets. Regarding general drugstores and supermarkets,

the product categories of hand cream, sun cream, and perfume are usually part of the sales portfolio and thus make the results of this study potentially applicable in these retail stores.

Although the estimations revealed statistically significant effects, the economic relevance should also be considered. To put the sales increase in perspective, we compare the average weekly sales of the eight products from the before-treatment time (90.93€) with the average weekly sales through the causal-linked treatment effect ($90.93 \cdot 2.394 = 217.69\text{€}$). Thus, accumulated sales for the eight products increased by 126.76€ per week on average due to the installation of product displays. Given these additional revenues, retailers must consider all the additional costs associated with the implementation of product displays such as the costs of installing and maintaining the display, the costs of removing tags and rearranging the former shelf, and any opportunity costs. If these costs do not exceed the estimated effect, then the installation could be of economic importance.

5 Conclusions

This study empirically investigates the effect of a total relocation of products to an in-store product display near the checkout area using point-of-sale (POS) scanner data of eight cosmetic products. In our setting, these products were relocated from their usual shelf space and put into new display boxes. Using a field-experimental setting and data from 214 stores, the empirical results reveal causal and statistically significant increases in sales on average as well as for every single product. The impact ranges from increased sales of 79.7% to 478%. Our findings confirm finding from past literature for settings where the products were placed in a special display but also remained on the shelf, as well.

However, as with most empirical studies, this study is not without limitations. First, due to the limited space in the checkout area of the participating retail stores along with some operational restrictions, the number of different products used in the field experiment was limited to eight. Future replications or continuations of this investigation might focus on other product categories with, presumptively, different purchasing patterns, such as sweets or home appliances. With regard to the generalization of the presented findings, future research should try to replicate the results for chains with an assortment of products different from the present one. Second, we do not have socio-demographic information about individual shoppers (such as age, sex, and profession), which is usually known in other studies on impulse buying (Dittmar et al., 1995; Luo, 2005; Wood, 1998). The inclusion of loyalty card information would reduce this problem but, in return, might result in a potentially non-representative sample because of the still limited coverage of customer relationship management systems in most countries, including Germany. Third, our data allowed us to test only to what extent in-store product displays lead to an increase in sales. However, no conclusion can be drawn as to why these displays induced additional demand, that is, what fraction of purchases out of special product displays is spontaneous vs. planned. Thus, future research could apply a multi-group design to test the effect of different presentation types (e.g., floor-based versus hanging display boxes and/or large versus small display boxes). Also measuring the impact of total product relocations to a store-within-store setting could be fruitful (Badrinarayanan & Becerra, 2019). Fourth, we could not test for the relevance of several potentially interesting determinants such as price, product category, post-promotional dips, price levels, assortment structure of the retailer, depth of the used assortments, and presentation style since these characteristics were time- and store-invariant. Future research could include variations of these determinants to assess their strength of importance.

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Developing a framework for block chain adoption using TOE model

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Keywords

Block chain Adoption; Supply chain management, Technology-Organization -Environment (TOE).

Abstract

The purpose -Block chain has numerous benefits such as decentralization, persistency, anonymity, and auditability. Although a number of studies focus on using the block chain technology in various application aspects, there is not a specific previous study focus on the block chain technology in both technological context and business organizations through the supply chain flows. Therefore, the purpose of this paper empathizes how using the technological theories and block chain technologies through the supply chain will affect it as a whole; in addition to such adoption is very rare to be represented especially in developing countries as this part is fulfilled by our paper research.

Design/methodology/approach - Data were collected through a self-created questionnaire a number of 427 respondents were included in the questionnaire analysis which were collected from employees of supply chain and logistics companies.

Practical implications - The findings reveal the importance after conducting regression analysis and SEM, it was observed that reducing complexity and lowering supply chain investment costs associated with traditional supply chain transactions were some of the key drivers for block chain adoption, as well as a desire to benefit from enhanced compatibility and regulatory support. However, achieving security is considered as the main and most important driver.

Originality/value -This research provides an insight to understand the significant dimensions of block chain adoption, where the dimensions of security, regulatory support, competitive pressure, compatibility, and complexity are found to have a significant effect on block chain adoption.

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Introduction

Supply chain management has become an important aspect for the increasing demand of logistics companies after having that dynamic environment and globalization. New technologies can overcome the challenges imposed due to such globalization and increasing demand of logistics services. Block chain is one of the trending technologies nowadays that could heavily help overcoming the challenges that companies are facing, meanwhile, block chain adoption is not an easy issue specially in the developing countries. In addition, few researches had discussed block chain adoption especially from the quantitative vision of the technology rather than the qualitative opinion.

Therefore, this research comes to fill such gap in the literature and study block chain adoption and the factors affecting it. This research is divided into several sections, where the first one is represented in the current introduction for the research. The second section presents a review of the previous studies related to block chain adoption and the factors that could affect it. The third section presents the research methodology for the current research, while the fourth section displays the results and findings for the empirical study. Finally, a conclusion is derived for this research in the fifth section.

Literature Review

Block chain in its simplest form is a shared digital ledger which allows users in a peer-to-peer network to verify and store records. Block chain represents a new way to access and trust data communicated over the internet. Block chain transactions can include the exchange of data such as personal identification records, and assets such as 'tokens' and digital currency. Instead of keeping data centralized in a traditional ledger, these new digital systems use independent computers, often referred to as 'nodes', to record, synchronize and share individual transactions in their respective electronic ledgers.

The general idea behind supply chain management (SCM) is to manage the flow of goods, services, and information in an effective way in order to achieve high performance and decrease risks (Tan, 2001). There are billions of products being manufactured every day globally, through complex supply chains that extend to all parts of the world. However, there is very little knowledge of how, when and where these products were originated, manufactured, and used through their life cycle. Day by day, supply chains are getting increasingly more complex, more extended, and more global. In general, the development and implementation of block chain solutions in supply chains are still at an early stage. Thus, there are many opportunities for companies in the future when the technology is further developed (Novinsky and Kozma, 2017).

Moreover, a theoretical insight is required to better understand the underlying motivators and barriers that will lead companies, or discourage them, from adopting block chain technologies for supply chain traceability. The development and use of Block chain technology may in time constitute the biggest change to this date in how one securely stores and share data. Therefore, adapting block chain technologies creates significant implications for corporations looking to meet the demands of the future. For instance, adopting a new way of storing your data requires a different skillset than what is already present in many companies, in terms of technological expertise (Alexandre Arnolado, 2018).

All in all, the results in this paper may give an indication as to whether developing countries corporations have adopted, or intend to adopt Block chain technology, and if so, what the most important drivers for adoption are. For those countries corporations it may be of importance to look at what factors affect the adoption of a new and disruptive technology, and as a result take action (Alexandre Arnolado, 2018). Therefore, this paper will commiserates how using the new theories and block chain technologies through the supply chain will affect it as a whole; in addition to Such adaptation very rare to be represented especially in developing countries as this part will be full filled by our paper research.

Relation between T-O-E Model and Block Chain Adoption

Uncertainty exists amongst IT leaders whether block chain might be an interesting technology to adopt for their organization. There are teams in large organizations, like banks and technology consultancy firms, devoted to discovering the potentials with this technology. Startups are also experimenting with the technology to find out what its use cases are. Hence the organization's mangers decided to have access to this knowledge, select whether they should start innovating with block chain technology or not.

In order to explain technology adoption, two models for the adoption of technological innovation are combined: The Technology-Organization-Environment (TOE) framework (DePietro, Wiarda & Fleischer, 1990) and the Diffusion of Innovation (DOI) theory (Rogers, 1995). Where both these models have been used extensively to predict and explain adoption of several old other technologies, explore how to innovate but none of them try to choose for specific bossiness context to adopt Block chain technology yet.

Accordingly, this paper aims at filling this gap in the literature by making the first steps to defining a model tailored to the adoption of block chain technology. Moreover, in addition, this model adaptation can be used by bossiness organization mangers in various industries to review the arguments in favor and against the adoption of block chain technology in their organization. Therefore, this paper goal is to identify relevant theories for (TOE) Technology Organization Environment decide the significant importance of adopting block chain technology within their organization (Anders Tveita, 2018).

In view of that, the following new theories for the (TOE) model of block chain adoption were identified through iteratively coding data According to L'yan, (2017) as block chain experts:

Regulatory Support: Compliance refers to the level of conformance to the rules and regulations, in this case prescribed by the government.

Security: referring to high level of secure data that transmit through the entire chain. This reflects that such adaption will help and improve the business organizations performance.

For that reason, regulatory support and security considers to be very vital factors in adapting Block chain technologies. Promoting new business direction and visions will create massive changes in business ecosystems.

Block chain Adoption and Supply Chain Management

Supply chain is considered as one of the industries where block chain has the biggest potential to disrupt. Several Sectors use block chain in supply chain management keeps increasing as the industry increasingly gains more awareness of the technology. Amongst other things, block chain can be used to improve contract management, improve supply chain and security, and create product attribution (Gammelgaard, 2019).

Block chain's relative benefit in supply chains through the way supply chains are managed is arguably ineffective when it comes to facilitating information sharing and coordinating the operations among involved entities (Dobrovnik, 2016). The time that must be devoted to solving a problem or untangling a specific communicative discrepancy will likely increase as the network grows.

Therefore, the main benefits of block chain in supply chain management can be classified into two major categories being either first, operational efficiencies, or second improving trust and security (Alexandre Arnolado, 2018). A block chain is not necessarily the right tool for all supply chains as the applicability depends on the level of complexity of the supply chain and the value created from increased visibility over the supply chain (Dobrovnik, 2016). While a block chain could potentially solve a large amount of supply chain challenges, one must evaluate whether the effects of block chain through adapting its technologies with regard to supply chain security.

Hence, it is important for managers to thoroughly understand their supply chain structure before considering implementing a block chain technologies solution. According to previous studies in line behind implementing a block chain can provide significant improvements and benefits to their supply chain (Gammelgaard, 2019). Highlighting on adapting such technology is not that easy. based on the several supply chain operations and processes, main challenges raise up which is the complexity referring to uncertainty that the block chain technology creates about the uses of the technology for the organization. One can reason that this is a form of technology complexity, because uncertainty leads to a lack of understanding, which leads to a more complex perception of the block chain technology (Anders Tveita, 2018).

Therefore, this paper empathizes how using the new theories and block chain technologies through the supply chain will affect it as a whole; in addition to Such adaptation is very rare to be represented especially in developing countries as this part will be full filled by our paper research. Reducing complexity and lowering supply chain investment costs associated with traditional supply chain transactions were some of the key drivers for block chain adoption, as well as a desire to benefit from enhanced security, efficiency, and transparency.

Research Methodology

In order to test the research hypotheses that under this study, the research methodology adopted is based on several issues as illustrated below:

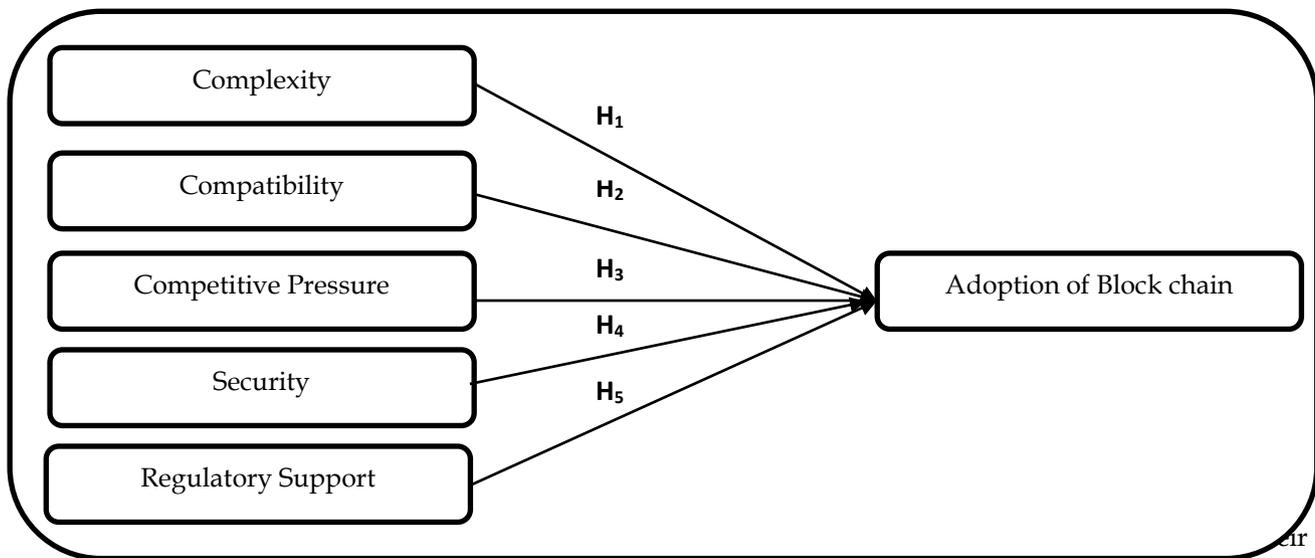
Unit of Analysis: It is the step of gathering of the data collected for the purpose of the data analysis process. It is represented in employees of supply chain and logistics companies.

Population and Sample: The target population for this research is considered as the total number of employees of supply chain and logistics companies. Since obtaining data about all members of a population is not available and very difficult (Fowler, 2013), the sampling frame for this research could not be identified and accordingly a probability sampling is not obtained. Therefore, a convenient sampling technique was used as respondents were selected from supply chain and logistics companies who accepted to respond to the questionnaire. A total number of 427 were considered in the study after

excluding questionnaire with missing responses. An almost equal number of respondents were collected from each company.

Data Collection: The data collection process is handled through the development of a questionnaire that allows for the measurement of how using the technological theories and block chain technologies through the supply chain will affect it as a whole. The adoption of this data collection method was due to the need to measure the focal constructs of the model, as well as the extensive use of survey methodology in previous studies. The questionnaire is shown in the Table 1, where a total number of 18 statements were defined for the research variables. The questionnaire was adopted from the studies of Gutierrez et al. (2015), Amini (2014), and Wangui (2018).

Research Framework and Hypotheses: The proposed framework was introduced in Figure 1, where it could be observed that Security, Regulatory Support, Competitive Pressure, Compatibility, and Complexity were considered as the independent variables, while, Adoption of Block chain is considered as the dependent variable. The variables: Complexity and Compatibility are considered as variables representing Technology; Competitive Pressure is considered as a variable representing Environment; Security and Regulatory Transport are considered as variables representing Organization. Therefore, the independent variables represent the TOE model dimensions, which might affect the Block Chain Adoption.



Measurement scale, where the dependent variable is the Adoption of Block chain. Also, the independent variables are Security, Regulatory Support, Competitive Pressure, Compatibility, and Complexity.

Table 1: Research Variables Measurement Scale

Research Variables	Measurement Scale
Complexity (Gutierrez et al., 2015)	Block chain services are easy to integrate with existing processes
	Confidence levels in block chain influence adoption decision
	Block chain is easy to use and manageable
Compatibility (Amini, 2014)	The use of block chain fits the work style of the company
	The use of block chain is fully compatible with current business operations
	The use of block chain will be compatible with existing hardware and software in the company
Competitive pressure (Amini, 2014)	Firms think that block chain has an influence on competition in their industry
	Some of our competitors have already started using block chain
	Block chain would allow generation of higher profits
Security (Amini, 2014)	Degree of company’s concern with data security on the block chain
	Degree of concern for customers with data security in block chain
	Degree of concern about privacy in block chain
Regulatory Support (Amini, 2014)	The laws that exist nowadays are sufficient to protect the use of block chain
	The regulations that exist nowadays are sufficient to protect the use of block chain.

Research Variables	Measurement Scale
Adoption of Block chain (Wangui, 2018)	There is legal protection in the use of block chain
	To what extent are you familiar with block chain adoptions in supply chain management?
	To what extent have you considered block chain applications in supply chain management in your organization?
	To what extent are you likely to adopt block chain applications in supply chain management within the next 2 years?

The following section will investigate the research hypotheses proposed above using correlation analysis and Structural Equation Modeling (SEM). Thus, both; SPSS and AMOS statistical packages – versions 24.

Results and Findings

Data Testing

Table 1 shows the Validity and Reliability analysis. It could be observed that the values of KMO, AVE, Cronbach's Alpha, and Factor Loading are within the acceptance level.

Table 2: Validity and Reliability Analysis

Variables	KMO	AVE	Cronbach's Alpha	Items	Factor Loading
Security	.736	81.499%	.885	S1	.775
				S2	.821
				S3	.849
Regulatory Support	.713	73.637%	.820	RS1	.695
				RS2	.749
				RS3	.765
Competitive Pressure	.717	81.077%	.883	CP1	.763
				CP2	.867
				CP3	.803
Compatibility	.710	73.024%	.815	Cm1	.770
				Cm2	.709
				Cm3	.712
Complexity	.734	78.028%	.859	Cx1	.781
				Cx2	.797
				Cx3	.763
Adoption	.727	79.678%	.872	Ad1	.743
				Ad2	.833
				Ad3	.814

Table 2 shows the discriminant validity of the research variables, where it could be observed that all square root values of AVE are greater than the correlations between the corresponding construct and other constructs. This means that the research variables have adequate discriminant validity.

Table 3: Discriminant Validity of the Research Variables

	1.	2.	3.	4.	5.	6.
Security	(0.903)					
	.427					
Regulatory Support	.173**	(0.858)				
	.000					
	.427	.427				
Competitive Pressure	.469**	.381**	(0.900)			
	.000	.000				
	.427	.427	.427			
Compatibility	.184**	.245**	.336**	(0.855)		
	.000	.000	.000			
	.427	.427	.427	.427		
Complexity	.371**	.283**	.534**	.303**	(0.883)	
	.000	.000	.000	.000		

	427	427	427	427	427	
Adoption	.501**	.431**	.543**	.393**	.443**	(0.893)
	.000	.000	.000	.000	.000	
	427	427	427	427	427	427

Descriptive Analysis

Table 3 shows the Mean and Standard Deviation for Research variables. It could be observed that the mean and the frequencies of most responses are in the agreement zone, as the mean values for the research variables: Security, Regulatory Support, Competitive Pressure, Compatibility, Complexity, and Adoption are 3.8150, 3.8970, 3.8806, 4.0749, 3.9789, and 3.9766.

Table 4: Descriptive Analysis for the Research Variables

	N	Mean	Std. Deviation	Frequency				
				1	2	3	4	5
Security	427	3.8150	.66499	0	0	141	224	62
Regulatory Support	427	3.8970	.56806	0	0	93	285	49
Competitive Pressure	427	3.8806	.63709	0	0	115	248	64
Compatibility	427	4.0749	.61209	0	0	65	265	97
Complexity	427	3.9789	.71669	0	0	114	208	105
Adoption	427	3.9766	.67094	0	0	101	235	91

Testing the Research Hypotheses

Table 4 shows the regression model fitted for the effect of Independent Variables, Security, Regulatory Support, Competitive Pressure, Compatibility, and Complexity on Adoption. It could be noted that there is a significant positive effect of the Independent Variables on Adoption as the regression coefficients are 0.297, 0.271, 0.209, 0.201, and 0.101 respectively and P-values are less than 0.000. Moreover, the R square is 0.473 which means 47.3% of the variation of the Adoption can be explained by the independent variables together. The research variables importance with respect to Adoption could be ranked as follows: firstly, Security with a Standardized Coefficients of 0.294, secondly, Regulatory Support with a Standardized Coefficients of 0.229, thirdly, Competitive Pressure with a Standardized Coefficients of 0.198, fourthly, Compatibility with a Standardized Coefficients of 0.183, fifthly, Complexity with a Standardized Coefficients of 0.108.

Table 5: Regression Model of Independent Variables on Adoption

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R Square
	B	Std. Error	Beta			
(Constant)	-.241	.227		-1.060	.290	.473
Security	.297	.041	.294	7.254	.000	
Regulatory Support	.271	.046	.229	5.911	.000	
Competitive Pressure	.209	.049	.198	4.221	.000	
Compatibility	.201	.042	.183	4.789	.000	
Complexity	.101	.040	.108	2.500	.013	

a. Dependent Variable: Adoption

Table 5 shows the SEM analysis of the effect of Independent Variables, Security, Regulatory Support, Competitive Pressure, Compatibility, and Complexity on Adoption. It could be observed that there is a significant positive effect of the Independent Variables on Adoption as the regression Estimates are 0.204, 0.249, 0.189, 0.198, and 0.130 respectively and P-values are less than 0.000. Moreover, the R square is 0.523 which means 52.3% of the variation of the Adoption can be explained by the independent variables together.

Table 6: SEM Analysis of the Effect of Independent Variables on Adoption

			Estimate	P	R ²
Adoption	<---	Security	.204	***	.523
Adoption	<---	Regulatory Support	.249	***	
Adoption	<---	Competitive Pressure	.189	***	
Adoption	<---	Compatibility	.198	***	
Adoption	<---	Complexity	.130	.006	

The model fit indices are presented in Table 8 which could be observed that are all within their acceptable levels. The SEM model conducted for the effect of Independent Variables on Adoption is illustrated in Figure 1.

