Factors Affecting the Decision-Making Styles Adoption

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Abstract

Decision making is a significant and rational process in any business organization that deploys so many resources to work on selecting the optimal alternative and build a heuristic framework. In the last decade, Tire sector in Egypt witnessed many changes due to market dynamics and economic challenges, that require being adaptive in the decision-making process. The purpose of this study first is to define the different decision-making styles adopted by the decision makers in our case. The population of the study focuses on decision makers of a local family business. Secondly, is to measure the correlation between the dominant decision-making styles and the age groups, Job stress and Leadership styles. The selected model is based on Simon's concept of "bounded rationality" which has provided the conceptual foundation for much behavioral decision research, (Einhorn & Hogarth, 1981). Using certain tools such as GDMS, Job stress and Multi-factor Leadership Questionnaires. Study applied quantitative online survey then analyzed using scale reliability, test-re-test reliability, Cronbach's alpha, descriptive, chi-square, and normality tests using SPSS. Results revealed that Rational-dependent, and intuitive decision-making styles are affected by different levels of perceived job stress also, the three leadership styles Transformational, Transactional, and Laissez-faire.

Keywords: rationality, bounded rationality, decision making styles, cognitive characteristics, data driven decision making, leadership styles

1. Introduction

The tire industry is extremely important in the transportation and logistics world, especially the commercial tires or truck tires. Egypt depends on the truck transportation by more than 90% since we don't have well established other ways of water or railway transportation of goods. Consequently, in terms of industry importance it is crucial for our economy as all. The Egyptian tire market consists of three premium players, and Chinese brands that demonstrate the market share. Our scope will be the investigation of decision-making styles in an Egyptian company called "NB".

the taken decisions during the devaluation of the Egyptian Pound (CMB) against the US Dollar since last year's turmoil in the Middle East, is the trigger of this study. For which, the study would spotlight on the taken decisions from the two main tire players in the Market. Both were in a reacted position and handled the situation on a weekly basis not even monthly due to the drastic changes in FX. This study will analyze the decision-making in one of the main players, "NB". One of the biggest challenges for NB was managing the foreign currency required for importation at a much higher rate than the competitor PB, since the priority in banks was in favor of local manufacturers not importers, while NB had to source from the back market that affected its COGS severely. Figure 1 shows the rate of overtime starting Jan 2016 to Dec 2016.
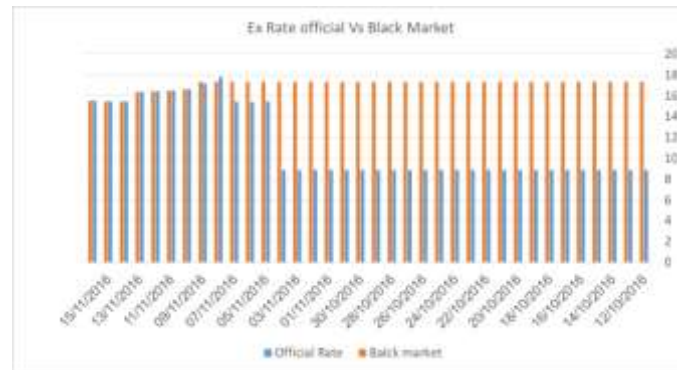
Figure 1. Comparison between the USD prices in Egypt 2016

In describing the problem, one of the best comprehensive ways to define it is by using the nine elements model as shown in figure 2 (Elsafty, 2018, 2019, 2020, 2021, 2022). Applying it would help cover different aspects of our problem and clarify research problem as well. This is because it describes types of organization, management level, business functions, internal & external environmental factors, geographical location, and industry field we can explore all of these elements within the time frame. The research used the Nine Elements model/framework to analyze the context as the model has been used in several research papers Elsafty (Elsafty, A., Elsayed, H., & Shaaban, 2020; Elsafty, A., & Elzeftawy, A., 2021/2022; Elsafty, A., & Shafik, L., 2022; Elsafty, A., & Seddek, A., 2022; Elsafty, A., & Oraby, M., 2022).
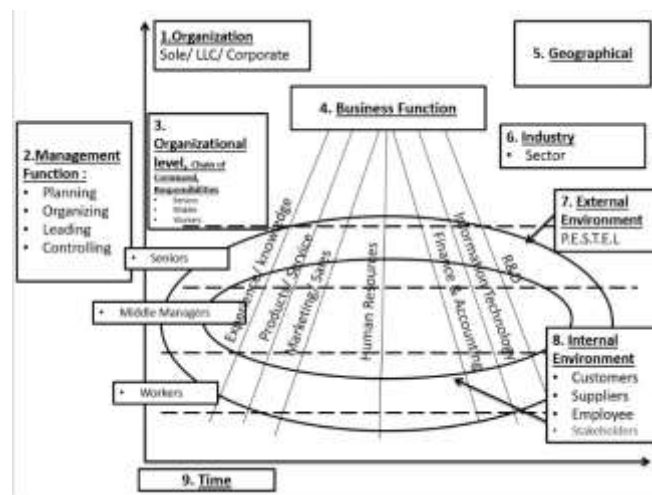

Figure 2. The Nine Elements Model/Framework (Elsafty, 2018, 2019, 2020, 2021, 2022)

NB is a good reactive market player, it relies on feedback to adjust the direction, using conventional planning methodologies. The company has a long way of improvements since it still lacks long-term planning and setting a contingency plan for example. Also, having a simulation or scenario generating tool is one of the under-development projects.