Table 7: The Model Fit Indices

CMIN/DF	RMSEA	CFI	GFI	AGFI
1.073	.013	.998	.969	.956

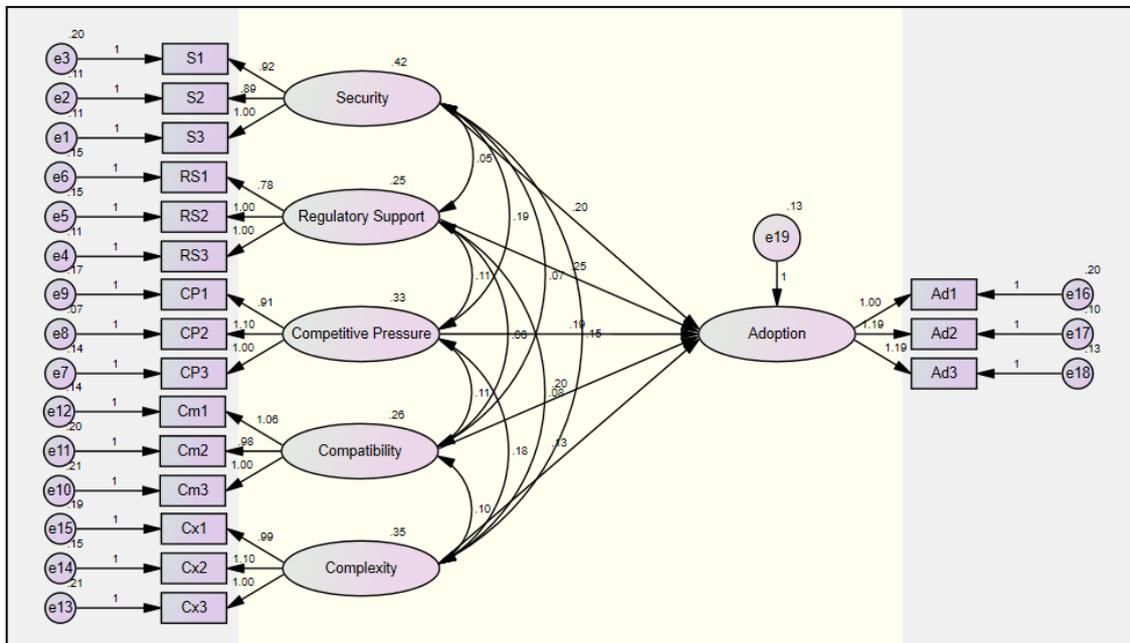


Figure 2: SEM Analysis of the Effect of Independent Variables on Adoption

Discussion and Conclusion

This research provides an insight to understand the significant dimensions of block chain adoption, where the dimensions of security, regulatory support, competitive pressure, compatibility, and complexity are found to have a significant effect on block chain adoption. This result is consistent with the results observed by Novinsky and Kozma (2017) as well as Arnolado (2018).

It was observed that Security comes as the most important factor for block chain adoption, as the corresponding standardized coefficient is the highest (0.294), which is consistent with Arnolado (2018). The second important factor for block chain adoption is regulatory support, with a standardized coefficient of 0.229, which is consistent with the results of Dobrovnik (2016). The third one is the competitive pressure, with a standardized coefficient of 0.198. This is the same result obtained by Tveita (2018).

It should also be noticed that all the dimensions under study were found to have a significant effect on block chain adoption, indicating that all the research variables are considered important for the block chain adoption. The results obtained is consistent with that obtained by DePietro et al. (1990).

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Error Management Culture and its impact on organizational performance: A moderated mediation model

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Keywords

Error management culture, innovative work behavior, organizational learning from errors, and perceived psychological safety

Abstract

Errors are ubiquitous in organizational life and have both positive and negative consequences for organizational performance. Given its importance, we have developed a moderated mediated model to analyze the impact of organizational error management culture on organizational performance by extending error management and share cognition theory. The newly developed model was tested in the service industry of Pakistan. The sample size of the study was 300 employees with a response rate of 96%. The data was collected through a web-based questionnaire. The constructs used in the study were adapted from earlier established scales and measures. Smart PLS was used to test the structural model. Consistent with our hypotheses, the results show that error management culture is positively related to organizational performance and this relationship is mediated by organizational learning from errors and innovative work behavior. The results further demonstrated that perceived psychological safety moderated the direct relationship between organizational learning from errors and error management culture in such a way that relationship is stronger when perceived psychological safety is high. The current study extends the relevant literature and has significant implications for management, theory, and research. For instance, perceived psychological safety in earlier studies has been used as a mediator while we have used it as a moderator. In addition, we tested multi mediation (i.e., organizational learning from errors and innovative work behavior) to empirically validate the relationship of error management culture and organizational performance

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1. Introduction

In many ways, the organizational landscape has undergone dramatic changes in the last two decades. The rising dynamism, and complexity of the contemporary business environment couple with growing technological advancement poses new challenges and opportunities for effectively dealing with errors. Errors are rampant in every organizational life and potentially yield either negative or positive outcomes. Errors in organizations are defined as unintentional and potentially avertable aberrations from organizationally specific standards and goals (Frese and Keith, 2015). With a view to its importance for organizational performance, error literature in recent years has gained momentous growth and is thus regarded as a key phenomenon of burgeoning theoretical and managerial importance (Goodman et al., 2011).

Errors are prevalent in every organizational activity ranging from product development to service encounters and have certain negative ramifications such as decreased customer satisfaction, create negative publicity, damaged reputation, increase economic costs, elevating psychological stress, job dissatisfaction and in an extreme situation, it results in loss of human life (Zhao and Olivera, 2006). Errors are pervasive not only in various aspects of organizational life but also in the environment, economy, and public policy

Given the significance of errors, the organization has two complementary approaches for dealing with errors namely error prevention (error avoidance) and error management. The former approach takes errors as negative (Reason, 2000; Zhoa 2006) while the latter considers the error as valuable feedback for learning and focused on reducing the negative consequences arises from errors (Chillarege, Nordstrom, & Williams, 2003). In other words, error management approaches view errors as constructive- that can foster positive outcomes for organizations such as learning and innovation (Lei, Naveh, & Novikov, 2016).

To implement error management approaches at the organizational level, it is incumbent to establish an error management culture. Error management culture refers to a shared set of norms and values that facilitate error identification, communication, and rectification (Van Dyck, Frese, Baer, and Sonnentag, 2005). Research in this area underlined the fact that error management culture is critical in reducing negative error outcomes (e.g., service interruptions, negative publicity, faulty products, lost human lives) and fostering positive error outcomes, including learning and innovation (Van Dyck et al., 2005). Learning from errors tends to produce several positive outcomes such as performance improvement (Cannon and Edmondson, 2001 ; Heimbeck, Frese, Sonnentag, & Keith, 2003).

Extending this line of research, organizational scholars argued that by reducing the interpersonal risks, the employees are more likely to learn from their errors (Zhan and Hample, 2016). In this respect, a concept of perceived psychology safety -perceptions of interpersonal risky behaviors (Kahn, 1990) seemed to be an important antecedent of organizational learning from errors (A. C. Edmondson, 2004)

In addition to organizational learning, error management culture may also yield new organizational innovation and processes (Cannon and Edmondson, 2005). It is worthy to note that there is an unexpectedly very limited number of studies on the relationship between innovative work behavior and organizational error management culture. Innovation refers to useful, creative, reliable, and implementable solutions(Argote and Miron-Spektor, 2011). Frese and Keith (2015) argued that innovation and error management culture are complementary to each other. For instance, during the process of exploration and experimentation, new types of errors are being generated (Hammond, Farr, and Sherman, 2011). However, if the organization exhibit error management culture, then efforts are being channelized to reduce the potential damages of errors and prevent the future occurrence of similar errors (van Dyck et al., 2005).

Since error management culture encompasses organizational practices related to detection, communication, sharing, and dealing with errors, it is proposed that organizational error management culture deciphers into positive organizational performance through multi -mediators such as organizational learning from errors and innovative work behavior that not only reduce negative error consequences but also increase positive outcomes of errors i.e., organizational performance. We further proposed perceived psychological safety as a moderator between organizational learning from errors and organizational error management culture.

To summarize, this study aims to answer the questions of whether error management culture affects organizational performance through organizational learning from errors and innovative work behavior. In this way, this study made some valuable addition to the relevant literature. First, by focusing on intervening variables, this study fills the significant research gap by delineating the relationship between error management and learning from errors and between learning from errors and innovative work behavior (Lei, Naveh, and Novikov 2016). Secondly, we advance our understanding that organizations that tolerate mistakes are likely to involve in learning behaviors, and thus add to the growing literature of organizational learning. Thirdly, previous studies on organizational error management culture have been extensively conducted in a high reliable organization such as aviation (Helmreich and Merritt, 2000), medicine (Edmondson, 2004), and manufacturing (Candranegara, 2015.), however less attention has been paid to the service sector that contributes 60 to 70% to GDP in many

economies(Coelho and Augusto, 2010). Therefore, this study attempts to fill this gap by focusing on service industries in Pakistan to enhance the generalizability of the results.

2. Literature Review

2.1 Theoretical background

Organizations are facing various types of errors (Vogus, Sutcliffe, and Weick, 2010). Errors are defined as the avoidable gap between expected and real state (Zhao and Olivera, 2006). Errors may generate potential negative outcomes for organizational life which consequently hampers its performance. Therefore, the study of organizational error merits on its own. Keeping in view the exponential growth of error literature, there is a growing interest of services scholars to investigate the impact of various dimensions of errors on the organizational performance (Guchait, Simons, and Pasamehmetoglu, 2016)

Error management culture is defined as a shared set of organizational norms and practices to collect, communicate, handle, and report error-related information. Share cognition theory proposes that high error management culture facilitates employees in recognizing and managing errors timely(Fiore and Schooler, 2004;Chiu, Hsu, and Wang, 2006). Under the error management culture, employees not only learn from their errors but also from others, which results in effective handling of errors (Mathieu, Heffner, Goodwin, Salas, and Cannon-Bowers, 2000; Cannon and Edmondson, 2001). Various scholars have studied the effect of organizational error management culture on employee's performance (Dimitrova, Van Dyck, Van Hooft, and Groenewegen, 2015). Accordingly, organizations with high management culture have an active mechanism of handling and managing errors by encouraging the employees to report the errors as they happen. While in organizations that have low error management culture, the employees in such organizations are punished and blamed for committing errors (van Dyck et al. 2005). Consequently, employees tend to conceal errors to avoid negative feelings such as shame, fear, and guilt (Zhao and Olivera, 2006).

In the same way, it was found that error management culture encouraged the employees to learn from errors and mistakes by understanding their causes or decrease the negative outcomes that arise from error (Reason,2000). Furthermore, it fosters the climate of innovativeness, exploration, and experimentation via ambidexterity (Van Dyck et al. 2005) a construct that referred to as experimenting and refining new and existing products/services that lead to better performance (Hülshager, Anderson, and Salgado, 2009). Therefore, we can propose that error management culture can be regarded as an important antecedent of organizational performance in the service industry.

2.1.1 Error Management culture and Organization Learning from Errors

Research on learning from organizational errors has gained momentum in recent years (Harteis, Bauer, and Heid, 2012). Argyris, (1976) stated that organizational learning modified the individual behavior ('single-loop learning') or it can also modify an individual's values and norms underlying behavior ('double-loop learning'). To enhance the organizational learning from errors, there must have a sound culture of accountability, inquiry (error identification, analysis, and rectification), and trust (interpersonal sharing of the error learning experience) among the employees (Ellis, Caridi, Lipshitz, & Popper, 1999)

Van Dyck et al. (2005) suggested that there is sharp contrast between error aversion culture (avoiding and concealing errors to reduce negative feelings) and error management culture (characterized by constructive handling and communicating about errors) that encourage an organization ability to learn from errors.

Argyris, (2017) argued that the process of learning comprises identification and rectification of errors, coupled with an active reflection on experience and experimentation. Moving further, learning from errors can drive transformative organizational and individual development(Tucker & Edmondson, 2003). Previous research suggested that error management culture encourages employees to learn by allowing errors to happen (Keith and Frese, 2011). Organizational learning is characterized as a continuous process of activities such as asking questions, pondering on results, sharing information, discussing errors, and seeking feedback (Frese and Keith, 2015). Organizational scholars have also developed insights on various dimensions of organizational learning and their relationship with error management culture. First, organizational error management culture promotes open communication that

lead to learning from errors (Van Dyck, 2000; Van Dyck et al., 2005). Second, organizational error management culture provides a secure environment for learning where employees feel safe in committing errors and talking about the errors. Third, error management cultures also incorporate mutual respect, trust, and confidence among the employees that they will not be blamed, punished, or rejected for making and discussing errors that consequently lead to learning from errors (Edmondson, 1999; Hofmann and Frese, 2011). Based on the previous literature, the following hypothesis is proposed

H1: Organizational Error Management Culture is positively associated with organizational learning from errors

2.1.2 Organization Learning from Errors and Innovative Work Behavior

Innovative work behavior (IWB) has been defined as a set of interrelated behaviors for idea creation, idea promotion, and idea realization (Janssen, 2004). There is a growing bulge of studies regarding the relationship between innovativeness and learning orientation (Sinkula, Baker, and Noordewier, 1997). For instance, Calantone et al. (2002) empirically validated the impact of learning orientation on innovativeness. Similarly, Liu, Luo, & Shi, (2002) also argued that organizational learning is an important predictor of firm innovativeness. In the same line, Hult et al. (2004) empirically validated the argument that organizational learning is a significant antecedent of innovativeness. According to Cefis and Marsili, (2005) organizational learning keeps the organization competitive by introducing new products and services. Given this line of research, (Zohoori, Mohseni, Samadi, and Attarnezhad, 2013) established that organizational learning from errors strongly affects innovative work behavior.

There are quite several studies that empirically validate the indirect relationship of organizational learning from errors with organizational performance through innovative work behavior (Hao, Kasper, & Muehlbacher, 2012). Extending this line of research, Škerlavaj, Song, and Lee, (2010) researched many Korean organization's innovative cultures and found that learning organization was a significant predictor of service, product, and process innovation. Similarly, various scholars have studied the relationship between organizational learning from errors and innovation processes (Škerlavaj et al., 2010; Park, Song, Yoon, and Kim, 2014). So, we proposed the following hypothesis

H2: Organizational learning is positively associated with Innovative work Behavior

2.1.3 Innovative Work Behavior and Organization Performance

Innovativeness is an important predictor of business performance (Cooper, 2000). Prior research on organizational performance barely focused on the organization's capacity to innovate (Damanpour, 1991; Hurley and Hult, 1998; Cooper, 2000). Innovativeness is regarded as a predominant strategic tool to promptly deal with changing internal and external environment. In the face of a complex and turbulent environment, an organization must fuel innovativeness for achieving high performance and competitive advantage (Hult et al., 2004).

Owing to the dynamic environment, Innovative work behavior (IWB) of employees is pivotal in achieving better performance (Kanter, 1983). This line of research is further extended by Rosenbusch, Brinckmann, & Bausch, (2011). They argued that innovativeness significantly contributes to overall organizational performance. Similarly, several authors also underlined the importance of innovative work behavior to improve organizational performance (Van de Ven, 1986 ; Gatignon, Tushman, Smith, and Anderson, 2002; Unsworth & Parker, 2003). Moreover, Campbell, Gasser, & Oswald, (1996) empirically demonstrated the positive link between innovative work behavior and organizational performance.

An important line of organizational performance literature also focuses on the organizational climate of innovativeness and organizational performance (Nybakk, Crespell, Hansen, and Lunnan, 2009). Other scholars have also pointed the association of innovative work and organizational performance through gaining competitive advantage (Yuan & Woodman, 2010 ; Shih & Susanto, 2011; Janssen et al., 2004; Oldham & Cummings, 1996 ; Scott & Bruce, 1994).

H3: Innovative Work Behaviour is positively associated with Organizational performance

2.1.4 Moderating role of Perceived Psychological Safety

Psychological safety is defined as the feeling that one is investing oneself into an organizational role without fear of negative repercussion to career, status, or self -image (Kahn, 1990). In other words,

perceived psychological safety delineates individual perceptions of risks involved in their work environment. In prior studies, perceived psychological safety has been widely studied as a mediating variable in explaining team outcomes, it is also found that perceived psychological safety play a more significant role as a moderator (Sanner and Bunderson, 2013). Furthermore, perceived psychological safety may turn out to moderates the antecedents of organizational performance and organizational learning (Edmondson 2004 ; Salas, Wildman, Burke, & Goodwin, 2008 ; Sanner and Bunderson, 2013)

A. C. Edmondson & Lei, (2014) emphasized the role of leaders in fostering perceived psychological safety in the organization. They suggested that a climate of perceived psychological safety empowered employees to identify, analyze and learn the potential hazards that threaten their performance. Moreover, perceived psychological safety facilitates the employees to overcome the learning anxiety- a state where unexpected results thwart one's productive learning (Schein, 1985). Previous researches have shown that perceived psychological safety was conducive to higher performance by reducing risk in proposing a new idea, better team learning, and smoother collaboration in solving problems (West, 1990; Edmondson, 1999). Moreover, perceived psychological safety was found to have a key role in enhancing organizational learning from errors through experimenting and sharing past reflection (Cannon and Edmondson, 2001; West & Anderson, 1996). However, in a psychologically unsafe environment, people did not report their errors for the sake of blame and punishment. As a result, employees refused to engage in learning behavior which ultimately dampens the organizational performance.

Error management culture on the other hand reduces the negative feelings by acknowledging the inevitableness of errors in organizational life (Lei, Naveh, Nivokov, 2016; Homsma, Van Dyck, De Gilder, Koopman, & Elfring, 2009 ; Bauer and Mulder, 2007; Edmondson, 1999) and thus enhance the perceived psychological safety of employees. Furthermore, perceived psychological safety was presumed to enrich organizational learning by abolishing obstacles of self-defensiveness, fear, and uncertainty (Edmondson, 1999; Sanner and Bunderson, 2015).

Therefore, based on the above arguments we take perceived psychological safety not as a causal factor but as a moderator to strengthen the relationship between organizational error management culture and learning from errors.

H4: Perceived Psychological Safety moderates the relationship between Error Management Culture and Organizational learning from Errors

2.2 Conceptual Model

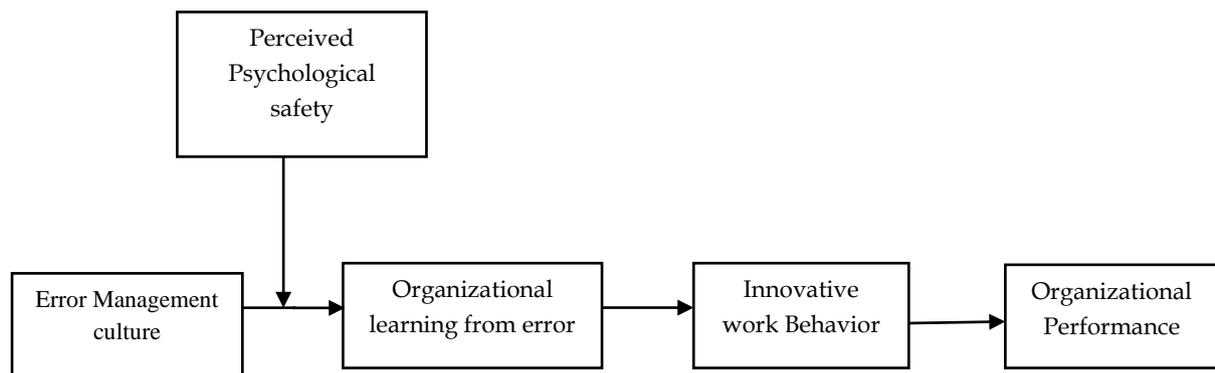


Figure 3 Conceptual Framework

This study proposed that error management culture is positively associated with organizational performance through multi mediators (organizational learning from errors, innovative work behavior) in such a way that error management culture inculcates organizational learning from errors that further leads to innovative work behavior among the employees. We further proposed that that perceived psychological safety moderate the direct relationship between organizational learning from errors and error management culture in such a way that the relationship is stronger when perceived psychological safety is high.

3.1 Research Methodology

3.1.1 Procedure and Participants

The target audience for this paper were employees from service industries, located in Karachi. Specifically, service industries were targeted owing to following reasons. First, service industries contribute 55% to the GDP of Pakistan, with an annual growth rate of 4.3% and involve 35.1% of labor forces (Economic Survey of Pakistan, 2015-16). Therefore, given the significance of the service sector in the economy, more studies are required to shed light on error management in services settings (Karatepe, 2012). Second, employees working in different various sectors such as banking, marketing, medical, teaching, and management were taken to enhance the generalizability of the current study. The sample size for this study was 300 employees with a responding rate of 96%. The questionnaire was administered in English and was not translated into native language *Urdu* as the target audience is well versed in comprehending English. They were informed that the research would be used for academic purpose and their confidentiality is maintained

3.1.2 Measures & Scale

All the measures utilized a five-point Likert scale (1=strongly disagree; 5= strongly agree). The constructs used in this study was adapted from the earliest literature. For measuring, Error management culture scale, the Error Orientation Questionnaire (Rybowiak, Garst, Frese, & Batinic, 1999) with a twelve-item scale was adapted. Sample items include "For us, errors are very useful for improving the work process", "After an error has occurred, it is analyzed thoroughly", "When an error has occurred, we usually know how to rectify it."

To specifically assess perceived psychological safety, Edmondson,(1999) perceived psychological safety questionnaire was adapted. A sample item includes "If you make a mistake on this organization, it is often held against you", "It is safe to take a risk in this organization."

Employees rated the extent to which their organizations exhibit learning from errors, using seven items based on Putz, Schilling, Kluge, and Stangenberg, (2013) OLE questionnaire. A sample item includes "People in our organization believe that errors at work can be a helpful part of the learning process"

To assess innovative work behavior, a nine-item scale of Janssen (2004) has been adapted. A sample item includes "I search out new working methods or instruments to improve my work"

Organizational performance has been measured using a five-item scale from Delaney and Huselid, (1996). Sample items include "The firm can achieve a high level of customer satisfaction"

3.1.3 Statistical Analysis

SMART Analysis was used for statistical analysis. Before testing the structural model, preliminary statistical analysis was carried out which is inclusive of normality, reliability, and missing value analysis.

4. Data Analysis and Discussion

4.1 Respondent profile

Of the total respondents, 70.3% (211) were male while 29.7% (89) were females. The working experience of the employees varies, with 48 % of the employees having 1-5 years of experience followed by 36% with 6-10 years of experience. Ages of the employees were as high as 55 and as low as 22 with 44 % of the sample lie between 20 -30 years.

4.2 Descriptive

Univariate normality of the constructs was examined through skewness and kurtosis. Table 1 depicts the descriptive statistic.

Table 8 Descriptive Statistics

Construct	Mean	Std. Dev	Skewness	Kurtosis	Cronbach's Alpha
Error Management Culture	4.08	.234	1.09	1.04	0.70
Innovative work Behaviour	3.85	.440	-.032	1.76	0.85
Org. Learning from Errors	3.74	.534	-0.648	1.96	0.88
Organization Performance	3.63	.740	-0.86	0.43	0.85
Perceived Psychological safety	3.35	.516	-1.02	1.76	0.72

Table 1 shows that Error Management Culture (M=4.08, SD=.23) has the highest Skewness (-1.09) followed by Perceived Psychological Safety (M=3.35, SD=.51), Organization Performance (M=3.63, SD=.74), Organization Learning from Errors (M=3.74, SD=.53), and Innovative Work behaviors (M=3.85, SD=.44). On the other hand, the highest Kurtosis (1.96) is of Organization Learning from Errors (M=3.74, SD=.53) and the lowest kurtosis (.305) is of Organization performance (M=3.63, SD=.74). All the Skewness and Kurtosis values ranged between ± 2.5 indicating that the constructs have no issue with Univariate normality (Byrne, 2013).

4.3 Construct Validity

Construct validity is defined as the extent to which a given measure adequately assess the construct it supposed to assess (Nunnally and Bernstein, 1994)

4.3.1 Convergent Validity

Convergent validity in the study has been ascertained through composite reliability and average variance extracted. The results are presented in Table 2

Table 2: Convergent Validity

Construct	Mean	Std. Dev	Composite Reliability	AVE
Error Management Culture	4.08	.234	0.79	0.50
Innovative work Behaviour	3.85	.440	0.88	0.55
Org. Learning from Errors	3.74	.534	0.91	0.68
Organization Performance	3.63	.740	0.89	0.63
Perceived Psychological safety	3.35	.516	0.81	0.52

The above table indicates that the reliability of each construct is more than 0.7 and the variance explained for each factor is more than 0.5, which means that constructs meet the requirement of convergent validity (Bell, Bryman, & Harley, 2018).

4.3.2 Discriminant Validity

Discriminant validity indicates the uniqueness and distinctiveness of the adopted construct. The results are summarized in Table 3

Table 3: Discriminant Validity

Constructs	1	2	3	4	5
Error Management Culture	0.71				
Innovative work Behaviour	0.56	0.74			
Org. Learning from Errors	0.53	0.66	0.82		
Organization Performance	0.38	0.55	0.49	0.79	
Perceived Psychological safety	0.42	0.19	0.47	0.35	0.72.

Table 3 shows that the value of the square root of AVE is higher than the square of each pair of correlation which confirms that the data fulfills the requirement of discriminant validity

4.4 Path Coefficients

This study has examined the direct effect as well as an indirect effect. The generated output from SMART PLS is presented in table 4 and 5 and the structural model is presented in figure 2

Table 4: Direct Effects.

No.	Hypothesis	R ²	Path Coeff'	T Statis	P Values	Results
1	EMC -> Org. Learning from Errors	0.18	0.20	6.57	0.00	Accepted
2	IWB -> Organization Performance.	0.43	0.54	21.406	0.00	Accepted
3	Org. Learning from Behavior -> IWB	0.40	0.65	12.093	0.00	Accepted
4	Per. Psychological safety. -> OLE	0.30	0.23	6.67	0.00	Accepted

EMC =Error Management culture, OLE= organizational learning from errors, IWB=Innovative Work Behavior, Per. Psychological safety=perceived psychological safety

Hypothesis 1 was on the impact of organizational error management culture on organizational learning. The result supports the hypothesis ($\beta=0.20, t=6.57 <.05$) that organizational error management culture is positively associated with organizational learning. Hypothesis 2 proposes that organization learning from errors and innovative work behavior. The results ($\beta=0.65, t=12.093 <.05$) support the hypothesis that organizational learning from errors is significantly and positively associated with innovative work behavior. Hypothesis 3 was on the impact of innovative work behavior on organizational performance. The results ($\beta=0.65, t=12.093 <.05$) depict that innovative work behavior has a significant and positive association with organizational performance. To analyze the moderating effect of perceived psychological safety on the relationship between organizational learning from errors and error management culture, we conducted moderation analyses with organizational learning from errors as the dependent variable. The results ($\beta=0.23, t=6.67 <.05$) support the hypothesis that perceived psychological safety moderates the relationship.

Table 5: Indirect Effects

No.	Hypothesis	Path Coeff'	T Statis	P Values	Results
1	EMC -> Org. Learning from Errors-> IWB	0.13	2.31	0.01	Accepted
2	Per. Psy Safety -> EMC -> Org.l Learn.Errors	0.08	2.63	0.004	Accepted
3	EMC -> Org.l Learn. Errors -> IWB-> OP	0.07	2.24	0.01	Accepted
4	Org.l Learn. Errors -> IWB -> OP	0.36	9.79	0.00	Accepted

The results revealed that both direct and indirect paths are statistically significant. Therefore, the inclusion of organizational learning from errors ($\beta=0.13, t=2.31 <.05$) and innovative work behavior ($\beta=0.36, t=9.79 <.05$) as a mediator between organizational error management culture (EMC) and organizational performance is meaningful. It can be concluded that organizational learning from errors mediates the relationship between error management culture and innovative work behavior. Furthermore, we also found that innovative work behavior mediates the relationship between organizational learning from errors and organizational performance.

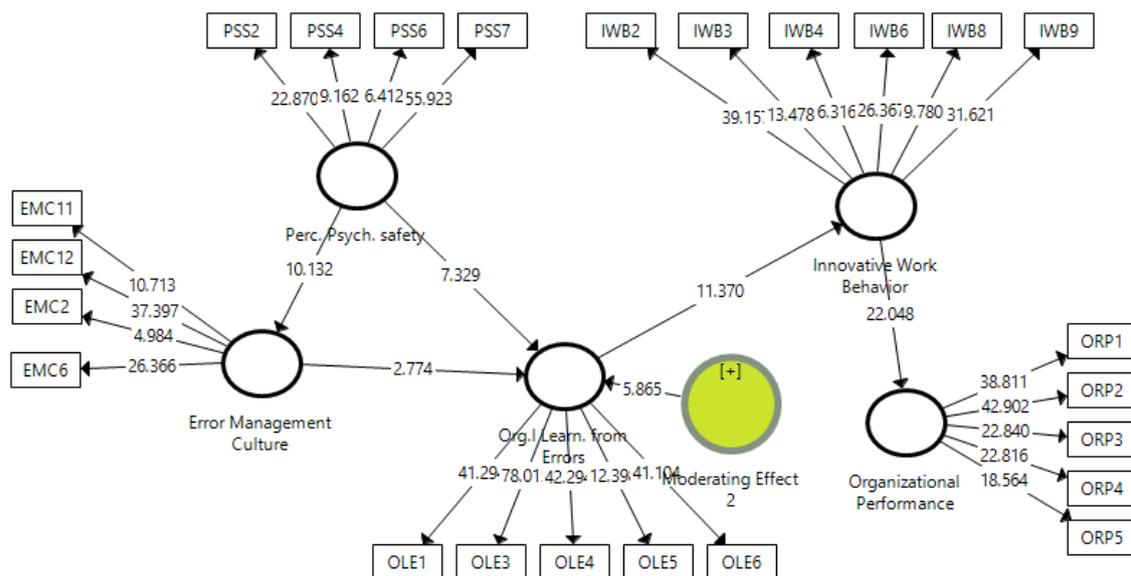


Figure 4 Measurement Model

4.5 Discussion

We advance our understanding of how error management culture predicts organizational performance through multi mediators i.e., organizational learning from errors and innovative work behavior. In doing so, we integrate error management theory with share cognition theory to explain why and how organizational error management culture enhances organizational performance. Specifically, we found that error management culture inculcates learning behaviors among the employees by focusing on the informative aspect of errors. The results are consistent with previous studies where people agree on the positive consequences of errors such as learning, innovation, and resilience (Van Dyck, Frese, Baer, and Sonnentag, 2005; McCune, 1997; Sitkin, 1996; Jones & O'Brien, 1991). Prior studies also corroborated the notion that learning from errors leads to service timeliness, plant productivity, and survival rates by learning from experience (Reason, 1997; Zhao and Olivera, 2006). We also analyzed that organizational error management culture indirectly leads to a positive organizational performance by fostering organizational learning from errors, understanding the underlying causes of errors, and preventing them from happening in the future. We also showed that organizational learning from errors predicts organizational performance through innovative work behavior that involves active exploration and experimentation. Previous studies also supported the notion that organizational learning and innovation improved the organizational performance by developing a dynamic and proactive vision (Bueno et al., 2010; Glynn, 1996; Hurley and Hult, 1998; Ireland et al., 2001). Furthermore, the results were consistent with previous studies that imply the firm competencies and capabilities to innovate in the presence of learning culture (Chipika and Wilson 2006) Moving further, we found that perceived psychological safety, reduces the anxiety related to interpersonal risks, thus encouraging employees' willingness to learn from errors

4.6 Theoretical Contribution

Our study extends the error literature in several ways. Although few studies have demonstrated the positive outcome of error management culture on employee's well-being, recovery of service quality, co-worker helping behavior, and employee performance, less attention has been paid to understand how organizational error management culture influences organizational performance via multi mediators. Thus, by theorizing and verifying organizational learning from error and innovative work behavior as a significant intervening variable, this study creates synergies between organizational learning and organizational error management and provides supplementary support to the effectiveness of error management literature in attaining high performance. Since error management is a decisive aspect in dealing with errors in organizations, this study also reinforces the importance of error management culture in recent studies in effectively dealing with errors as compared to error prevention culture. The second worthwhile addition of this study is the inclusion of perceived psychological safety as a moderating variable. In most of the previous studies, perceived psychological safety tends to assume as an intervening variable while in this study we take it as a moderating variable. Worth noting, the result of this study suggested that perceive psychological safety served as a boundary condition influencing organizational learning from errors.

The third contribution was to analyze the impact of error management culture in the service industry. The previous error literature was taken into account the non-service industry such as manufacturing and aviation. Recent studies have begun to examine error management culture in service settings(Guchait, Zhao, Madera, Hua, & Okumus, 2018). The current study empirically validates the significant impact of error management culture in the service industry. In this way, the current study increases the generalizability of error management literature.

5. Practical Implications

The current study has various practical implications. First, by analyzing the impact of management culture on organizational learning from errors, this study suggests that by strengthening error management culture, the organization could make a significant difference. Secondly, many organizations have a punishment-oriented system that rewards success and punishes failure and errors. Under such type of system, employees' productivity is seriously affected since the atmosphere of the organization is not conducive for learning from errors (Tjosvold, Yu, & Hui, 2004). In light of the given study, managers

need to establish a safe atmosphere rather than a blaming environment to achieve high performance. This is only done if the management understands the importance of perceived psychological safety for promoting organizational learning from errors. Moreover, management needs to develop such competencies in employees that encouraged them to think positively about errors as a part of organizational learning and innovation.

5.1 Limitations and Direction for Future Research

Although this study has practical significance for the service industry, few limitations should be accounted for. First, several unexamined contextual factors affect the relationship between organizational error management culture and organizational performance. For instance, leadership orientation, cultural dimensions are among the few contextual factors that can affect the proposed relationship. The inclusion of contextual factors calls for answers to the following questions that are under what condition might the error management interventions be more effective and how?

Secondly, there are many instances where errors are not managed for instance where speed overrule quality. In such situations, learning from errors is being stifled (Lei, 2018). So, to maintain the balance between the contradictory priorities (speed vs quality), future studies need to examine the complimentary priorities to influence the emergence of errors in the organization.

Thirdly, future studies should incorporate cross-cultural comparisons of error consequences, antecedents, processes to understand their underlying mechanism, (Gelfand, Frese, and Salamon, 2011).

5.2 Conclusion

Errors are ubiquitous in organizational life and it is next to impossible to eliminate all kinds of organizational errors. With the view to maintain a competitive position in the global dynamic environment, organizations must encourage their employees to learn and innovate from their errors. By incorporating error management literature with share cognition theory, this current study explains the underlying mechanism of organizational error management culture through multi mediators in achieving organizational performance. The result from the service industry provides the empirical support to our hypotheses that error management culture is indirectly linked to organizational performance through organizational learning from errors and innovative work behavior and perceived psychological safety moderates the relationship between organizational learning from errors and error management culture. These findings also shed light on the importance of constructive orientation toward errors for managers to develop error management culture in their organizations.

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Determinants of Hungarian negotiators' trust-level

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Keywords

Business, cross-cultural contexts, Hungarian negotiators, trust

Abstract

Trust is considered to be an essential element of effective business relationships. However, it is not easy to build trust as it varies from culture to culture which aspects influence trust-level. Therefore, the purpose of the paper is to discuss the importance of trust in cross-cultural business contexts from Hungarian negotiators' viewpoint as well as to reveal the factors that determine their trust-level. This provides the originality of the paper, since no research like this has been conducted so far. To achieve this purpose, an assumption was formulated and tested using data deriving from a two-phase research. In the first phase, a questionnaire survey was carried out to assess the importance of trust in cross-cultural business contexts, and then structured interviews were conducted to reveal the determinants of the respondents' trust-level. The findings show that the factors related to the relationship (e.g. previous experience, duration of the relationship, frequency of the contacts) determine the respondents' trust-level the most, however, the role of stereotypes is also important. It is also revealed that the potential consequences of the low level of trust include more regulations, more misunderstandings, and changed behaviour and attitude. The paper concludes that even though stereotypes are not the most determining factors, their role is remarkable. The paper also formulates some practical implications, namely that Hungarian negotiators should use stereotypes accurately to avoid behaviours that diminish trust, and foreign businesspeople should be aware of the fact that stereotypes sometimes determine their Hungarian partners' attitude and trust-level.

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Introduction

The past decades have seen the globalisation of business environment. This process has induced the increasing number of business relations between partners coming from different countries and cultures. As a result of this, considerable attention has been focused recently on the investigation of cross-cultural business activities (e.g. Ablonczy-Mihályka, 2014 and 2015; Adler and Aycan, 2018; Adler and Graham, 2017; Merkin, 2017; Tompos, 2015), especially negotiations (e.g. Caputo et al., 2019; Dinkevych et al., 2017; Nádai, 2017; Peleckis et al., 2015). Despite, there are still some aspects of the research into cross-cultural business activities which have remained less explored, especially in Hungary and from a Hungarian viewpoint. One of these aspects is related to trust, i.e. the factors affecting it, the consequences of the lack of it, and its positive effect(s) on cross-cultural business relations.

Therefore, the present paper sets out to examine trust and the factors influencing it in cross-cultural business contexts. In particular, it aims to reveal the factors that affect the trust-level of Hungarian business actors when negotiating with foreign partners, which provides the originality of the paper. The rationale behind the investigation is the growing number of cross-cultural business activities involving Hungary, which necessitates business actors who are able to work with partners whose cultural background is different. However, doing business with foreigners is not easy as besides business aspects, social, political, and cultural ones must be considered, as well. As a consequence of these, trust has been considered an important factor when doing cross-cultural business. Furthermore, according to Covey (2006), trust is the one thing that changes everything, as he points out, low trust is the greatest cost in life

and in organisations since it creates *inter alia* interpersonal conflict, win-lose thinking, defensive and protective communication.

The first part of the paper gives a brief overview of trust in general and the factors that may influence it. The second part discusses the methods and results of the research examining the factors determining the trust-level of Hungarian negotiators in cross-cultural business contexts. The research to be discussed in this paper was a two-phase one, thus both the findings of the quantitative part and those of the qualitative part are introduced. Finally, the paper draws up some conclusions related to the determinants of Hungarian negotiators trust-level and makes some practical recommendations to both the Hungarian negotiators and the representatives of companies doing business with Hungarian partners so that the relations could be more effective and the occurring negative effects of the low trust-level could be avoided.

Literature review

Trust is a well-researched concept at international level, since researchers in all parts of the world have been investigating the concept of trust for more decades (e.g. Covey, 2006; Doney et al., 1998; Fukuyama, 1995). Yet, it is less explored in Hungary. When highlighting the importance of trust, it is inevitable to mention that trust is a complex, multifaceted concept with many interpretations.

According to The Explanatory Dictionary of the Hungarian Language, trust is one's feeling towards someone whose honesty, resistance, good abilities, intentions, and helpfulness one is persuaded of (Bárczi and Ország, 1962). Similarly, Cummings and Bromiley (1996, p. 303) state that trust is nothing else than "an individual's or group's belief that another individual or group makes efforts to uphold commitments, is honest, and does not take advantage given the opportunity". An analogous, but broader definition was drawn up by Ring and Van de Ven (1992), who identified trust as the reaction of an individual to subjective uncertainty regarding the behaviour of the interaction partner. This concept includes expected as well as uncertain, and thus feared behaviour of the partner. According to another concept, trust is a belief or confidence that one party has about another party's characteristics that may increase willingness to take risks and ultimately help "solve" the social dilemma (Ferrin et al., 2007).

Based on the above definitions, it is obvious that trust is an issue that may be approached from different viewpoints and can be defined in several ways. Yet, two basic views of the concept of trust can be distinguished, i.e. the faith-based and the risk-based ones, which are reflected in the aforementioned definitions. These two aspects do not contradict each other; however, they focus on diverse issues. According to the faith-based approach, the source of trust is the partners' faith in each other, thus the partners put faith in each other's reliability and honesty (Kumar, 1996). Based on this approach, trust is the sum of belief and expectations, and the intention of the partners to behave as expected (Doney et al., 1998). On the contrary, according to the risk-based view, trust is a positive perception of the partner's behaviour in a way that the partner does not act in an opportunist way in case of any change of circumstances (Das and Teng, 2004). Thus, trust means that partners voluntarily take risks despite they become vulnerable to the other. This notion is closely related to the theory of transaction costs (Coase, 1937). Factors belonging to transaction costs and influencing trust are relation-specific investments, behavioural uncertainty/replaceability, and exchange of information. Nevertheless, there are some other factors having influence on trust like, for instance, the perceived conflict, the perceived satisfaction, and the business partner's reputation. These factors derive from social exchange theory, according to which every human relation is determined by the analysis of contributions and advantages (Thibaut and Kelley, 1959).

Regarding the factors that can lead to trust (or distrust) in general, numerous, and sometimes overlapping examples can be found in literature. Out of these, Adler (2001) emphasises the following three factors: familiarity through repeated interaction, calculations based on interests, and values and norms that create predictability and trustworthiness. Besides these, there are, of course, other factors which may influence trust like direct interpersonal contact, reputation, honesty, competence, loyalty, openness (Adler, 2001), communication (Thomas et al., 2009), emotional bonding (Eberl, 2004), stereotypes (Peleckis et al., 2015), and cultural differences (e.g. Finuras, 2019; Fukuyama, 1995).

Despite the diversity of concepts and determinants, researchers agree that trust is an essential element of effective business relationships and can facilitate business relations because one who believes the partner is trustworthy, will develop a higher willingness to risk. It is particularly true when business takes place between partners with different cultural backgrounds. Hofstede (1991) states that culture is nothing else than the mental programming of the mind, therefore different cultures perceive business relations in different ways. This idea is supported by several researchers (e.g. Aulakh and Kotabe, 1996; Doney et al., 1998; Finuras, 2019) who also assume that trust in business relations correlates with national culture. Other researchers (e.g. Hall, 1995; Håkansson and Snehota, 1995) even go beyond this as they state that national culture determines the relationships as well as those behavioural factors that affect the evolution and the level of trust. Consequently, the factors influencing the development and the level of trust vary from culture to culture.

Research methodology

Based on the above, this paper discusses the importance of trust in cross-cultural business contexts from the viewpoint of Hungarian negotiators. The purpose of the paper is, on the one hand, to reveal the determinants of Hungarian negotiators' trust-level, and on the other, to determine which factors decrease their trust so that the potential consequences of the low level of trust could be illustrated. Considering that the research investigates cross-cultural business relations, its assumption is that it is the cultural stereotypes that influence the trust-level of Hungarian negotiators the most. Consequently, the research to be discussed in this paper was a two-phase research using different methods. In the first phase a quantitative research was carried out to assess, *inter alia*, the importance of trust in cross-cultural business contexts as well as to find out about the determinants of trust. In the second phase a qualitative research was conducted to reveal, in more details, the factors determining trust and to investigate which factors increase and which ones decrease the level of trust. This way more accurate conclusions can be drawn regarding the determinants of trust as well as their effect on the relations. Nevertheless, the present paper discusses only the factors diminishing trust to highlight the possible consequences of the low level of trust to business relations.

The quantitative part of this research is based on a survey carried out in Hungary among Hungarian business actors frequently working and communicating with partners coming from different cultures. The questionnaire was online and self-administered, and convenience sampling was used to recruit respondents. Therefore, the findings of the research cannot be applied to the whole population, i.e. all Hungarian business actors frequently involved in foreign business relations. The questionnaire investigated the role of stereotypes and trust in corporate relations, consequently it was divided into four parts out of which one contained demographic questions, one referred to the company of the respondent, one investigated trust, and another one examined the role of stereotypes in corporate relations. Among the questions there were rating questions (by means of 5-point scales), close-ended and open-ended ones. The analysis of the responses was carried out by means of descriptive statistics excluding multivariate regression analysis. A total of 204 questionnaires were filled in, however, after data cleansing the responses of 124 could be examined. The respondents' demographic data are as follows: the questionnaire was filled in by 75 male and 49 female respondents. 15 subjects stated they were in upper managerial positions, 18 were middle managers and 91 were employees. 72 out of the 124 respondents are younger than 35, 49 are aged between 36 and 55, and 3 are older than 55. As for qualifications, 102 respondents hold a bachelor's or master's degree, 21 did not take part in tertiary studies, whereas one subject has the title PhD.

The qualitative part of the research is based on structured interviews conducted among some of the respondents of the quantitative part of the research. The interviewees were selected by snowball method, so first the interviewees were selected from the author's own network, and then other interviewees were 'snowballed' by the firstly selected ones. As a result of this method, a total of 33 interviews were conducted. The content of the interviews was examined by the methods of meaning coding, meaning condensation, and meaning interpretation, as described by Kvale (1996). As for the demographic data of the interviewees, it can be said that there were 21 female and 12 male respondents. Three claimed they were in upper managerial positions, 6 were middle managers and 24 were employees. As for age, 18

interviewees are younger than 35, 15 are aged between 36 and 55, and none of them is older than 55. All but one interviewee finished their tertiary studies.

Findings

The present paper discusses some results of the third part of the questionnaire survey and those findings of the qualitative research which are related to trust and the factors decreasing its level. Firstly, the importance of trust is introduced from the viewpoint of the respondents, and then the determinants of the responding Hungarian business negotiators' trust-level are demonstrated. Finally, the factors decreasing the level of trust are examined to highlight the consequences these factors might have with regard to the relation.

The questionnaire survey sought for information about the importance of trust in cross-cultural business contexts and found out that the respondents see trust as a very important factor of business relations. Some of them even went beyond that by stating that trust is not only very important, but, in fact, a key element. The respondents were also invited to tell what trust means to them with the help of an open-ended question. The most common responses included mutual confidence, reliability, fairness, commitment, and unconditional, honest communication. The data deriving from the structured interviews confirm these ideas since none of the interviewees believe that trust is of less importance. When answering the question referring to the meaning of trust, obviously, notions similar to those of the quantitative research were mentioned. It was found out that for the majority of the interviewees (85%) trust means reliability, however, honest communication (36%) also turned out to be an important determinant of trust for them. Besides these, interviewees also reported cooperation, predictability, fairness, responsibility, loyalty, mutuality, less risk, and even punctuality of payment. In general, the responses given suggest that the responding Hungarian negotiators perceive trust from its faith-based view seeing that trust is equivalent to reliability from their viewpoint. Nevertheless, a few responses (e.g. less risk) were related to the risk-based approach of trust.

To determine the factors influencing the trust-level of the respondents, 16 items in the form of attitude statements were used in the questionnaire. Five-point scales (1: fully disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, 5: fully agree) were applied to measure the items. Analysing the responses given, it turned out that communication between the partners (mean: 4.62; standard deviation: 0.57) exerts the greatest influence on the level of trust, after that the duration of the relationship (mean: 4.32; standard deviation: 0.74), and then the frequency of contacts (mean: 4.17; standard deviation: 0.84). These suggest that the style, frequency, and honesty of communication positively affect the development of trust as well as its level. On the other hand, it seems that the more lasting and frequent the relations are, the more the respondents trust their foreign partner. The factors that exert the least influence on the trust-level were found to be the prejudices related to the partner's country (mean: 2.87; standard deviation: 1.04), the negative stereotypes known about the partner's country (mean: 2.95; standard deviation: 1.07), and the positive stereotypes known about the partner's country (mean: 3.14; standard deviation: 1.04). Considering that the standard deviation was high in each case, the median was also examined and proved to be 3 in each case. These results indicate that the respondents are divided in the aspect of the influencing role of stereotypes.

It is also demonstrated by the fact that 34.7% of the respondents agreed to some extent with the influencing role of positive stereotypes, whereas 30.7% agreed somewhat with that of negative stereotypes. As for prejudices, 27.4% agreed to some extent that they have an impact on trust. In view of these findings, it is of particular interest which factors influence trust in general, according to the respondents of the qualitative research. For the present purposes, the responses given to this question were coded and categorised so that they could be compared to those of the questionnaire survey. As a result of this method, the factors that influence the level of trust the most were revealed to be as follows, in order of their importance: previous experience, reliability, stereotypes, news and rumours about the given country/company, the duration of the relationship, and common goals and values. Nevertheless, a few interviewees believe that cultural differences, nationality, reputation, the partner's personality, cooperation, helpfulness, flexibility, openness, and the first impression also pertain to the determinants in general. When comparing the findings of the quantitative analysis with those of the qualitative one, it can be seen that the determinants are different to some extent, especially if it is taken into consideration that

honest communication, which is considered to be the most important factor by the respondents of the questionnaire survey, was not even mentioned by the interviewees. Furthermore, the only factor mentioned in both phases of the research is the duration of the relationship. Another interesting result is related to stereotypes which are seen as the least important factor by the respondents of the first research phase, but according to the interviewees, these pertain to the most influencing ones. However, the respondents, in the first phase of the research, were asked to evaluate predetermined alternatives, whereas they responded freely to an open-ended question in the second phase, which may contribute to these differences.

Nevertheless, when the interviewees were invited to talk about the factors that influence their trust-level in their cross-cultural business relations, slightly different results were found again. The vast majority of them (91%) stated that previous experience was the factor that influenced them the most. Besides, communication, reliability, the duration of the relationship, personal acquaintanceship, and stereotypes are those factors that have an impact on the trust-level of a relatively high rate of the respondents. Although there are differences in the data stemming from the two phases of the research, it can be concluded that the respondent Hungarian negotiators attribute the greatest influencing role to factors related somehow to the relationship itself, i.e. previous experience, honest communication with the partner, the duration of the relationship, the partner's reliability, and the frequency of contacts. Nevertheless, the effect of stereotypes on trust are not negligible either, as the findings, especially those of the second phase indicate it.

To determine the potential consequences of the low level of trust, it was also investigated, within the frames of the interviews, which factors decrease the trust-level of the respondents. It turned out that the previous negative experience (e.g. unkept promises, mistakes, lying, insolvency) decrease the level of trust the most. Nevertheless, inappropriate communication, stereotypes, and the lack of experience were also mentioned as important trust-decreasing factors by most of the interviewees. Nationality, prejudices, envy, and jealousy were found to decrease the level of trust only in case of a few interviewees. Therefore, it can be assumed that if the level of trust is low because of the previous negative experience, it can lead to negative consequences (e.g. more formal regulation of the relationship) to avoid uncertainty, or even the discontinuation of the relationship. The trust-decreasing effect of inappropriate communication may result in more common misunderstandings or defensive communication, which can further decrease the level of trust generating this way a vicious cycle. Stereotypes, once again, were found to be of importance, however, in this case from a negative viewpoint, as it seems that negative stereotypes tend to decrease the trust-level of the interviewees, which may lead to changed behaviour and attitude towards the foreign business partner. Based on these results, it can be stated that cultural stereotypes do have an impact on trust, although not to the greatest extent.

Discussions and conclusions

The present paper investigated the determinants of Hungarian negotiators' trust-level in cross-cultural business contexts. First, secondary research was conducted, and the importance of trust in business relationships was studied. Having reviewed the literature of trust, it was found out that trust is a concept that is well-researched worldwide but is less explored in Hungary and from a Hungarian aspect. Literature review involved the concept of trust as well as its determinants in general. A relationship between cultural differences and trust was also found. Therefore, conducting primary research on the determinants of the trust-level of business actors of a certain nation/culture is proved to be of importance. Consequently, an empirical research into the determinants of Hungarian negotiators' trust-level in cross-cultural business contexts is novel and provides the originality of the present paper.

The research presented in this paper had two phases. At first a quantitative survey was conducted, and then a qualitative one. The research findings show that trust is important for the responding Hungarian negotiators in their cross-cultural business relationships. It was also found that the majority of the respondents interpret trust as reliability, mutual confidence, and honest communication. Comparing these results with the literature on the two major approaches of trust (cf. Kumar, 1996; Doney et al., 1998; Das and Teng, 2004), it can be stated that most of the responding Hungarian negotiators perceive trust from its faith-based view, and only a few of them perceive trust from its risk-based view. This result is also in accordance with a national characteristic of Hungary, namely strong uncertainty avoidance (cf.

Hofstede, 1991), according to which, taking risks voluntarily, thus perceiving trust this way, is absolutely not a typical trait of Hungarians.

When analysing the determinants of the respondents' trust-level, interesting, but sometimes contradictory results were found (Table 1). On the one hand, different results were found in connection with the most important determinants of trust in general and in cross-cultural business contexts. The findings show that in general previous experience, reliability, and stereotypes affect trust the most. However, when the respondents were invited to talk about the determinants of their trust-level in their cross-cultural business relations, they mentioned different factors. Interestingly, stereotypes were identified as fewer influencing factors, despite they were among the top three determinants of trust in general. Regardless of the differences, these findings are in line with the determinants of trust described by Adler (2001), Thomas et al. (2009) and Peleckis et al. (2015).

On the other hand, slightly different results were found in the two phases of the research regarding the determinants of the respondents' trust-level in cross-cultural business contexts. The respondents of the first phase stated that honest communication between the partners, the duration of the relationship and the frequency of contacts influenced their trust-level the most. However, in the second phase of the research previous experience, honest communication and reliability were found to have the greatest influence. Thus, intriguingly, honest communication is the only determinant that the respondents of the two phases have in common. It is also interesting that although almost one third of the respondents stated that stereotypes did have an impact on their trust-level to some extent, they did not mention them among the three most important determinants. Nevertheless, these findings suggest that the determinants of trust mostly include factors related to the relationship. These results also show that, in contrast with the assumption of the paper, it is not the stereotypes that affect the trust-level of the responding Hungarian negotiators the most. Therefore, the assumption is rejected. Yet, it must be mentioned that even though they are not the most influencing factors, their relevance is unquestionable since a significant number of the respondents attach importance to them. All in all, it can be concluded that in cross-cultural business contexts the determinants of trust mostly include factors related to the relationship. These results support the previous research findings of both Gesteland (2005) and Szepesi et al. (2009), who found that Hungarians are relationship-oriented, which means that good personal relations are the key for building trust and successful relationships. All these confirm the idea of several researchers (e.g. Hofstede, 1991; Aulakh and Kotabe, 1996; Doney et al., 1998; Finuras, 2019), namely that trust in business relations correlates with national culture.

	Determinants of trust in general	Determinants of trust in cross-cultural business contexts	Factors decreasing trust in cross-cultural business contexts
Respondents of the first research phase (N=124)	-	honest communication between the partners the duration of the relationship the frequency of contacts	-
Respondents of the second research phase (N=33)	previous experience reliability stereotypes	previous experience honest communication reliability	previous negative experience improper communication negative stereotypes

Table 1. *The most important determinants of Hungarian negotiators' trust-level*

The paper also investigated which factors decrease the level of trust to highlight the possible consequences of the low level of trust (Table 1). It turned out that previous negative experience, improper communication, and stereotypes (obviously negative ones) influence the trust-level of the respondents in the most negative way. These results suggest that the possible outcomes of the low trust-level include, first of all, more regulated relationships to avoid additional negative experience as well as uncertain and feared situations. Secondly, another potential outcome is the growing number of misunderstandings as a result of inappropriate communication, which results in more protective communication. This coincides with the research findings of Covey (2006). Finally, due to negative stereotypes, even changed behaviour

and attitude towards the foreign business partner may occur. In conclusion, it can be stated that the factors decreasing trust-level the most are also related somewhat to the relationship. Interestingly, stereotypes are among the top three contributors to low trust-level, despite they are not among the top three determinants of trust in cross-cultural business relations, according to the respondents. These findings lead to the conclusion that the respondents are influenced to some extent by stereotypes, whether they admit it or not. These results correspond to the research findings of Peleckis et al. (2015), who state that stereotypes do affect trust.

Based on the research findings, it can be concluded that it is the factors related to the relationship itself that have the greatest influence on the trust-level of the responding Hungarian negotiators. Nevertheless, stereotypes are of importance, as well. Therefore, on the one hand, it is recommended that, as Tompos (2014) states, Hungarian business professionals should know and use stereotypes accurately to understand the different perspectives of the foreign partner. This could help avoid a decrease in the level of trust and reach business success. On the other hand, it is suggested for those foreigners who do business with Hungarians that they should be aware of the fact that stereotypes sometimes affect their Hungarian partners' attitude, so they should act upon with this end in view. Furthermore, both the Hungarian and the foreign business actors are recommended to keep in mind that trust is a mutual concept, thus everyone should be trustworthy, communicate honestly, and try to avoid mistakes in order to have successful and lasting business relationships.

Limitations and direction for future research

This paper, of course, is not without any limitations. First of all, the review of literature has been limited to only those sources which are closely related to the present topic. Therefore, it is believed that future works should include more sources with diverse aspects. The inclusion of sources with other viewpoints would shed more light on the factors influencing trust-level other than those discussed in the present paper. Secondly, the quantitative survey, by being online and self-administered, and the convenience sampling together resulted in a low number of respondents, which did not allow for drawing general conclusions referring to the population. Even though no other sampling method seemed to be appropriate due to the willingness of individuals to take part in surveys, future works should try to apply another method to increase the sample size. The same applies to the qualitative research, i.e. the number of interviewees should be increased to get a broader picture about the determinants of trust. Lastly, for the purposes of the present paper, descriptive statistics were used by means of linear regression, however, in the future multivariate regression analysis should be conducted to investigate the correlations between the variables and to be able to study the concept of trust in a deeper and broader aspect. This leads us to one of the future directions of the research, i.e. to carry out multivariate regression analysis. Another direction should focus on the differences in trust-level related to the country of origin of the foreign business partner. In connection with that the research should investigate, on the one hand, whether Hungarians trust some nations, cultures easier or better than others, and if yes, what is the reason for this. On the other hand, it may as well be investigated whether trust-level is influenced by different factors depending on the partner's country of origin.

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Interaction of crisis leadership & corporate reputation

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Keywords

Crisis, leadership, corporate reputation, stakeholders

Abstract

Effective leadership in dealing with a crisis is of critical importance since crisis situations often put companies or organizations at high risks threatening their reputation, stability & survival. Considering that a crisis can present itself in a number of different ways, as well as there are multiple factors that affect individual leadership styles, a leader must be able to distinguish between these ways and adapt the right style and behaviours accordingly. This paper, through a critical literature review methodology, explores 'how' leadership underpins corporate reputation in a crisis situation reviewing also the key factors influencing leadership effectiveness in such stressful situations. The study concludes that the leadership role is important in supporting the corporate reputation in a crisis situation and suggests that practitioners must comprehend different dimensions of crisis that affect leadership styles, allowing for effective management of the situation. Additionally, the study emphasizes that different preparations, precautions, and adaptations must be considered before choosing a leadership style to effectively navigate the organisation through crisis. The study confirms that a good reputation helps corporations to gain the trust of consumers and reduce the losses caused by the crisis, as well as, corporations in crisis should choose appropriate leadership style so that leaders to create a culture that could predict threats and risks.

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1. Introduction

Corporate reputation refers to the degree to which an enterprise is trusted and praised by the public, as well as the degree to which the enterprise affects the public (Barnett, Jermier and Lafferty, 2006). The development of media facilitates the value of each enterprise to become known by the public (Aula, 2010). With a high degree of transparent oversight, corporate reputation management glitches are more likely to be amplified (Dijkmans, Kerkhof and Beukeboom, 2015). Once the reputation of the enterprise is lost, it means that the crisis of the enterprise is triggered. Cravens, Goad Oliver and Ramamoorti (2003) claimed that better leadership can change people's perception of the negative image of the organization. When an enterprise is in crisis, a strong leadership can help the enterprise gradually recover the lost reputation and regain the trust of stakeholders (Jin and Yeo, 2011). Therefore, leadership is about leaders building bridges between the company and society through their own efforts (Ilies, Morgeson and Nahrgang, 2005). Under the influence of excellent leadership, leaders can encourage employees to achieve organizational goals, make enterprises pay attention to reputation risk, and motivate the whole organization to protect company's reputation in the case of crisis (Avolio and Gardner, 2005).

Fombrun (2012) introduced that corporate reputation is a collective assessment of a company's attractiveness to a specific group of stakeholders as opposed to a reference group of companies with which the company competes for resources. Corporate reputation is a vital intangible asset as well as a significant long-term strategic goal of a company (Dowling, 1993). Roberts & Dowling (2002) believe that high reputation can bring huge profits to the company. In addition, these profits together with the company's potential value will continue to grow over time. In general, high reputation contributes to the company from the following aspects: 1) optimizing shareholder value, 2) attracting customers and high-quality employees, 3) increasing businesses during the upswings of the market, and 4) protecting

businesses during the economic recession. Therefore, high corporate reputation becomes particularly crucial to the survival and development of a company. Patrick, Adeosun and Ganiyu (2013) pointed out that corporate reputation is an intangible strategic asset of a company. Companies are usually seeking effective reputational risk management (RRM) methods for management aiming to protect and enhance corporate reputation (Burke, 2003). Unerman (2008) points out that good performance of corporate social responsibility can effectively reduce reputational risk. Mahon (2002) believes that a good corporate reputation and reputation risk management are competitive advantages, a good corporate reputation will make suppliers and partners more willing to strengthen cooperation with the enterprise.

1.1 Methodology

The present study applies a critical literature review approach. By integrating findings and perspectives from many empirical findings, a literature review can address research questions with a power that no single study has. It can also help to provide an overview of areas in which the research is disparate and interdisciplinary. n, a literature review is an excellent way of synthesizing research findings to show evidence on a meta-level and to uncover areas in which more research is needed, which is a critical component of creating theoretical frameworks and building conceptual models.

2. A brief examination of factors affecting corporate reputation

Factors which influence corporate reputation include leadership and stakeholders (Stavrinoudis and Chrysanthopoulou, 2017; Moleleki, 2011; Matuleviciene and Stravinskiene, 2015). Among them, leadership, as a significant factor affecting corporate reputation, is reflected in the annual survey of most corporate reputation measurement tools (such as AMAC of reputation merchants and wealth companies), which highlights the importance of leadership (Fombrun, Gardberg and Sever, 2000). Senior managers and employees are the most important factors that determine strategic decisions and organizational results. They decide to promote or defend their corporate reputation and act as the defender and supporter of corporate reputation (Helm, 2011). And in many cases, a leader's effectiveness seems to be synonymous with reputation, rather than any objective measure. Maintaining and developing a company's reputation is a leader's primary concern (Stavrinoudis and Chrysanthopoulou, 2017). Some of the world's most famous companies have high-profile, acclaimed leaders; In contrast, in recent years, other companies have also fallen into difficulties due to a leader's mismanagement during the crisis (Knight, 2017). Stakeholders are also important. Firms that are appreciated by stakeholders can gain a higher corporate reputation. And the larger stakeholders identify with the brand and the estimated firm leads to a higher corporate reputation. Because stakeholders can directly affect a company's image, reputation, and revenue through decisions, boycotts, mild retaliation, income taxes, and resource constraints. Therefore, stakeholders can indirectly influence corporate reputation through the relationship between stakeholders and enterprises. Stakeholders unconsciously form corporate reputations to a certain extent (Matuleviciene and Stravinskiene, 2015). Finally, if companies ignore the legislative changes related to the environment, they may damage their reputation and lose business, and there are many other legislative drivers that may damage the company's image (Moleleki, 2011).

2.1 Compliance with the law and corporate reputation

Compliance with the law is the foundation of the company's ethical behavior. If a company wants to establish a good corporate reputation, it must comply with laws and regulations, including international rules and contracts, laws and regulations and regulatory requirements in the country where the company is headquartered and where it operates. Enterprises should integrate compliance with laws and regulations into their corporate culture. When corporate culture emphasizes integrity and integrity, and the board of directors and senior management set an example, legal and reasonable operations can be effectively implemented. Enterprises should examine whether they have established a good legal management culture and a suitable environment to make full preparations for the implementation of legal management. An enterprise's compliance with laws and regulations can not only effectively reduce the risk of violations, but also in the long run, it will help improve the reputation of the company and reduce the negative reports of the news media to gain consumer trust. The purpose of a corporation is to maximize its shareholders' returns and to ensure that compliance with the laws of the jurisdictions in which it operates constitutes socially responsible conduct. (Friedman, 1970)

2.2 Stakeholders & Corporate Reputation

Corporate reputation is affected by many factors, among which stakeholders are important factors affecting corporate reputation, and leaders need to consider the needs of different stakeholders in order to have a better corporate reputation. Effective communication between leaders and stakeholders contribute to the management of corporate reputation (Helm, 2007). Social public satisfaction affects corporate reputation. Companies with high stakeholder satisfaction usually achieve higher corporate social performance (Neville, Bell and Mengüç, 2005). Timberland brand pays attention to customer satisfaction. Each product comes with a notification of customers' impact on the environment and the community. It gives consumers sufficient right to know and make decisions, which enhances the influence of the Timberland brand and ultimately makes Timberland shoes deeply affected. Volkswagen's favorite, and thus higher profits (Gillentine, 2006). Improving corporate employee welfare will enhance corporate reputation, which will allow the company to have good financial performance (Contini et al., 2019). In recent years, Huawei the company's market share has steadily increased, which is closely related to Huawei's strategy of adopting high employee benefits and sharing sufficient revenue for employees. Reasonable measures have made Huawei have a better corporate reputation. As a result, Huawei employees are willing to work longer independently and are full of passion while working, which ultimately brings good earnings performance to the company (Zhu et al., 2013). When a major crisis comes, stakeholders will have greater tolerance and tolerance for the company, which also provides companies with time to prepare for the crisis.

2.3 Corporate Social Responsibility & Corporate Reputation

Corporate social responsibility means that enterprises need to take responsibility for improving society, environment, and operation (Moir, 2001). And corporate social responsibility has a positive effect on corporate reputation (Schnietz and Epstein, 2005). When an enterprise's reputation is in crisis, the good corporate social responsibility maintained by the enterprise can play a positive role in the repair process (Adams, 2008). So, in the wake of the Volkswagen scandal, the leadership has maintained its previous strategy of sustainable development and green energy (Horn et al., 2015). When an enterprise has strong leadership, it can not only help the enterprise to tide over the difficulties, but also prevent another major crisis (Zhu, Sun, and Leung, 2013).

Corporate social responsibility activities for customers to buy what kind of product or service plays a very important role (Šontaitė - Petkevičienė, 2015). According to Castaldo et al. (2009), some reports indicate that customers are affected by the organization's CSR activities. In addition, Park, Lee, and Kim (2014) argue that ethical and philanthropic CSR practices may create and cultivate clients' beliefs that organizations adhere to high ethical standards and care about the well-being of society. Therefore, Lamberti and Lettieri (2009) believe that if customers realize the moral meaning of organizational behavior, they will ensure that the organization will follow certain quality standards and maintain or improve its corporate reputation. Corporate social responsibility has become one of the significant factors that affect corporate reputation. Corporate social responsibility has become the top managers in the enterprise reputation building one of the most important business case (Šontaitė - Petkevičienė, 2015). When corporate executives generally have high ethical leadership, corporate reputation will also be correspondingly improved with the improvement of CSR, so that companies will have a stronger ability to resist crisis. Groves and LaRocca (2011) pointed out that transactional leadership and transformational leadership often have different ethical values, which will lead to different CSR measures for companies. Hsu (2012) proposed that corporate social responsibility is increasingly important for companies in today's society. Hall et al (2015) pointed out that when a company with close social relations does not implement an appropriate corporate social responsibility strategy, the company's reputation will be affected, which will cause the company to fall into crisis. In 2009, two employees of the domino brand posted a video of the company preparing a pizza in an unsanitary manner on YouTube. This is a crisis caused by the company's failure to perform a good CSR, and the Domino Company only responded to this situation two days later. In response, consumers' perceptions of the Domino brand at this time were already very poor. This is a crisis caused by the company's failure to perform a good CSR, and Domino responded to this situation two days later, at this time consumers have a very bad impression of the

Domino brand. This puts the company in a huge crisis (Young and Flowers, 2012). In addition, Schnietz and Epstein (2005) pointed out that companies that actively undertake CSR will be less affected in times of crisis. A company with a higher CSR reputation has a stronger ability to resist the crisis (Lins et al., 2017). This means that if a company handles the crisis from the perspective of a stakeholder, then the company with a higher CSR Companies can profit in a crisis. The case of Johnson & Johnson's Tylenol is a good example. In 1982, someone died of taking a drug from Johnson & Johnson. Johnson & Johnson did not conceal information about 100,000 parts of the drug containing toxic substances, notified consumers across the country and recalled all medicine. After half a year, the company reoccupied most of the market for this medicine, and built a better corporate reputation, and later achieved better profit performance (Benson, 1988). In general, corporate CSR commitment is conducive to enhancing corporate reputation and has important value for corporate reputation in crisis (Schnietz and Epstein, 2005).

3. Leadership & Crisis Management

Every organisation aims to have a sustainable leadership system to best equip them to cope with crisis situations; crisis events are characterised by their unexpected and harmful nature. To be effective, leaders must prepare response strategies in an organised manner to remedy the issue as quickly and efficiently as possible (Bundy, et al., 2017). There are three main stages involved in leading in crisis: crisis prevention, crisis management and post crisis evaluation (Bundy, et al., 2017): Organisations view crisis from two distinct perspectives: internally, focussing on the internal dynamics of the organisation to manage the threat, complexity and technology required in crisis, and externally, considering the external environment and stakeholders and their impact and considerations in difficult periods (Bundy, et al., 2017). There are however distinguished commonalities between these perspectives that enable leaders to synthesise both into one single perspective, allowing them to approach the issue as one whole matter. For instance, leaders can identify constraints, such as internal social and behavioural concerns, that may hinder their relationship with external stakeholders (Bundy, et al., 2017). No organisation is always truly prepared for crisis; however, some do have a unique capability to soften the blow through training and preparation. Businesses should look to have dedicated training explaining to subordinates what to expect during crisis and what methods and actions are likely to be required to deal with it (Glodziński & Marciniak, 2016). Publicly available specification for leaders during crisis (PAS: 200:2011) describes a structure highlighting four key demands of effectiveness that can be adopted by organisations in crisis management (Hamidovic, 2012):

- Psychological demand, which involves the capability of inspecting situations, defining strategies, regulating choices, forming opinions and classifying their impacts,
- Organisational demand, which consider the structures and methods required to convert decisions into reality and inspect their effects,
- Cultural demand, which involves the inner capability of employees to share decisions and assist their superiors in taking action and realising goals,
- Logistical demand, which involves the capability of making the correct decision at the right time.

3.1 Leadership Styles Before Crisis

Schnietz et al (2005) claim that companies with a high corporate reputation have stronger ability to resist crisis, enterprises will suffer less losses in the crisis, and their leaders' decisions in the crisis will be more easily accepted by the public. Leader's power is the key to a company's crisis resolution while leadership is abstract and uncontrolled. The effectiveness of crisis management and corporate reputation depend on strong leadership. Therefore, the strength of leadership directly affects the success or failure of a company in a crisis. Many scholars analyse leadership styles in three different stages of crisis: before, during and after. Crisis leadership is significant as there are many factors affecting it, including irregularity of situations and cost entailed (Prewitt, et al., 2011). Irresponsible crisis leadership can put the organisation at risk; in order to avoid this, leaders must analyse the implications of different styles and comprehend crisis theory so that they can anticipate unexpected situations whenever they may arise in the future (Prewitt, et al., 2011).

Generally, there is a lifecycle for any crisis, with each point requiring different strategies in order to lead the organisation to survival; a crisis lifecycle begins with a preparation phase, requiring training, information absorption, external environment forecasting and a deep understanding of all anticipated threats to minimise the risk and impact of unforeseen circumstances (Prewitt, et al., 2011). An

understanding can be gained through a number of different ways: leaders can determine how prepared the organisation is to respond to the crisis, and what precautions can be taken, as well as what styles to adopt to best coach subordinates through the period of difficulty (Ucelli, 2002). Furthermore, communication can be made clearer by designing strategic programmes and implementing suitable communication protocols before crisis (Ucelli, 2002). The emergency phase, where the crisis occurs, requires timely and specific implementation of theories, tools and strategies learned in the preparation phase, while the final phase (adaptive steady-state) includes a revision of what has been accomplished during the crisis, what losses have been incurred and lessons that must be understood before a new crisis lifecycle takes over. (Fener & Cevik, 2015).

Crisis management describes how leaders plan for crisis, and the key aims are listed (Cener, 2007, as cited in Fener & Cevik, 2015): 1) To recognise major crisis events that may affect decision making, and provide information about the crisis process, 2) To allow leaders to identify crisis, and assess its impacts, 3) To establish methods for dealing with and navigating out of crisis, 4) To provide leaders with skills for leading in crisis. In pre-crisis management, leaders analyse potential warning signs in an attempt to avert the crisis, and in some cases look to use the situation to their advantage (Fener & Cevik, 2015). Leaders and organisations who account for crisis in their business strategy will have well versed routines to best cope, which their subordinates will be familiar with through regular training, while certain rooms and storage areas will have equipment ready to deal with unforeseen circumstances (Tafra-Vlahovic, 2013). Furthermore, extensive preparation coupled with high initiative and strong internal motivation within organisations can help to prevent crisis and related effects (Yukl, 1994, p. 451).

3.2 Leadership Styles During Crisis

There are multiple lenses through which leadership styles in crisis can be analysed. Crisis can occur for a number of reasons but can begin to manifest itself in an organisation through poor leadership and decision making, such as selling a core part of the business to other companies as they lack resources, time or expertise and are acting impulsively. Consequently, the ability of a leader to react effectively or impose a proper leadership style may be limited (Probst & Raisch, 2005). To effectively deal with crisis, leaders must first recognise signs early, allowing them to understand the situation and formulate a plan of attack (Boin, et al., 2013). Leaders are then responsible for collating available information and quickly making a decision before effectively communicating this to subordinates (Boin, et al., 2013). Communication is imperative throughout, ensuring plans are executed to the highest possible standard, minimising disruption experienced within the organisation (Boin, et al., 2013). Furthermore, in situations where power is shared between more than one leader, communication is key to ensure everyone is moving in the same direction. It is often difficult for leaders to maintain concrete styles in this instance, however Probst & Raisch, (2005), argue that adopting an autocratic leadership style can limit the impact of crisis on the organisation. Small changes where leaders can adapt their style to be innovative and allow for smooth transition between phases in crisis can navigate an organisation out of crisis (Probst & Raisch, 2005).

During crisis, it is imperative that leaders remain composed and can operate effectively under pressure (Yukl, 1994, p. 264). This composure allows them to make considered, rational decisions on how best to lead the organisation so as not to aggravate the crisis situation they are in (Fener & Cevik, 2015). Additionally, they can determine the nature of problems and their causes and take decisive corrective action (Yukl, 1994, p. 80), before clear improvement can be observed (Yukl, 1994, p. 384). Effective leaders have the confidence to take responsibility for their decisions and keep subordinates informed (Yukl, 1994, pp. 99, 101, 448), making their role in recovery clear (Yukl, 1994, p. 296). Adaptation of leadership styles relies on one fundamental approach that drives and controls other styles accordingly: charismatic leadership (Hasan & Rjoub, 2017). During crisis, followers are coached and directed by leaders who have clear vision and communication, and charismatic leaders are more likely to convey messages and instructions in a way subordinates trust and adhere to (Hasan & Rjoub, 2017). Leaders with good charisma have particular behaviours embedded in their personality, not evident in everyone (Jansen, et al., 2009): 1) They can impose an attractive strategy and vision that creates trust among followers, 2) They have the ability to perform unconventional practices in critical times, 3) They have great self confidence that allows them to take risks and responsibility and inspire others. Employees can be further motivated in crisis if the leader is passionate and concentrates on subordinate's success with a positive energy; if

they have integrity and are equipped for any situation; and if they are prepared to contribute and lead through experience and expertise, rather than abusing their position of authority (Jansen, et al., 2009). Some leaders express different emotions that may affect their leadership style in crisis; they may become overwhelmed with fear, anger or sadness. The ability of a leader to control their emotions in responding to crisis is vital, as this can influence subordinate reaction as the brain responds to sender emotions and reacts accordingly (Madera & Smith, 2009).

Leaders may choose to consult experts from outside the company as they can be too emotionally involved in the situation, prolonging the decision-making process, but ensuring a reasonable, unbiased course of action is chosen. If a crisis situation requires immediate response based on sustainable growth, the leader must be able to switch between leadership styles, such as autocratic, participative and charismatic depending on the nature of crisis and their own cognitive ability (Probst & Raisch, 2005). Leaders must ensure that they adopt a leadership style in crisis that does not worsen the situation: not having sufficient resources or knowledge, ignoring potential threats, and making knee-jerk decisions can deepen crisis (Boin, et al., 2013). If an organisation is well balanced in its corporate governance in terms of growth, speed of change, leadership, and culture, leaders will be better placed to choose a suitable leadership style in crisis, recognising warning signs early on in the process, allowing for quicker adaptation and response to the situation (Probst & Raisch, 2005). Hannah, et al., (2009) argue that different leadership styles can have different effects on leaders and followers depending on their relationship and how they are physically separated within the business. For example, if a leader shares the same level of risk and responsibility with subordinates, as seen in military conditions, they will be able to influence the dynamics of the crisis situation, and use follower's behaviour as an advantage, rather than an obstacle (Hannah, et al., 2009). Another factor that determines leadership style is the location and magnitude of the crisis. Large-scale, immediate danger requires instant, decisive action and the leader does not necessarily have time to analyse different possible strategies, while the location impacts who may be involved and other cost implications to the organisation (Hannah, et al., 2009).

3.2.1 Factors and Demands Affecting Leadership Styles

Adapting particular leadership styles depends on many factors including (Olafason, 2014): Establishing a strong, empathetic relationship with followers, as followers will tend to express their feelings and respond to orders if the leader has the ability to listen to and establish a connection with them; Having high levels of self-awareness, which will allow the leader to adapt quickly and respond effectively to crisis, as well as allowing them to establish limitations within individual plans; Expressing plans and visions to subordinates through storytelling allows colleagues to fully understand and become more engaged in their work; Building trust with followers' aids leader credibility when acting in crisis as subordinates are less likely to question integrity, intent, capabilities and results

Each of these factors controls the ability of the leader to choose and implement a proper leadership style (Olafason, 2014). Communication and confidence are integral qualities leading in crisis. Should a leader not display these characteristics, they will not be able to reasonably make decisions or delegate tasks under time constraints, or relay information in teambuilding when their business needs reorganising (Van Wart & Kapucu, 2011).

3.3 Leadership Styles After Crisis

Following crisis, managers and leaders must adapt their styles to conform to the new state of the organisation. They must find reasonable solutions to the impacts of the crisis and implement changes and new strategies to improve the standing of the organisation (Fener & Cevik, 2015). Crisis situations can also be a learning curve for leaders, as their experience and knowledge grow from managing the case; their understanding of the crisis and why it occurred can be used to ensure they do not find themselves in a similar state again (Boin, et al., 2013; James & Wooten, 2011). Following the fast-paced, frantic operations during crisis, it is normal for leaders to allow intensity to drop and to revert back to old habits that they are comfortable with. Ashkenas, (2012), argues that to follow a successful and sustainable business model capable of averting crisis situations, it is necessary for leaders and their colleagues to continue to work efficiently with high energy, even in non-crisis situations.

3.3.1 Leadership Style & Corporate Crisis Response

Each leader has a unique leadership style. Different leadership styles can cope with different corporate crises. The right leader can help the company survive the crisis smoothly; otherwise it will bring disastrous consequences for the company. Bowers, Hall and Srinivasan (2017) pointed out that when a company encounters a crisis, it should first analyse the crisis itself, so as to select leaders that match the attributes of the crisis to resolve the current crisis according to the leadership traits. Indicative leadership is the most common leadership of today's enterprises. Indicative leaders have a strong self-confidence in themselves. Jordan-Meier (2012) believes that transactional leadership in US companies after World War II is very common that leaders meet employees' expectations through incentives and punishment. Wofford and Goodwin (1994) pointed out that under this leadership; leaders do not expect to change the existing state. This means that transactional leaders want companies' tasks can be completed according to the systematic and structured model of the enterprise. Because leaders are affected by the corporate system, such leaders will be at a loss for emerging new crises. (Trainor and Velotti, 2013). Transactional leadership is considered by many scholars as a leadership strategy that is good for business development. Yukl (1999) pointed out that transformational leadership guide the change of subordinates through incentives and improve their work performance by stimulating the self-efficacy of the subordinates. Bowers, Hall, and Srinivasan (2017) pointed out that during a crisis, transformational leaders tend to listen to the opinions of subordinates to reach consensus.

3.3.2 The role of Emotional & Ethical Factors on Leadership.

The complexity of business management makes leaders often work under high pressure and need to respond quickly to tasks when information is scarce (Collins and Jackson, 2015). Different emotions generated under high pressure will affect the efficiency of decision-making. Madera and Smith (2009) point out emotional factors can have a certain effect on leadership. Negative emotional factors such as anger, frustration, and destructive leadership can lead to disruptive leadership (Krasikova Green and Lebreton, 2013). Such leaders are prone to harm decisions on corporate reputation. (Spreier, Fontaine and Malloy, 2006). However, not all emotions have a negative impact on leadership. Positive emotions of leaders such as enthusiasm and activities can have a positive effect on leadership. According to research by Sy, Côté and Saavedra (2005), Leader's positive attitude has a positive impact on follower performance and motivates followers. In addition, a transformational leadership are more likely to have a positive influence of emotions and feelings of followers (Footy et al, 2010). Therefore, emotional factors not only affect the generation of leadership, but also affect the moral quality of leaders. The impact of ethical factors on leadership is huge. Today's companies face many unknown risks. Any decision made by corporate managers may affect the reputation of the company. Messick and Bazerman (1996) proposed that decisions without ethical considerations can easily lead to companies' damage to reputation. The 2015 Volkswagen emissions scandal is a good proof of this fact (Siano et al., 2017). In order to increase sales, corporate leadership fraudulently claims that the new system can reduce carbon emissions. Emissions will eventually lead to damage to corporate reputation and company profits. Therefore, when making decisions, corporate managers not only need to consider accurate world system theories, but also need to consider ethical factors in decision making. In addition, corporate culture is subject to ethical leadership Influences increase corporate social responsibility (Too and Ofori, 2009) .This is because managers with ethical leadership influence the ethical behaviour of their subordinates and increase employee dedication (Mayer, Kuenzi and Greenbaum, 2010) .This ethical factor will have different effects on different styles of leadership. Among them, transactional leadership is least affected.

4. Effective Crisis Leadership & Challenges

Obydiennova (2019) pointed out that the crisis is unknown and sudden, so companies should use existing resources, allocate appropriate leadership, and implement effective measures to deal with the crisis, thereby reducing the reputation and assets of the company in the crisis. Yukl (2006) pointed out that when a company encounters a crisis, it should choose the appropriate leadership to deal with the current crisis according to the type of crisis at different stages (Burgess et al 1992) Leaders who can effectively deal with threats can make team members more engaged in work and reduce followers' ability to question decisions. In contrast, current leaders are inconsistent with the leadership style required by the current

corporate crisis. It often leads to a crisis out of control. The result is devastating for businesses (Bowers, Hall, & Srinivasan, 2017). Therefore, a more detailed analysis of the advantages and disadvantages of different leadership and the factors affecting leadership is required. Bruce and Luthans (2009) pointed out that according to leadership-related traits, leadership can be divided into transactional, transformational, and mentoring. According to the study of different leadership by Bath (2008), transactional leaders can better clarify decision-making goals for followers in the face of stress and corporate crises, while transformative leaders inspire followers by caring about employees. In order to make full use of corporate resources in the event of a corporate crisis, Rajah, Song and Arvey (2011) also studied the factors affecting leadership. They found that emotions have many effects on leadership, and they also affect their Followers have different influences. In addition to emotional factors, Zhu et al (2011) found that moral factors are also the main factors affecting leadership; Morality not only affects guiding power, but also affects the morals and price of followers. In addition, the effectiveness of crisis management as a leader's response to corporate crises is directly affected by leadership (Melissa, 2017). According to the research by Maldonado and Dusya (2014) effective crisis management can help companies protect their reputation during crises. At the same time, corporate reputation is also affected by CSR. Hall et al (2015) pointed out that companies need to implement appropriate corporate social responsibility strategies; otherwise their reputation will be affected. According to the research of Tom (2018), the corporate image in the mind of stakeholders also affects the reputation of the company, and companies which focus on stakeholders usually get better corporate reputation.

Another challenge for effective leadership is the context and nature of a crisis. Feam-Banks (1996) defines a crisis as a major event that happens with a potentially negative outcome and affects both an organization and its stakeholders. The Chinese character for "crisis" is a combination of the two characters "danger" and "opportunity". Coincidentally, Brumfield (2012) believes that crisis is not necessarily a negative experience for all organizations. With proper planning and preparation, as well as the in-advance identification of potential problems, companies can take advantage of the crisis to gain benefits. Nevertheless, which of the "danger" and "opportunity" dominates often depends on the attitude of the leader. For this reason, Jaques (2012) highlights crisis leadership to be an important component of crisis management academics. Schoenberg (2005) also describes crisis leadership as one of the most important but least studied factors in crisis management. Furthermore, Davies and Chun (2009) point out that leaders play a central role in reputation management of a company. Leaders can personify the company into various stakeholders. The personalities of leaders have an influence on the corporate culture. In case of a crisis, internal and external stakeholders may insist that leaders assume important roles. For example, leaders' responses to crises may be closely correlated with company reputation (Cohen, 2004). FIFA's failure to restore its reputation in time for bribery elections is a typical example. Microsoft's reputation among consumers has gradually increased after the timely replacement of leaders. Therefore, only principle-based organizations with effective leadership and preparation can help a company survive from the crisis and even stand up from the storm. A crisis is an unstable time or state of affairs & any business leader who can foresee and plan the turning point of the company is more likely to take advantage of this opportunity (Heller and Darling, 2012). Effective crisis management is conducive to promoting competition for enterprises. Ineffective crisis response can lead to competitive disadvantage and even endanger the survival of the enterprise. However, some leaders who are perceived as far-sighted, strategic, and disciplined have muddled through crises, often at great risk to their careers and the future of their companies. Leaders who mishandle the early stages of a crisis often act in such ways preventing the company from using resources early enough to control its own destiny. The four common mistakes leaders make are: 1) Ignore the problem: management doesn't seem to be aware of the real crisis; 2) Provide misleading information: management provides misleading statements of truth, thereby prompting an opponent or whistle-blower to reveal the whole story; 3). Claim situations against the reality: often the management deliberately lies in order to deceive; 4). Shift the blame to others: often the management tries to shift the focus from itself to others instead of taking meaningful steps to solve the problem (Fred Garcia, 2006).

5. What is required to take place?

5.1 Leadership Needs to Face Challenges in Crisis

Usually, crises are sudden and unpredictable. Therefore, leaders in a crisis face various challenges. Meriwether, Gordon (2018) believes that leadership needs in crisis are quite different from those in normal situations. Leaders in crisis usually need to face the following problems: First, in a corporate crisis, the decisions made by leaders may be insufficiently comprehensive due to internal and external pressures, resulting in unpredictable consequences. Second, time pressure is also the main factor influencing leadership. Leaders need to control the corporate crisis within the shortest period of time. This not only requires the leader to have the ability to respond to the crisis quickly, but also the leader to have the ability to organize the work. Finally, the public opinion pressure is also a factor that affects leadership. Leaders' decisions that fail to meet the expectations of the general public may have a disastrous impact on corporate reputation. Gwyther Matthew (2015) believes that leaders need to avoid problems that lack public trust. This will effectively prevent the company from suffering losses. In fact, the case of Hurricane Gudrum is a typical negative example. After the onset of the hurricane, the public was not informed of the progress of the repair work in real time, and at the same time spent a lot of time on planning instead of actions, which caused them to lose the trust from the public and the company's corporate reputation received a huge loss (Erik H Schlie, 2006). As a result, companies need to consider the Leadership Traits of leaders and other factors that affect leadership, such as emotions and ethics, when they resolve crises.

5.2 Strong Crisis Leadership

Strong crisis leadership makes everything different, which can be proved by many historical and contemporary examples. There are generally three approaches to crisis resolution: anticipation, prevention, and mitigation. As argued by Caroline (2019), business leaders able to leverage these skills are more likely to achieve long-term success even in the most unfavourable situations.

Anticipation: Although not all crises are foreseeable, some crises are predictable. (Boin, Kuipers & Overdijk, 2014). Leaders can identify Potential crisis as early as possible by establishing mechanisms to identify the crises (Penrose, 2000). In order to effectively identify potential crises and improve the responsiveness and ability to respond to crises, leaders can establish a policy framework for organizing actions. (Penrose, 2000). The classification of effective crises can help leaders to directly judge potential crises and quickly enter the crisis response stage. There are four criteria for effective crisis classification a) the crisis categories are independent of each other and have clear criteria for differentiation. b) the definition of different types of crises should be comprehensive and detailed, giving leaders a broad and deep understanding of the crisis. Provide more theoretical support for the decision-making of leaders. c) The third crisis classification should help leaders to prevent and understand how to deal with potential crises. d) classification should be practical. The number of types of crisis should be reasonable to facilitate decision-makers (James, Wooten, Pushek, 2011).

The crisis is classified into 16 matrices (Burnet 2016 as cited in Penrose, 2000). The factors influencing these matrices include threat level, degree of control, time pressure, and response options. The level of crisis classification is determined by these four factors. For example, a crisis with a medium threat level, a high degree of control, and small-time pressure are classified as a three-level crisis, which including three influencing factors (Penrose, 2000). Also, the team is critical to a good plan. Team-oriented organizations can better manage crises than organizations that are personally oriented in crisis preparedness. (Pearson et al., 1997). Interpersonal conflicts, ineffective decisions can hinder the effectiveness of crisis management (King, 2002).

Leaders can select and train company spokespersons to identify key audiences and key information by establishing communication protocols. Identify the most appropriate communication method to develop a communication strategy before a crisis occurs (Bernstein, 2004). The communication strategy should explain everything about the crisis (Boin, Kuipers & Overdijk, 2014). The communication strategy should also include how to identify confidential information and regulate the access rights of on-site media for employees at all levels of the company (Carole, 1990). Pre-set crisis communication plan templates, and coordination of procedures with other relevant departments, designate spokespersons and list emergency contacts for the team and other relevant agencies. Should take place (Seeger, 2006). The

ability of leaders and their teams to communicate the company's vision has a growing impact on corporate reputation. (Knight, 2017).

Prevention: A crisis may affect not only the internal environment of the company like employees but also the external factors, such as the reputation and stakeholders of an organization (Granville King, III, 2000). Building an effective crisis management mechanism is a requisite plan for any firm to protect an organization and its stakeholders from threats and leaders should perform with sensemaking and perception skills (Walsh, 1995; Weick, 1988). As has been claimed by Dutton & Jackson (1987) and Wooten & James (2004). Crisis management, can be divided into five phases (Lynn Perry Wooten Erika Hayes James, 2008):

- Signal detection phase : includes two-parts; one is sense-making, the leader may need to think the reasons of the event, the means of the event, also the things that should relate to it, meanwhile, the leader should not only sense an individual event but also notice about things that seem unrelated (Weick et al. 2005); also to be explored what kinds of perspectives should the leader take to analyze the crisis. (Brockner and James, 2008).
- Prevention/preparation phase: There are three main ideas that should be considered for a crisis. Firstly, is the selling issue, in this stage, executives should engage in the processes and objectives of selling issues as it may influence the set or change the developing direction of a company (Dutton, Ashford, O'Neill, Hayes, & Wierba, 1997). The second point is the agility of the organization, thus, it requires the crisis led to some extent understand all aspects of the organization, Next, we need to admit that the creativity competence of firm that use to predict how a firm will be attacked by which kind of crises may benefit for a firm to contain some activities and control damages as well (Lynn Perry Wooten Erika Hayes James, 2008).
- Damage control phase: In the third segment of CM is the damage control stage, how to response the event with proper actions under pressure in time is a core competency to the leader. Brockner and James have claimed in 2008, at the beginning of the crises the leader may realize the crisis as a threat rather than think it as a possible opportunity. Besides, the threatening issues always result in negative emotions, such as anxiety (Smith & Ellsworth, 1985), which will influence the ability of the leader to make a wise decision. Furthermore, the plenty of information of crisis itself also consumes the time of leader, which also increase the difficulty of crisis solving. (Coombs, 1995; James & Wooten, 2006).
- Recovery phase: the need to obtain the trust of stakeholders again is a vital mission for the leader, and the ability to take actions with integrity that consistent with integrity is the basis for rebuilding the trust (James and Wooten, 2006).
- Learning and reflection: the crises are more likely to be seen as an opportunity instead of treating it as threats when the decision-makers use previous experience and using a learning orientation and develop new rules to alter the operation of the organization (Brockner & James, 2008).

Mitigation: Any stakeholder concerns must be heard and addressed immediately and continuously throughout the crisis. A company's reputation determines its market share and is influenced by its shareholders, customers, and other stakeholders (Šontaitė-Petkevičienė, 2014). However, Coombs (2007) claims that no matter what kind of crisis the company is in, the most important thing is to ensure that stakeholders are free of harm, rather than placing the company's reputation in the first place to be protected. A good corporate reputation is a valuable asset for an enterprise, and an asset that other companies cannot replicate (Hoopes, Madsen, & Walker, 2003). Unlike other valuable resources that are difficult to imitate (human resources and know-how), the competitive advantage that a company's reputation brings to a company is sustainable. Carmeli and Tishler (2004) argue that human capital, management capabilities, and corporate credibility can be of great help to companies' performance and are indispensable. Cravens (2006) also believe that corporate reputation is not generated by regulations but is the result of the joint efforts of corporate leaders and employees. Jackson (2004) believes that reputation is not only brought about by business leaders and corporate employees but includes a large number of members such as consumers, corporate investors, corporate employees, stakeholders, and the general public.

After the crisis, public relations mainly correspond to the 5S principles :

- *Shoulder the matter:* After the crisis occurs, the public will often relate to two issues, the issue of interests and emotional issues. Interests are the focus of public concern. Business leaders need to stand in the position of victims, apologize to the public through the news media, and win public forgiveness.
- *Sincerity:* When the enterprise is in the crisis of public opinion, every move of the enterprise will pay more attention to,

enterprise leaders must not have lucky mentality, trying to pass the test. • *Speed*: At that time, the spread of social information was extremely fast. After the crisis, various rumors could easily flood the Internet. Business leaders must react quickly and communicate with the media to prevent the situation from escalating and expanding. • *System*: After the crisis, corporate leaders must remain calm and reduce the psychological pressure on employees, and at the same time, the corporate leadership must develop a unified solution. After the plan is formulated, a public relations team should be established immediately to implement the plan quickly. At the same time, the public relations team must have efficient execution to ensure that the crisis can be completely resolved. • *Standards*: After the crisis, companies often lack the credibility to justify themselves. Business leaders need to invite influential people or organizations to justify themselves, eliminate public relations suspicions, and regain public trust. As Fombrun (1996) and Bromley (2002) have found that corporate credibility is a collective assessment of a company's past behaviour and outcomes, not only that, corporate credibility also represents other value outcomes that are provided to various stakeholder groups ability. Crisis is inevitable in the life cycle of any organization. In a crisis, only active monitoring and listening, and strategically balancing communication with traditional and social media are the right approach.

6. Conclusion

Crises often become inevitable situations for any individual company, regardless of its size and its reputation. To ensure resilience to crisis, leaders are required to create a culture & develop mechanism that can facilitate the prediction of threats and risks, assist quick and effective responsiveness in an honest way when threats appear. This assists companies to minimize the extent of losses during & after a crisis and above all to prevent the occurrence of a reputational damage. The requirements for a results-oriented leadership are especially demanding in a crisis and post crisis period of time. Though companies are incapable of comprehensive preparation for crises, they can put in place various scientific management processes, to incorporate crisis management practices into operations and to integrate potential risks and vulnerability assessments into the process of strategic debate and planning. The restoration of corporate reputation is among the most significant issues that has to be prioritized by corporate leaders but also to be acknowledged the possible opportunities that may arise. In his way, the post-crisis recovery may be considered as an opportunity for changes & improvements and once again the role of corporate leaders is important. Therefore, effective leadership can end up turning a crisis into another opportunity.

6.1 Limitations

There are some limitations regarding the present study; specifically, here mainly literature review is applied as main methodological approach whereas an empirical study through distribution of questionnaires in organizations experiencing stressful situations and risk of damage of corporate reputation could add value or/and enhance our findings. Also, the perspective of the research context could be enhanced examining the influence of specific factors such as corporate culture, organizational climate, market characteristics and other on leadership approach dealing with a crisis as well as how corporate reputation may also influence leadership style in a stressful situation.

6.2 Recommendations/Implications

The implications of the present study regard the fact that effective leadership in a crisis situation is critical for the corporate reputation which can be easily ruined if mistakes take place or/and influential factors are not considered. There is pre-crisis, during crisis, and post-crisis challenges and obstacles that influence leadership effectiveness and consequently organizational reputation. Employees, stakeholders, mechanisms (risk avoidance, mitigation & prevention) should be considered in order such situations to be addressed. Leaders are those who contribute to corporate culture development and facilitate mechanisms to be adopted; it is important to be proactive than reactive protecting organizational value and reputation.

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Saudi Aramco's IPO: The motivational factors involved in the purchase of Saudi Aramco shares

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Keywords

Financial Behavior, Aramco's IPO, Financial Literacy, Financial Self-efficacy, Patriotism, Environmental Concerns.

Abstract:

This study investigates the main reasons behind the purchase of Aramco shares. It examines whether the following financial variables: financial literacy, financial self-efficacy, financial behavior and financial perceived value influence the attitude towards Saudi Aramco's IPO. Other variables dealing with environmental concerns and patriotism perception were added to this analysis, making it one of the pioneer studies in this field. A primary data collection through a survey questionnaire and structural equation modeling (SPSS-AMOS-26) were followed to study our research hypotheses. Our findings highlight a significant relationship between patriotism level, environmental concerns and attitude towards Saudi Aramco's IPO, which may encourage financial institutions to slot this investors' psychosocial side in their marketing strategy, making environment sustainability a part of their corporate identity. Our study will also open the way for further investigation on the role played by these variables on financial decision making and to what extent a financial organization can use them to enhance its performance and gain investors' attention.

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1. Introduction

For the first time on December 11, 2019, Aramco, the Saudi Arabian Oil Company traded 1.5% of its shares on Tadawul (Saudi Arabia's stock exchange) in its initial public offering (IPO) at a price of 32 Saudi Arabian riyals (SAR) valuing ARAMCO at \$1.7 trillion, making it the most valuable company in the world. It is believed to be the largest IPO ever (\$25.6 billion) surpassing China's Alibaba (\$25 billion) (Gross, 2019). Aramco is the country's biggest and world's most profitable company; individual investors have been excitedly waiting for its IPO and rightly so. Stock market investments are increasingly becoming popular and attractive among households across the world; Saudi Arabia is not an exception. Saudi ARAMCO claims to enjoy a nation-wide reputation for reliability. Also, in accordance with the country's Vision 2030 and United Nation's Sustainable Development Goals (SDGs), the company claims to be actively working towards sustainable and profitable growth, which may increase its attractiveness in the stock market. With the revenue generated from the IPO, ARAMCO intends to expand and diversify its businesses and gain global recognition as a leader in the global energy sector, while keeping its carbon footprint in check, leveraging technology and innovation and creating value for all stakeholders.

There are many factors that play a role in an individual's investment decisions. In this study, we will be largely focusing on the effect of Saudi Consumers' (investors') financial literacy, financial self-efficacy, perceived value of Aramco's shares on their financial behavior; and the influence of financial behavior on attitude towards Aramco's IPO (shares). We will also study the potential effects of patriotism and environmental concerns on individuals' attitude towards Aramco's IPO because investor thoughts, emotions and actions are found reasonable to account for in investment decisions (Loewenstein, 2000).

Though previous studies on the impact of financial literacy and financial self-efficacy on financial behavior have shown significant relationship (Herawati *et al*, 2018), it will be interesting to investigate the consumers' (investors') perceived value of Aramco shares on the financial behavior. A sound and informed financial decision, taking into consideration value-for-money, ultimately results in individuals' financial wellbeing. Ecological and pro-environmental behavior is gaining academic attention day by day. Hence, it only makes sense to include individuals' environmental concerns as one of the factors that may have an effect on individuals' attitude towards Aramco IPO. Aramco is Saudi Arabia's (World's largest exporter of oil) largest company and is regarded as a national treasure, so it has a patriotic flavor to it. Therefore, it was eminent to study the influence of patriotic feelings on individuals' attitude towards Aramco's IPO.

2. Literature Review

2.1. Financial Literacy

Financial literacy is defined by International Network on Financial Education (INFE) as "A combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing". It can also be defined as the individual's ability to seek and evaluate relevant information and make decisions with the knowledge of the financial consequences of that decision (Mason & Wilson, 2000). Looking at these definitions, one can say that financial literacy is not only a measure of financial knowledge, but also a set of required skills as well as use of these skills to act accordingly. High financial literacy is linked to avoiding costly debt and increasing levels of saving and investing. While as, those with lower levels of financial literacy, frequently end up in financial stress (Grable & Rabbani, 2020). In line with this, de Bassa (2013) states that financial literacy causes the changes in financial behaviors that are important for individual's financial well-being. Also, when it comes to financial literacy and stock market participation; Van Rooij *et al.* (2011) show that lack of financial literacy significantly prevents individuals to invest in stock markets. Although financial literacy may be an indicator of financial behaviors or outcomes, it does not necessarily imply that individuals will behave in that particular way. There are other factors as well that come into play when it comes to nature of individual decisions such as behavioral/cognitive biases, self-control problems, family, peer, economic, community and institutional influences (Houston, 2010).

2.2. Financial Self-efficacy

Bandura (1977, 1993), who proposed the concept of self-efficacy, defines it as, "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives." Therefore, financial self-efficacy can be defined as people's belief in their abilities to execute certain behaviors that are necessary to attain a specific financial goal. In other words, financial self-efficacy is the confidence that one exuberates and the subsequent actions one takes while making financial decisions. There is empirical evidence that shows that financial self-efficacy has a positive relation with the financial behavior.

Farrell *et al.* (2016) in their study on Australian women's personal finance behavior state that women with higher financial self-efficacy - that is, with greater self-assuredness in their financial management capacities are more likely to hold investment and savings products. Furthermore, a study conducted by Herawati *et al.* (2018) indicates that financial self-efficacy has a direct effect on financial behavior.

2.3. Consumer Perceived Value

Perceived Value has been defined by Zeithaml (1988) as a "consumer's overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given." Similar to this definition is the one presented by Gale (1994) wherein he suggests that perceived value of a product or a service is its perceived quality with respect to its price. These definitions are based on value-for-money concept. Previously, perceived value was seen as a one-dimensional concept; however, following Sweeney and Soutar's (2001) scale development study, it is seen as a multi-dimensional concept which includes both utilitarian and hedonic components and takes rational, emotional and social factors into consideration. They also state that this multi-dimensional study of perceived value explains customer choices better than a one-dimensional 'value-for-money' concept. Moreover, a study carried out by

Karjaluoto *et al.* (2019) in Finland, concluded that utilitarian value is the main driver of overall satisfaction, whereas hedonic value is a stronger predictor of commitment. Similarly, customer perceived value is also referred to as the sum of expected benefits that a customer is seeking from a particular product or a service (Kumar & Reinartz, 2016).

2.4. Financial Behavior

Xiao (2008) states human behaviors that are relevant to money management are referred to as financial behaviors. Many studies have been conducted in the past that tried to understand the relationship between financial literacy and financial behavior. A study conducted on the financial behavior of South African youth concludes that financial literacy has significant effect on financial management outcomes (Zerihun & Makgoo, 2019). Furthermore, Herawati *et al.* (2018) concluded, in a study conducted among Indonesian students, that financial literacy, financial self-efficacy, and parents' social economic status have direct effect on the students' financial behavior. Financial behavior, in turn, significantly affects individuals' investment decisions (Arianti, 2018). Petersen, Kushwaha and Kumar (2015) also showed that consumer financial decisions concerning saving, use of credit and spending pattern are frequently function of consumers' past experience and interaction with a financial firm along with their long-term priorities.

2.5. Patriotism

Love for one's country is broadly referred to as patriotism; however, love for one's country is not the only component of patriotism. Primoratz (2009) defines patriotism as "love of one's country, identification with it, and special concern for its well-being and that of compatriots."

Several scholars have linked consumer patriotism with customer attitudes. One such study carried out by Kim *et al.* (2013) concluded a positive relationship between consumer patriotism and customer attitudes. In addition to this, another study carried out by Rocha and Fink (2015) also concluded the positive influence of patriotism on customers' intentions and attitudes. Similarly, Wel *et al.* (2018)'s study of the Malaysian consumers also establishes a similar pattern concluding that patriotism shows a significant relationship with consumer's buying intention. Furthermore, there is empirical evidence that suggests individual investors' patriotism leads them to invest in stocks of the companies with 'patriotic flavor' (Benos & Jochev, 2013).

2.6. Environmental concerns

As the awareness around global warming is increasing, environmental concerns vis-à-vis customer behaviors and attitudes is gaining more and more academic attention. Environmental concern can be defined as consumers' awareness of the environmental challenges and their willingness to personally contribute to addressing those challenges (Akehurst *et al.*, 2012). Environmental concern can be a motivator of individual's certain actions and behaviors; however, concern doesn't necessarily translate to a sense of duty (Roberts, 1996).

Mainardes *et al.* (2017) in their study with respect to customer attitude towards environmental concerns, in China and Brazil concluded that while Chinese consumers showed concern for the environment and were even 'willing to pay if the environment were at stake'; most Brazilians, although, showed concern for the environment, but they 'prioritized behaviors that usually generate a financial return'. This gap between what consumers think about their growing concerns regarding the environment and what they really do to help environment protection is known as the "green gap" (El Haffar *et al.*, 2020).

3. Methodology and Research hypothesis

This study is based on a model specification by Bergner (2011), where the financial behavior is a function presented as following: $FB = f(\text{knowledge, Psychological factors, perceptions, personal characteristics})$.

The main measurement scales for financial behavior were adapted from many research studies dealing with Financial Literacy and Financial behavior among students and undergraduates. Financial literacy perception was measured by a set of 8 questions covering the following themes: debt, saving and investment, and personal finance. For Financial behavior we adapted our scale from the study done by

Mudzingiri *et al.* (2018), we followed the same procedure through a seven-point Likert Scale response. Financial Self-Efficacy Scale (FSES) was adapted and measured by 6 items developed and validated by Lown (2011). For the Perceived Financial Value (PFV) and as the value perceived was widely presented and studied as a multidimensional construct (functional dimensions (price-quality), social and Emotional dimensions) (sheth *et al.*, 1991; Batra & Ahtola, 1991; Sweeney & Soutar, 2001) and considering the nature and type of our financial product (shares, IPOs), only one dimension will be included in our questionnaire: Price/value for money measured by 4 items. "Traditional patriotism scale " has been assessed and adapted from a national survey conducted in USA for Patriotism and citizen participation (Theiss-Morse *et al.*, 1991) where the questions reflected an affective and symbolic attachment to the country. For environmental concerns, our scale has been adapted from Plotz *et al.* (2014) and Roberts (1995), it includes 3 items reflecting the client's willingness to consider and protect the environment through his/her actions.

3.1. Sample and Survey Instrument

A quantitative research method was followed to thoroughly study our research hypotheses. For that, we conducted a primary data collection through a survey questionnaire with a total convenient sample of 400 respondents located in three different Saudi districts: Gizan, Riyadh and Jeddah. The questionnaire was standardized and distributed among Saudi citizens with two versions - English and Arabic. The questionnaire was divided into three sections: Section A contains personal financial characteristics (FLP,FSE, CFPV) and financial behavior , Section B includes external variable such as patriotism and environmental concerns and Section C represents the demographic characteristics of our sample.

3.2. Hypothesis:

The alternatives hypothesis of our research are as follows:

H1: there is a relationship between Financial Literacy perception covering money saving and investment and Financial Behavior of Saudi citizens

H2: there is a relationship between Financial Self-Efficacy perception and financial behavior of Saudi citizens

H3: there is a relationship between the Customer's Perceived Value for money concerning the issued Aramco's shares and the Financial Behavior of Saudi citizens

H4: there is a relationship between Financial Behavior of Saudi citizens and their attitudes towards the Aramco's IPO

H5: there is a relationship between the Environmental concerns of Saudi citizens and their attitudes towards the Aramco's IPO

H6: there is a relationship between the Patriotism perception of Saudi citizens and their attitudes towards the Aramco's IPO.

3.3. Data Analysis Tools

To test our research model, we used a structural equation modeling (SPSS-AMOS-26). Before starting our EFA, some assumptions concerning the multivariate normality, the multicollinearity, sample size and positive definiteness have been checked. For that, a Mahalanobis test has been realized and about 20 observations beyond the Mahalanobis distance critical value ($MD > 82$, $PMAH_1 < 0.001$) have been removed. The collinearity has been also verified ($VIF < 10$, $Tolerance > 0.01$). We also checked that the variance of each measurable variable is not greater than 10 times more than any other variable's variance. For SEM method, a typical sample size for a study is about 200 observations (for our study, with 38 observed variables and 7 latent variables, the min. sample size is about 131). The final sample contains 380 observations and illustrates the following characteristics: (Table 1)

Table 1: Demographics characteristics

Characteristics	Demographic factors	N	%
Gender	Male	293	77.1
	Female	87	22.9
Age	Less than 26 years old	72	18,9
	26-35	50	13,2
	36-45	88	23,2
	46-55	109	28,7
	More than 55 years old	61	16,1
Education	Four-years or bachelor's degree	58	15,3
	Graduate or master's degree	178	46,8
	Professional degree	144	37,9
Income	less than 5000SAR	28	7,4
	5000 to 10000SAR	81	21,3
	10000 to 20000	182	47,9
	20000 to 30000 SAR	89	23,4

The measurement model was carefully evaluated before the path coefficients interpretation. KMO and Bartlett's test was checked and all indicators show excellent factor loadings with a significant reliability (threshold>0.5, Cronbach's Alpha>0.7) with 7 factors explaining a total variance of a 72.6% (table2)

Table2. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.381	15.106	15.106	4.381	15.106	15.106	3.794	13.084	13.084
2	3.752	12.937	28.043	3.752	12.937	28.043	3.462	11.938	25.022
3	3.371	11.623	39.665	3.371	11.623	39.665	3.171	10.935	35.957
4	2.859	9.857	49.523	2.859	9.857	49.523	3.074	10.601	46.558
5	2.480	8.553	58.075	2.480	8.553	58.075	2.719	9.377	55.935
6	2.230	7.691	65.766	2.230	7.691	65.766	2.528	8.719	64.654
7	1.984	6.840	72.606	1.984	6.840	72.606	2.306	7.952	72.606
8	.763	2.629	75.236						

Concluding the EFA with 29 purified items and checking the complexity of our model with $df=356$, a two-step approach: a CFA measurement model and a structural model were performed to test the reliability and validity of our constructs (Anderson and Gerbing, 1988). The AVE and the Joreskog Rho were above the standard of 0.5 and 0.7(table 3)

Table3: Convergent Validity and Composite Reliability

Constructs	AVE	CR
Financial Behavior	0.662	0.855
Financial literacy	0.825	0.931
Financial Self-Efficacy	0.606	0.820
financial price perception	0.818	0.931
Patriotism	0.813	0.946
Environment	0.645	0.845
Attitude towards IPO's	0.774	0.909

Discriminant validity for each variable is higher than the correlation the variable shares with any other latent variables so DV is well verified (table 4)

Table4: Discriminant validity

Constructs	Financial Behavior	Patriotism	Financial Literacy	Financial Self-efficacy	Environment	Attitude	financial price perception
Financial behavior	0.814						
Patriotism	0.011	0.902					
Financial literacy	0.093	-0.089	0.909				
Financial self-efficacy	0.081	-0.130	0.313	0.779			
Environment	-0.024	-0.032	-0.057	-0.048	0.804		
Attitude	0.015	0.013	-0.068	-0.069	0.02	0.880	
Financial price perception	0.017	-0.072	-0.016	-0.063	0.081	0.013	0.905

The model fit summary has presented also a good measurement model fit index, which allowed us moving to the next step. The study attempted to know the main factors that explain the purchase of Aramco's shares. Many variables have been chosen and relationships established to explain the Saudi behavior towards IPO's launched by the petroleum company Aramco. We used AMOS26 to know which path coefficients are significant and to check our structural model fit. The following table summarizes the main results:

Table 5: Regression Weights and Model Fit

Relationships	estimate	S. E	C.R	P	Label
FB <--- FLP	.107	.044	2.453	.014	
FB <--- FSES	.019	.081	.239	.811	
FB <--- PF price	.012	.044	.264	.791	
ATT <--- ENVT	.147	.066	2.237	.025	
ATT <--- PATRIOT	.089	.042	2.100	.036	
ATT <--- FB	-.100	.046	-2.147	.032	
Model fit	Minimum was achieved Chi-square = 187.220 Degrees of freedom = 191 Probability level = .564				
GFI	0.958				
AGFI	0.945				
NFI	0.971				
CFI	1.000				
RMSEA	0.000				

Assessing the goodness of model fit, all the indices represent a very good score, so there is no significant difference between our model and the saturated model (The perfect model). However, according to the regression weights, it can be clearly inferred that out of six established relationships, only four relationships have been confirmed. We can also conclude that apart of financial behavior, environment, patriotism, and financial literacy have positive but moderate relationships with their respective dependent variable. In other words, environmental concerns and patriotism are positively correlated with the attitude towards Aramco's shares purchase with Beta values significant at 0.05 level ($P < 0.05$). Therefore, Independent variables, environmental concerns and patriotism have a significant influence on the Aramco's IPO. The same positive relationship is also established between financial literacy and financial behavior. This relationship has been confirmed in many previous studies and it is once again confirmed in our study. Only financial behavior shows a negative regression with the attitude towards Aramco's shares purchase. In our context, financial behavior seems to have a negative influence

on Aramco's IPO. It is clear that, the more the respondents have the attention and the will to invest and save the less they tend to react and invest in Aramco's shares. This negative relationship can be explained by the insignificant return on investment offered by this company for the purchase of its shares. The remaining relationships between financial self-efficacy, financial perceived price and financial behavior have shown non-significant relationships at 0.05 levels. The next table gives us a summary of the data analysis through the hypothesis testing:

Table 6. Hypothesis Testing

Hypothesis	Result	Sig
H1: there is a relationship between Financial Literacy perception covering money saving and investment and Financial Behavior of Saudi citizens	Accepted	P value<0.05
H2: there is a relationship between Financial Self-Efficacy perception and financial behavior of Saudi citizens	Rejected	P value>0.05
H3: there is a relationship between the Customer's Perceived Value for money concerning the issued Aramco's shares and the Financial Behavior of Saudi citizens	Rejected	P value>0.05
H4: there is a relationship between Financial Behavior of Saudi citizens and their attitudes towards the Aramco's IPO	Accepted	P value<0.05
H5: there is a relationship between the Environmental concerns of Saudi citizens and their attitudes towards the Aramco's IPO	Accepted	P value<0.05
H6: there is a relationship between the Patriotism perception of Saudi citizens and their attitudes towards the Aramco's IPO	Accepted	P value<0.05

4. Discussion and Conclusion

This research aims to understand the real factors behind the purchase of Aramco's shares. Contrary to our positive expectations regarding the financial variables, the analysis revealed the non-financial variables - environmental concerns and patriotism expression - had the most impact on Aramco shares' acquisition. In fact, considered as the world's largest producer of crude oil and condensate, Saudi Aramco is expanding rapidly. In March 2019, the company entered into a purchase agreement with SABIC, which will allow its chemicals business to operate in more than 50 countries. With an honorable presence on the national and international market and with an active worldwide development, Saudi Aramco is considered as a national pride. The confirmed relationship between patriotism perception and attitude towards Aramco's IPO clearly shows that being a part of this industrial giant is an expression of the respect and admiration citizens have for their country. This result is also aligned with studies from Wel *et al.* (2018), Rocha and Fink (2015) and Kim *et al.* (2013) showing a clear relationship between patriotism and consumer attitudes or preferences. Benos and Johec (2013) had also confirmed a positive relationship between individual investors' patriotism and their willingness to invest in stocks of companies with 'patriotic flavor'.

Furthermore, for Saudi citizens, supporting Saudi Aramco will automatically support its corporate social responsibility projects and environmental initiatives. In fact, Saudi Aramco has already achieved one of the lowest upstream carbon footprints per unit of hydrocarbons produced and continues supporting the Kingdom's efforts in achieving the United Nations Framework Convention on climate change. By mediating its environment protection initiatives, and making sustainability part of its corporate identity, Saudi Aramco has gained the support of Saudi citizens. This can largely explain the positive relationship that has been found between environmental concerns and the purchase of Aramco's shares. This result is also aligned with many previous researches (Zabkar & Hosta, 2012; Fraj & Martinez, 2006; Mainardes *et al.*, 2017) who had revealed the positive relationship between "environmentally conscious consumer behavior" and their willingness to act and to encourage firms that are committed to the environment protection.

The third hypothesis confirmed in our study concerns the relationship between financial literacy perception and financial behavior, which means that the higher the individual's ability to seek and evaluate financial information, then the better the financial behavior. Such behavior can be showed in the greater capability of money management. The financial literacy of the sample is relatively high, which

may be attributed to their educational degree (Graduate or master's degree, professional degree) which is 84.7%. Thus, a large number of respondents do have high level of financial knowledge. This result is aligned with the studies from Grable and Rabbani (2020), De Bassa (2013) and Arifin (2017) but in contrast with the research conducted by Kholilah and Iramani (2013) who revealed no direct effect of financial knowledge on financial management behavior. Financial behavior was also positively related to investors' attitudes towards Aramco's IPO, which means that the more individuals have conducted and searched for saving and investment opportunities, the more they will be engaged in financial decision. This conclusion provides similar results to those conducted by Arianti (2018), Eberhardt *et al.* (2018) and Petersen *et al.* (2015). The remaining two relationships in our study relating financial self-efficacy, consumer's perceived value for money to financial behavior were rejected. These results are in contrast with Farrel *et al.* (2016) and with Herawati *et al.* (2018) revealing that self-efficacy has a direct effect on financial behavior. Also, many studies had already confirmed the significant impact of price perception on consumer behavior and buying intention (Rezaei, 2015; Torben, 2005; Jiang & Rosenbloom, 2005). For financial decision, Robert *et al.* (2018) studying the factors influencing individual investor behavior, had revealed that investors based their stock purchase decisions on classical wealth-maximization criteria among diverse other variables.

5. Limitations and future research

The results of this study clearly showed a significant impact of non-financial variables on the financial attitude of Saudi investors. What is less clear is if the financial behavior can be also determined by these variables and if we can really generalize this result to other financial institutions which can open the path for future research.

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The evaluation of the supply chain management challenges South African fashion designers experience in the retail clothing environment

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Keywords

South African Fashion Designers, Retail, Clothing, Challenges, Supply-Chain-Management Model

Abstract

The purpose of this paper was to investigate the challenges South African fashion designers experienced when managing their supply chain network in the retail clothing industry. In today's complex markets, the susceptibility of the supply chain is viewed as an ongoing issue for several industries and it is no different for fashion designers. As a result, in the past, the visibility of South African fashion designers in the retail environment appeared to be minimal, due to a number of challenges.

This paper is based on qualitative research that made use of in-depth semi-structured interviews with a total of twenty-four participants, with the sample divided into five groups representing different industry professionals. Semi-structured interviews allowed the participants to answer the questions unreservedly based on their own personal and professional experiences. The findings revealed that South African fashion designers in the retail industry experienced a number of supply chain challenges such as cash flow and funding, fabric, challenges associated with cutting, making and trimming (CMT) companies, skills and knowledge, fashion designer's business acumen, market access and location, human skilled resources, garment and production quality, fragmentation, costing, marketing, competition, and other isolated challenges that were mentioned by a few participants.

The practical implications of this paper include the need for responsible stakeholders to put in place mechanisms to reduce the supply-chain-management challenges South African fashion designers are facing in the retail clothing industry. As a result, close proximity supply chain networks that could support effective communication amongst members of the supply chain are recommended.

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Introduction

There is an extensive supply chain (SC) process between designing and retail sales, which has proven to be a challenge for the South African's (SA) clothing industry (Ramdass, 2011:1), including fashion designers. The challenges the SA clothing industry faces on the retail front have not been explicitly researched or documented, and as a result the exact problems SA fashion designers in the retail environment encounter within the SC are still largely unknown. Therefore, it is critical to investigate the challenges that SA fashion designers experience when managing the clothing SC in the retail industry, in order to establish suitable solutions that could potentially safeguard the operational functions of SA fashion designers in the retail industry.

The demands exerted by fashion trends on the clothing SC were observed as unpredictable, as fashion retailing required a responsive, flexible, and accurate SC model to succeed in the continuously changing seasons and channels of distribution (Jackson, 2009:22). It is the view of the researchers, that until SC challenges are identified, the industry may not be able to develop an accurate, responsive, and flexible SC model for SA fashion designers in the retail clothing environment. During past years, the SA retail clothing industry witnessed fashion-design brands such as Sun Goddess shutting down four of their retail outlets (Nyhaba, 2009). The fashion label Stoned Cherrie also closed its flagship store, in Rosebank

(Ngubane, 2011), and this was followed by the termination of a two-year partnership with major retailer Foschini (Madikwa, 2011). In addition, Stoned Cherrie experienced a short-lived partnership with another major retailer, Woolworths, when its “diffusion line” (ready-to-wear) was discontinued (Woolworths, 2009).

While the abovementioned fashion designers experienced retail-outlet closures, other fashion designers were acquired by major retailers. One of these was Jenni Button, whose business was purchased by then major holding company Platinum Group (Pitman, 2009), which unfortunately underwent liquidation during 2015 (Moorad, 2015). Platinum Group was also the holding company of other South African designer brands such as Vertigo, Hilton Weiner, and Urban Degree. Another fashion-designer brand, Marion & Lindie, was first acquired by the holding company Busby before announcing its national retail outlets’ closures over social media in 2013. Lastly, Young Designers Emporium (YDE), which retails emerging and established South African fashion designers, was acquired by listed retailer Truworths (Anon, 2004), affecting fashion designers’ SC management and product control. Truworths had also previously acquired South African fashion brands such as Naartjie and Earthchild (Truworths, 2015). The challenges experienced by fashion designers which led to the abovementioned closures, take-overs and acquisitions are not publicly available, and this evoked the researchers’ interest in this study.

Problem Statement and Motivation for the Research

It is evident from Pitman (2009), Moorad (2015) and Truworths (2015) that there are several challenges being experienced by SA fashion designers in the retail clothing industry. As SA fashion designers move from specialising in tailored or bespoke garments to producing larger quantities in retail, there are bound to be SC model adjustments, because of the changes in consumer demand, the increase in competition and the greater labour forces required. However, the problem is that the challenges experienced within the SC process have not been extensively researched and documented.

Thus, the purpose of this study was to identify the challenges SA fashion designers encounter at each level of the SC when producing for the retail clothing industry. The study also sought to establish the strategies that could be used to ameliorate these challenges.

Literature Review

Shukla (2016:44) describes the SC as a range of organisations performing specialised activities to execute an end goal. Consequently, the performance of the specialised activities within the SC of SA fashion designers was evaluated to determine the potential challenges that could affect the end goal in the retail clothing environment. Accordingly, this literature review, firstly, looked at the relationship of the SC activities and secondly, assessed the different SC dynamics that contributed to the sourcing of raw materials and manufacturing processes in SA.

Supply-Chain-Management Model Relationships

Christopher (2000:1) explained that SCM included the upstream and downstream relationship between an organisation and its suppliers, distributors and clients to accomplish better value for the SC. Christopher and Towill (2002:3) demonstrated that the flow of orders was upstream, while the flow of materials was downstream. Masteika and Čepinskis (2015:832) illustrated that materials flowed forward, starting with the planning process by suppliers, then forecasting, followed by procurement, trailed by manufacturing, proceeded by distribution and logistics, and finally carried through to customers.

However, the limited exchange of information between adjacent entities within the SCM system created unforeseeable challenges that could be avoided through the flow of information (Christopher & Peck, 2004:12), and in the fashion industry, trend forecasting platforms are known to support the flow of information. Fashion-forecasting packages were generally published one or two years in advance and cost above €1 000 (over R15 000.00), as the process required the correlation of books and online resources compiled by entities who have either gone through extensive travel to seek out preliminary signs of change or have attended think-tank seminars with experts on social, cultural and creative movements (Giertz-Mårtenson, 2010:138). It could therefore be argued that the cost of fashion-forecasting limited the exchange of information, but, Gaimster (2012:169) proved that the nature of fashion forecasting had changed dramatically due to technological innovations speeding up the flow of free information, resulting in the creation of a more diverse marketplace.

These uncertainties, complications, and challenges of SCM models required new integrations within the SCM ecosystem, including the forward flow of information and backward flow of cash (Masteika & Čepinskis, 2015:832). A manufacturer that engaged and was involved in retail activities would be considered as “forward integrated”, whereas a retailer engaged in production would be referred to as “backward integrated”. This forward and backward integration is also referred to as “vertical integration” (Ayers & Odegaard, 2017:7). In relation to the quick-response (QR) model, Christopher and Towill (2002:2-3) elucidated that the SC consisted of bi-directional flows, the forward flow from the producer to the customer, followed by the backward flow of information about customer demand and orders, and over and above that, a backward flow of information that assists retailers to acquire the required margins, regardless of retail formats (Ayers & Odegaard, 2017:7). While Seuring and Müller (2008:170) explained that the core essence of a sustainable SC model was the management of materials, information, and capital flows, together with the collaboration between organisations along the SC.

It is important to note that backward integration is crucial, as Peck (2005:211) advised that the principle of having a strategy that kept some options open should be applied when developing a resilient SCM model. Christopher and Peck (2004:13,17) further stated that the way forward in creating a resilient SC was through high-level collaboration between entities within the SC, but creating the conditions in which collaborative working becomes possible could potentially pose some challenges. Recognising this need, Ayers and Odegaard (2017:12-13), in agreement with Christopher and Peck, pointed out that one of the challenges was the limitation of required skills to implement the undertakings. However, those limitations could be avoided through the implementation of collaborative relationships, first within the organisational structures to support the external collaborative relationships, second through forging up and down SC partnerships with trading partners to gain competitive advantage, and third through managing SC information and employing technological innovations.

Christopher and Peck (2004:1) further reiterated that improved management and control of internal processes and information flow within and between the SC entities would assist with the attainment of the ideals of a fully integrated, efficient and effective SCM model capable of mitigating challenges. Notably, most retailers work with layers of bureaucracy, creating a communication barrier between departments, but, for example, Zara’s operational structures and performance measurements, together with its office layouts, are all designed for simple information transfer (Ferdows et al., 2005:1). Zara is known for its fast fashion and over time, the apparel industry evaluated the impact of clothing on sustainability, and as a result, slow fashion emerged as a sustainable solution (Jung & Jin, 2016:510). Opposingly, Fletcher (2010:259), argued that fast fashion was not necessarily unsustainable but a strategy that delivered economic growth and increased sales. However, expedited manufacturing in fast fashion resulted in low quality, poor working conditions, low prices, and apparel with a short life cycle due to the fast-changing trends (Jung & Jin, 2016:14).

In support, Fernie and Sparks (2009:5,11) wrote that the key factors in management were to ensure that product availability was easy, maximising the efficiency of the SC and ensuring that retailers closely collaborated with suppliers to ensure effective coordination of activities. Sirilertsuwan et al. (2018:1346) revealed that close-proximity clothing manufacturing advances sustainability while benefiting the bottom line. Their findings further showed that governments’ role in supporting the improvement of proximity manufacturing involved the formation of clothing-industry clusters with different types of suppliers and service providers; the issuing of favourable trade policies; the utilisation of carbon-footprint taxation on imported garments; the offering of tax credit for proximity garments; recycling-programmes support; machinery, technology and business-operations financing support; education support; process-development support; business-collaboration support; technical business-infrastructure support; the sharing of resources with neighbouring governments; the implementation of environmental laws and regulations for water usage, chemical release, gas emission and filtration technology; the offering of clean sources of energy; beneficial labour laws and regulations; stringent health regulations and laws; and, finally, the passing of acts to ensure that the country of origin can be identified in advertising. However, in SA there are numerous dynamics that have affected all the above-mentioned factors.

Dynamics of Sourcing for Raw Materials and the Manufacturing Functions for South African Fashion Designers Supplying Retail

Ready to Wear (RTW) designers are located in numerous locations around the world. Hence the coordination and logistic processes of production are emphasised, as the production of RTW garments is labour intensive, but the initiation of production requires less capital and technology than other businesses. This is why the business of RTW clothing has been deemed to be of high importance to the economies of developing nations in the twentieth and early twenty-first centuries, and to entrepreneurs of these eras. (Druessedow, 2010:591)

SA fashion designers have been operating within the retail environment with RTW ranges for over fifteen years. According to Palmi (2007:29), over twelve years ago there were already media reports indicating that retailers were providing opportunities and retail space to established and recognised local designers. This meant, however, that there were limited retail opportunities for start-up fashion designers, and as a result, fashion designers who were just starting their businesses would encounter challenges in gaining market penetration and market share within the retail environment.

While some fashion businesses used to produce everything in-house, they have increased their outsourcing to manufacturers to gain competitive advantage and lower manufacturing costs, while reducing internal capital expenditure on training, supervision, workforce and non-core equipment and systems (Burke, 2013:47). Nonetheless, disadvantages to be taken into consideration when outsourcing include challenges around quality management, restrictions on capacity, probabilities of failing to meet due dates, disruption risks, discounting schemes, and the reliability and flexibility of the selected suppliers (Kaya, 2011:168). One other major disadvantage of outsourcing was the communication barriers between the fashion designer and the manufacturer, though outsourcing locally enables the fashion designer to employ the manufacturers when needed (Burke, 2013:47). However, according to Jackson and Shaw (2001:137), manufacturers are compelled to be more competitive than ever, with pricing, design, quality, delivery, and value for money as the current market exerts pressure.

SA's clothing-manufacturing industry is certainly not without its own risks and challenges (Fin24, 2018). The historically well-established manufacturing industry in SA previously supplied a variety of products, from basic and low-cost products to high-fashion and bespoke products (Kesper, 1999:143). As a result, the SA fashion clothing industry consists of a few large factories, which are referred to as full-package manufacturers (FPMs), but it is important to note that most apparel producers or manufacturers for fashion designers are spread across medium-sized, micro-factories and survivalist operations referred to as "cut, make and trims" (CMTs) (Tilly et al., 2013:3). Conversely, for small-businesses, proximity manufacturing and other small manufacturers specialising in a smaller niche markets were essential for the survival of those businesses (Burke, 2013:47).

Since the closures of a number of manufacturing mills in the late 1990s, it became increasingly difficult to locate reliable manufacturing facilities in SA willing to produce the minimum units SA fashion designers often required (Entrepreneur Magazine, 2018:6). Furthermore, SA's clothing-manufacturing industry's challenges and risk profile were exacerbated by the 22% tax imposed on raw materials imports which are essential input for the clothing manufacturing industry. In addition, foreign investment had often bypassed the clothing-manufacturing industry in SA, to invest in neighbouring countries such as Lesotho, Swaziland, Madagascar, and Mauritius (Fin24, 2018).

A significant portion of fabrics and yarns used in SA are now imported, as domestic fabrics and yarns are perceived as more expensive than the imported equivalents even after duties have been applied (Roberts & Thoburn, 2004:128). The Textile Federation (2007) acknowledged that the textile industry in SA had encountered challenging trading conditions, with decreasing employment due to the shutdown of textile mills since the early 2000s, forcing the retrenchment of staff, as there was an influx of imports, with a 29% increase in imports between the years 2001 and 2006, from 77 000 to 99 000 tons, and an additional 500% increase for synthetic fabrics.

Globalisation has exemplified its opportunities and threats through the textile industry, as the sub-Saharan-African textile industry contributes to a significant percentage of employment in the manufacturing sector, so necessary adjustments in the local industry would have a significant effect on income and employment locally (Roberts & Thoburn, 2004:126). Business Partners (2014) optimistically

noted that, though the SA textile and clothing industries are small, their aim was to utilise all the natural, human, and technological resources available nationally to ensure that these resources become sought-after internationally. In addition, the Department of Trade and Industry (DTI) reported that there are plans under way to unveil new strategies to protect the local textile industry (Hans, 2019).

Research Methodology

The philosophical approach of this paper was interpretivism, as it was imperative to understand the role of individuals, who are SA fashion designers, in their respective circumstances, thus interpretivism emphasises the necessity of conducting research among individuals in their particular roles (Saunders et al., 2015:129). Additionally, subjectivism was the researcher's stance to understand the reality of the situations, and to appropriately study the details of the existent situations. As a result, this research study was based on studying the details of the SC challenges SA fashion designers experience when producing for the retail clothing industry in order to understand their subjective realities in depth and to document them accordingly. Moreover, this study's focal point was on the investigation of individuals' experiences as challenging situations materialise, which is referred to as pragmatism (Shields, 1998:197).

The research approach of this study was qualitative, as the "interpretive, naturalistic approach to the world" (Denzin & Lincoln, 2000:3 cited by Snape & Spencer, 2003:3) or SC challenges of SA fashion designers in the retail clothing industry was required. Furthermore, the qualitative approach presents a comprehensive understanding of the participants' environment (Snape & Spencer, 2003:4), which was required in order to fulfil the objectives of the study. The qualitative method was appropriate to this research as it allowed content generation because most SC model challenges SA fashion designers experience in the retail environment were still unknown (Gaille, 2018).

A research strategy is the action plan (data-collection process) that provides direction in order to conduct research systematically, to produce accurate results and detailed reporting (Dinnen, 2014:1). Firstly, as this was a qualitative research, the inductive method was applied, which grounded the theory in data, allowing the theory and the data to relate (Neuman, 2011:177). Ground theory was used to take the data apart then sort, synthesise, and summarise that data to define how that data was linked Charmaz (2011:363).

The data was collected by means of in-depth, semi-structured interviews. The in-depth interviews which are closely associated with qualitative research, allowed the researcher to conduct interviews that were naturalistic, though the conversation would have had minimal resemblance to an everyday conversation (Legard et al., 2003:138). The interviews were also semi-structured to allow the scope of conversation to flow effortlessly during the process, as this was deemed as ideal as participants could answer the questions unreservedly based on their own personal and professional experience (Jensen & Laurie, 2016:173). The interviews were "status" or "one-shot" studies, referred to as cross-sectional, to determine the overall view of the situation at the point in time, and which was paramount in determining the prevalence of the specified situation (Kumar, 2014:368).

Data Collection Process

A total of twenty-four individual interviews were conducted, with the sample divided into five groups: seven South African fashion designers; seven fashion retailers and agents or consultants; four fashion education institutes, four government institutions, and two fashion councils. The details of the population groups are outlined in Table 1 below.

Participants from the different population groups represented various regions in South Africa; therefore, the researcher travelled to the various provinces to conduct the interviews.

Participants	Region	Number of Participants
Fashion Designer or Fashion Brand Owners	Gauteng	3
	KwaZulu-Natal	2
	Western Cape	2
Total		7
Clothing Retailers and Retail Agents	Gauteng	1
	KwaZulu-Natal	2
	Western Cape	4

Total		7
Fashion Educational Institution Representatives and Skills Development Agents	KwaZulu-Natal	3
	Western Cape	1
Total		4
Government Institutions	National (Based in Gauteng)	1
	KwaZulu-Natal	3
Total		4
Fashion Council	KZN Fashion Council	1
	Cape Town Fashion Council	1
Total		2
Overall Total		24

Table 1: Population Groups

Data Analysis Process

Through the data-analysis process, the empirical data was analysed by utilising a coding process intended to simplify the complexity of the data collected and to reach a conclusion based on reasoning (Neuman, 2011:478).

The data collected was analysed through the use of a qualitative data-analysis (QDA) software, otherwise referred to as computer-assisted qualitative data-analysis software (CAQDAS) called Atlas.ti (Hwang, 2008:519). During the analysis of data, Atlas.ti version 8 offered systematic tools for the transcribed data that could not be analysed through the use of statistical approaches (Atlas.ti, 2018:9).

The coding process allowed large segments of transcribed data to be simplified so that a link and a common thread could be identified and assessed (Belotto, 2018:2525). Practically, coding is the process of allocating categories or concepts to segmented transcriptions that are linked to the research objectives, while code groups are clusters of codes utilised as filters (ATLAS.ti, 2018:11,16). Additionally, sub-codes were allocated to threads or themes that recurred within the codes. Finally, from the five population groups, a total of five code groups, twenty codes and twenty-six sub-codes emerged.

Findings and Results

The interviews with SA fashion designers and stakeholders confirmed that there were several challenges being experienced by fashion designers. As the interviews progressed, some challenges were mentioned more frequently. As a result, the following sub-headings of challenges emerged: cash flow and funds were mentioned twenty-eight times, fabric was mentioned twenty-six times, CMTs were mentioned twenty-three times, skills and knowledge were mentioned eighteen times, the business acumen of fashion designers was mentioned seventeen times, market access and location were mentioned thirteen times, human skilled resources was mentioned twelve times, quality was mentioned eleven times, fragmentation was mentioned eleven times, costing was mentioned nine times, marketing was mentioned eight times, competition was mentioned five times, and other isolated challenges were mentioned ten times.

Isolated Challenges

The isolated challenges that were mentioned were: technological challenges; low barriers of entry to the fashion industry, which affected the credibility of SA fashion designers; confusion from consumers due to the re-branding required from high-end fashion designers who enter the retail industry; challenges with trade rules, legislations and policies; false or misleading claims regarding local production by government departments and retailers; and lack of foreign investment in the country's value chain from foreign businesses operating in SA.

Cash-Flow and Funding Challenges

The main challenges identified with cash flow and funding were the following: the purchasing power of the SA market, which appeared to not generate enough revenue for SA fashion designers; the availability of and accessibility to loans and funding for SA fashion designers from banks and government institutions; the government's focus on and allocation of funding to bigger businesses, which results in the marginalisation of smaller businesses such as local fashion designers; limited information on funding

opportunities from government institutions; limited budgets from funding and government institutions; the thirty- to sixty-day payment method most retailers enforce when they procure product from SA fashion designers; the concession and consignment model, which works on a commission basis; the historically disadvantaged background of some SA fashion designers, which made it more difficult to attain funding and financial support; the short-term funding relationships between government institutions and clusters meant to support the industries; the raw-material and production costs used for replenishment and increased orders from retailers; fast business growth experienced by certain fashion designers due to demand – as a result of this growth it was found that increased SC capacity was necessary, which required additional cash flow; the inability of fashion designers to manage finances by scaling up their business while saving for business needs; and the production costs incurred when fashion designers worked with large volumes.

Challenges with Fabric

SA fashion designers, retailers and stakeholders confirmed that fabric was one of the biggest challenges faced, due to the following factors: the cost of quality fabric when producing for the retail industry; the turnaround time when printing fabric for the retail industry; the limited fabric-production mills and manufacturers in South Africa, which resulted in limited fabric locally; the limited fabric knowledge fashion designers demonstrated when producing for the retail industry, which resulted in compromised quality and standards; the increasing number of imported fabric, with some local fabric mills being forced to shut down; and the leniency of import duties and policies surrounding the importation and distribution of textiles.

CMT Challenges

The findings confirmed that most CMTs preferred to work on larger orders and were not willing to work with the minimum quantities SA fashion designers requested, but when some of the CMTs agreed to work with the fashion designers, they would charge them higher prices for production, while the fashion designers and retailers found that the CMTs produced quality that was below the retail standards. On the other hand, several CMTs in SA were closing down due to a lack of skill and increasing competition from international manufacturing companies. The different dynamics within each province also created challenges for fashion designers, as that made the management of the supply-chain process difficult for fashion designers who desired to work with CMTs in close proximity.

Challenges with Skills and Knowledge

The participants expressed continuous concern regarding the lack of skills and knowledge SA fashion designers demonstrated with regards to the management of the supply-chain process in the retail environment. It was found that some factors contributed to this lack of skills and knowledge, and those factors were: the limited SC management exposure provided by fashion education; the competitive approach of the educational institutions when it came to fashion education; jargon and SC expectations when entering into procurement contracts; the generalisation of fashion and garment skills from fashion education, which resulted in a lack of specialised skills; the deterioration of the textile industry since 2002, which has resulted in lost skills from experts within the industry; the limited business training and emphasis from fashion education, fashion designers and the industry as a whole; the lack of research and information centres in SA for fashion designers; the lack of infrastructure in terms of skills enhancement; masked internship programmes, which offer limited knowledge, skills and education to individuals; the lack of value placed on certain areas of the SC process by stakeholders as a whole, creating a deficit of skills in a number of areas within the SC model.

Challenge in Business Acumen

One of the challenges that came out was the fashion designers' lack of business acumen in terms of the following factors: understanding of the SC structure and capacity when approached by distributors or retailers; benchmarking abilities; understanding of retail business processes; focused business planning that caters to a specific market; drive, which leads to complacent attitudes towards supporting institutions; business administrative skills; business processes; respect for deadlines; and overall

consistency. It was also found that there was a limited understanding of the sales matrix, sales graphs, and retail planning mechanisms.

Market Access and Location Challenges

The participants confirmed that there were challenges with SA fashion designers' location, market access and the market in general, which were closely linked to: cash flow and funding; marketing challenges; SA consumers' shopping habits; availability and access to retailers SA fashion designers could potentially supply; incorrect selection of location or the lack of availability of prime locations; the limited understanding of the SA market by SA fashion designers, due to the limited data available; and lack of professions to hire the specialised skills required for the management of the clothing SC in SA.

Challenge of Skilled Human Resources

It was revealed that another of the challenges closely related to skills and knowledge was with the availability of human skilled professionals to assist SA fashion designers supplying the retail clothing industry.

Quality Challenges

Some respondents noted that quality was one of the challenges South African fashion designers encountered with the management of the supply-chain process when supplying the retail industry. Moreover, it was found that quality affected the patronage of South African fashion designers' products by retailers and consumers alike, as mediocrity was embraced rather than being addressed.

Fragmentation Challenges

The findings illustrated that fragmentation was one of the factors that contributed to the difficulties SA fashion designers confronted when managing the clothing SC for the retail environment. Fragmentation challenges involved, inter alia, the following factors: work done in isolation, which resulted in intensified levels of competition and lack of collaboration between local fashion designers; lack of communication and follow-through between government departments supporting local fashion designers; unequal and lack of availability of supply-chain structures in one province or one area; limited support, offerings and resources for the management of the SC process at fashion weeks for fashion designers in the retail environment; and lack of shared information between institutions.

Costing

Costing challenges were mentioned by some participants, who highlighted that there were product offerings by SA fashion designers with price points that appeared too high compared to the value proposition and quality of the garments. Furthermore, the price points of local fashion designers were found to be too high for local retailers and local consumers, due to the smaller margins of production. The level of preparedness when costing a garment also appeared questionable, as there were local fashion designers who would cost a garment before considering all the materials and factors required. And other local fashion designers would not set the appropriate mark-up to justify or educate the consumer about their particular price points.

Marketing Challenges

The study also established that marketing was one of the challenges SA fashion designers faced when managing their SC process for the retail industry. The marketing challenges were linked to market access and information, and finally with cash flow and funding connected with the cost of showcasing at fashion weeks. The government initiatives that supported the showcasing of SA fashion designers at different national and international platforms were found to be planned in isolation, with no consistency and without the consideration and input of the local fashion designers. On the other hand, retailers were found to provide minimal to no marketing support to SA fashion designers who supplied their stores.

Competition

One of the challenges that was not a major concern for most of the participants was competition. Competition was closely related to the high price points of local fashion designers, as larger retailers offered lower price points for similar products and the second-hand market offered designer clothing at lower prices. Plus, some participants highlighted that SA consumers are exposed to many international

high-end brands that have been in existence for a longer period, which means that they may have an established market share.

Retailers' Challenges with South African Fashion Designers

Communication barriers were one of the challenges which were found from both the retailers' and the local fashion designers' points of view. Other challenges included the level of commitment from local retailers to work with South African fashion designers, overseas production by local retailers, the absence of a national fashion council in South Africa, and local retailers' expectations of South African fashion designers.

Local retailers' commitment to work with South African fashion designers was then questioned, as the retailers appeared to use South African fashion designers as marketing tools to appease a certain mind-set, rather than working with them as business associates. The concession or consignment model came under scrutiny by some participants, as they stated that the model had not supported the local fashion designers' cash flow and finances, while it demonstrated a non-collaborative relationship between South African fashion designers and local retailers.

Some of the participants also stated that the quantities expected by large retailers were too high to produce for SMMEs such as South African fashion designers. It was found that the price of differentiation appeared to be too high for retailers in the current slow economy.

While retailers were manufacturing most of their products in China, they found that procuring products from overseas affected their desired fast-fashion models. At the same time, it was noted that investors (such as retailers) required to see profits continuously, and this was perceived by other participants as unsustainable for South African fashion designers. Moreover, the shift to overseas production by retailers created unemployment within the clothing supply chain, which then created a negative ripple effect, resulting in the loss of skilled workers, then the loss of taxes, and finally a negative effect on the economy.

South African Fashion Designers Weaknesses in Managing the Supply-Chain Model for the Retail Clothing Industry

The weaknesses mentioned by participants included: quality standards, quality measures and technical understanding, which required attention to design detail; the degree of knocked-off designs within the fashion and retail industries; unsuitable pricing strategies for high-end brands and an inability of certain fashion designers to plan and strategise towards a functional fashion business dream or vision; inconsistent creative input from several fashion designers; ego-driven attitudes among some fashion designers; limited offering of basic or staple designs by South African fashion designers; poor customer service, ownership and management by a number of fashion brands; lack of specialisation or focus towards brand offerings; and the under-valued uniqueness of African and South African design by local fashion designers and retailers.

Discussion on Findings

Literature and empirical studies discussed in section 2 have also identified a number of these challenges in the past. One of the most frequently mentioned challenge by participants was with regards to cash flow and funding. Druessedow (2010:591) pointed out that the production of RTW garments was labour intensive, but the initial production required less capital and technology than other businesses. The findings of this research study contradict Druessedow's assessment, as participants acknowledged that more capital was required when producing RTW products for the retail industry and the management of the SC process.

Some participants recognised that one of the major challenges within the SCM process was the development of technology within the design and manufacturing sector in SA. In support of this argument, Tobler-Rohr (2011:46) also affirmed that technology and quality are acceptable parameters to support the flow of material within the textile SC, as functions such as spinning, weaving/knitting and finishing typically take place at a single facility, with the finishing process undertaken by a subcontractor.

Closely linked to technology were the manufacturing challenges, which were mentioned more frequently by participants. Both product manufacturing and textile manufacturing were the two frequently mentioned challenges, after cash-flow and funding challenges. In line with these findings,

Fin24 (2018) argues that the SA clothing-manufacturing industry was not without its risks and challenges. One of the major challenges found with manufacturing was the unwillingness of manufacturing facilities to assist SA fashion designers with their marginal units. Entrepreneur Magazine (2018:6) acknowledged this challenge for SA fashion designers by affirming that since the closures of manufacturing mills during the late 1990s, it had become increasingly difficult to locate reliable manufacturing facilities in SA willing to produce the minimum units SA fashion designers often required.

The challenge with fabric was that the acquisition of fabric consumed the most time, as most fabrics were not readily available in SA to achieve consistent bulk productions required for the retail clothing industry. Recognising the challenge with textile production, Roberts and Thoburn (2004:126) proved that globalisation did indeed exemplify its opportunities and threats through the textile industry, as the sub-Saharan African textile industry contributed to a significant percentage of employment in the manufacturing sector, so necessary adjustments in the local industry would have a significant effect on income and employment locally. As a result, Business Partners (2014) declared that though the SA textile and clothing industries were small, there were plans in place to assist in the utilisation of all the natural, human and technological resources available nationally to ensure that those resources became sought-after internationally. Furthermore, government departments such as the DTI reported that there are operations underway to unveil new strategies to protect the local textile industry (Hans, 2019).

Conversely Burke (2013:47) underlined that in order to curb the production challenges, small-business proximity manufacturing required other small manufacturers specialising in a smaller niche market. The exorbitant prices local manufacturers charged SA fashion designers due to the minimal units was found to be one of the challenges experienced when working with local manufacturers. According to Jackson and Shaw (2001:137), manufacturers are compelled to be more competitive than ever, with pricing, design, quality, delivery, and value for money as the current market exhorts pressure. Even so, local manufacturers have not recognised that increasing demand from a growing number of local fashion designers, which could potentially contribute significantly to the manufacturing business.

Concurrently, this study found that closely linked with textile- and clothing-manufacturing challenges were the issues of quality and pricing or costing challenges. Some SA fashion designers found that outsourcing to certain local CMTs compromised their quality, which in turn took away the justification for the premium pricing of their designer ranges. Furthermore, the exorbitant prices CMTs charged SA fashion designers affected the costing of the designer ranges by pushing the product costing higher than anticipated. Kaya (2011:168) likewise found that the challenges that were taken into consideration when outsourcing production to manufacturers or CMTs or textile suppliers included quality management, restrictions on capacity, reduced probabilities of satisfying due dates, disruption risks, discounting schemes, reliability, and flexibility of the selected suppliers.

One other major disadvantage mentioned by Burke (2013:47), and by some participants in this study, was regarding the communication barriers between the fashion designers and the manufacturers when outsourcing, though outsourcing locally enables the fashion designers to contract the manufacturers only when the need arose.

Christopher and Peck (2004:12) found that the limited exchange of information between adjacent entities within the SC-management model created unforeseeable problems that could be avoided through the flow of information, while Seuring and Müller (2008:170) explained that the core essence of a sustainable SC model was the management of material, information and capital flows, together with the collaboration between organisations along the SC.

This limited flow of information thus exposed the major challenge of fragmentation found within the clothing SCM model. Christopher and Peck (2004:1) noted that improved management and control of internal processes and information flow within and between the SC entities would assist with the attainment of the ideals of a fully integrated, efficient and effective SC-management model capable of creating sustainability. Additionally, it was suggested for retailers to take note of backward integration, as it was crucial in accomplishing the required margins, regardless of retail formats (Ayers & Odegaard, 2017:7). Masteika and Čepinskis (2015:831) suggested that for this “perfect” SC, the SCM model required the inclusion, coordination and collaboration of partners, stakeholders, suppliers, intermediaries, service

providers and clients to plan and control SCM activities, while Fernie and Sparks (2009:11) implied that retailers should closely collaborate with suppliers in order to ensure effective coordination of activities.

Sirilertsuwan et al. (2018:1346) have revealed that close-proximity clothing manufacturing advances sustainability while benefiting the bottom line. Their findings further showed that the government's role in supporting the improvement of proximity manufacturing involves the following: formation of clothing-industry clusters with different types of suppliers and service providers; the issuing of favourable trade policies; the utilisation of carbon-footprint taxation on imported garments; the offering of tax credit for proximity garments; recycling-programmes support; machinery, technology and business-operations financing support; education support; process-development support; business-collaboration support; technical business-infrastructure support; the sharing of resources with neighbouring governments; the implementation of environmental laws and regulations for water usage, chemical release, gas emission and filtration technology; the offering of clean sources of energy; beneficial labour laws and regulations; stringent health regulations and laws; and the passing of laws and regulations to ensure that the country of origin can be identified in advertising.

Conclusion and Recommendations

Overall, challenges identified in this paper affected the SCM process of SA fashion designers in its entirety and not just certain parts in isolation. As a result, each challenge was found to have a very close association to most of the other challenges.

The focal recommendations identified to counteract these SCM challenges was communication and flow of information. Several participants were in agreement and acknowledged that the SCM process of SA fashion designers in the retail clothing industry required an efficient communication and effective flow of information between retailers and designers, designers and manufacturers, and all other parts of the value chain.

The major factors that were recommended by participants to drive this effective communication to counteract all these challenges were (i) close-proximity hubs for SA fashion designers, (ii) the establishment of a national fashion council and regional fashion councils, and (iii) the visible presence of mediators and value-chain support from agents and business consultants.

Close-proximity hubs for SA fashion designers were recommended by most participants. Furthermore, the recommendation was for those close-proximity hubs to be easily accessible and available for SA fashion designers, thus, the location of those hubs in major SA cities would be pivotal.

Over and above establishing hubs, participants recognised that the trade-show platforms the DTI supported to provide international retail exposure for SA fashion designers, required further research and consistency. Participants noted that to establish a presence at trade shows, consistent attendance was required for about three to five consecutive years at the same trade shows for fashion designers to be recognised by retailers or distributors. Hence, it is recommended that government departments do some research on relevant trade-show and fashion showcasing platforms, with great potential to offer SA fashion designers to the retail clothing industry international retail opportunities, and to consistently support the same fashion designers at the same relevant platform for a suitable period. Again, the abovementioned could potentially be recognised through a national fashion council that works very closely with government departments.

In addition, one of the significant recommendations to ameliorate the SCM challenges that the fashion designers in SA are facing is that fashion and retail education should be re-evaluated. Some participants expressed the need for specialised knowledge of the SCM process, and this knowledge can only be acquired through education. It is therefore recommended that fashion and retail clothing educational institutions should collaborate and work towards achieving a common standard that would build credibility for the fashion and retail clothing industries.

Limitations

The analysis of data collected in this research study was limited to the views, feedback and consequent actions of SA fashion designers, SA clothing retailers and supporting institutions at the specified time of the interviews. As a result, there were no quantifiable follow-up interviews to evaluate the proposed solutions to the challenges identified over time as in longitudinal studies. Instead, the

challenges of the SC model and the proposed solutions were only based on the knowledge of SA fashion designers, clothing retailers and stakeholders, in concurrence with existing SC theories.

The total population size of SA fashion designers in the retail clothing environment was not documented, and the population included only retailers and supporting industries, so there was a limitation with the population group, as SC model partners such as manufacturers or CMTs, fabric suppliers and fashion weeks could not be reached. The SC challenges identified only represented the most valued input from esteemed and experienced fashion designers, retailers, and other industry stakeholders in SA.

Direction for Future Studies

Studies related to effective communication throughout the SCM process could potentially be carried out. This would outline the best communication approaches and tools to utilise throughout the SCM process. These studies would potentially ensure better communication between SA fashion designers and SC partners of the retail clothing industry.

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