NB's planning process heavily focuses on the sales figures primarily and whatever is closely related to reach or achieve the monthly, quarterly targets, which can be considered as singular benchmark for company's performance. Furthermore, supply planning is a second major part of the process which fundamentally drives the sales. The marketing budget is also the main pillar which mainly defines the required actions and interments to achieve the sales targets at each channel of distribution throughout the year. Which might be logical since the company's core is to sell and distribute. However, those unintegrated plans are negatively affecting the whole decision-making timing and efficiency.

NB built dedicated teams focused on specific functions. For example, NB has three sales channels which are Wholesales, Direct and Indirect sales; all of which have their own technical support team that serve their customer needs and provide tailored aftersales solutions.

The MD makes all important decisions with the family members also with the engagement of the directors, MD is involved in challenges, whether big or small, and opportunities arise with supervising all employees in a team spirit-based working environment where performance is measured and evaluated each quarter. In light of this, there is a lack of internal

communication, HR and financial activities were all controlled by MD. Of course, there are processes that drive the operation, however at the same time it depends much on the people who directed by the MD, who is again involved in almost every single decision. It can be explicitly described as a centralized micromanagement style.

Due to the unreliable sources of information coming from the market, newly introduced products, operating condition and road complexity, in addition to the poor design of the data management internally inside NB, the challenge of decision confusion is becoming a major barrier (Al-Qaed & Sutcliffe, 2006). Also, what of the internal challenges was the used tool of making decisions which mainly rely on simple excel and the experience of the team members. In another way, no tool to generate different possible scenarios, what if analyses or dashboard to support the DM. Pricing process in NB process takes so long to decide which price would be acceptable from the customer and will secure specific margin. It might take three to four meetings, each five hours, to ask so many questions with answers that might be based on data or in many situations just a guess or perception.   PB had the advantage of local production facility; the government support and they had the privilege to export some of their tires to Africa and Europe. They didn't have to change prices, and was able to get whatever foreign currency they needed to import the raw material as well as export and get the foreign currency from a different way to increase their margins. According to that, PB had lower stress levels while managing this economic situation.

Another dimension is how NB decides when choosing a successor, it is difficult to clearly define the process to find a successful succession plan. Most probably the family member meets and decides this with respect to different criteria. That's why for employees even the HR team, usually couldn't decide on the nominated unless family members who involved reach an agreement (Foltz & Marshall, 2012).   From my personal experience with the family, they always hire and promote based on their internal consensus and they listen carefully to each other as they trust the family members. In summary, due to the unreliable sources of information coming from the market, newly introduced products, operating condition, and road complexity, in addition to the poor design of the data management internally inside NB, the challenge of decision confusion is becoming a major barrier (Al-Qaed & Sutcliffe, 2006).

STAKEHOLDER ANALYSIS is one of the significantly important elements that defines NB, *for which conducted* interview with M. A. E. The commercial director in NB asking about the stressful environment inside NB, sales plans, and strategy he concludes the following:

NB environment is very stressful as he has to follow the progress of the market every hour, day and night.

Regarding sales plans and strategy, he concludes that it is very challenging, especially with decrease of the purchasing power due to economic situations and tendency of the customer to save money or convert it to assets.

The most crucial part was the Financing issue that was primarily affecting two dimensions, the first one is compensating the difference of the currency value from 10 EGP per USD to 17.5 EGP/1USD, which done by injecting more capital to the business from the shareholders to protect the business and ensure endurance. The second dimension is to collect the required amount of USD monthly to pay for the suppliers. Adding to the normal business daily problems the collection of the foreign currency, which in many cases had to be managed and monitored daily due to the rapid fluctuations. Additionally, currency management was mainly covered by the black market, since banks were not able to supply at the official rate.

The main competitor in the market is a local manufacturer, PB, that had the advantage of local production facilities; government support and they had the privilege to export and secure the foreign currency. Which gave them the strength to compete and fight strongly to dominate the biggest part of the pie. So, PB didn't have to change prices, and was able to get whatever foreign currency form the Egyptian banks to import the raw material as well as export and get the foreign currency from a different way to increase their margins to the sky. On contrary, collecting the USD in the Egyptian banks along 2016 cased in a severe problem to PB outside Egypt when they asked the banks to transfer their profit to the partner in Italy in USD at the rate of 8.8EGP.

Describing the Family business and decision making, there are some sort of similarity in the decision making and leadership styles in family business, i.e., authoritarian decision making, whereby decision is made by the founder. One of the old definitions, the concept of decision making is made by only one person, who is the owner and others have no influence over his/her decision (Nor, 2010), Though with the complexity and dynamics of family-owned business this old way has become useless and ineffective (Nor, 2010).

2. Literature Review

The decision-making phenomenon has been a frequently studied topic by several areas of human knowledge (Oliveira, 2007). There are five models of strategic decision-making are analyzed to determine the assumptions and biases made about strategic problem formulation (LYLES & THOMAS, March 1988). A simple definition of Decision might be the ability of choose from multi alternatives (Petros Pabhiardis, 1994). The decision-making process is simply the sequence of steps leading to that selection (Petros Pabhiardis, 1994). Understanding of the decision-making processes could help us

in preventing bad decisions and in stimulating the good ones (Polič, 2009). Though there are many other factors that affect our decisions and we do not know each one or the whole of their relationships (Polič, 2009), in other words, there are endless number of variables that affect the decision making. At the same time decision-making processes are complex and approached from different points of view, based on the environment, science and situation (Polič, 2009).

A few psychologists challenged the concept of unbounded rationality in 1950s. American psychologist and economist Herbert Simon in his papers published in 1955 and 1956 introduced the concept of bounded rationality (Polič, 2009). This concept has assumed that people are not necessarily illogical, but they show restricted or limited rationality. Bounded rationality is neither optimization, under constraints or irrationality, the bounded rationality is about 'step-by-step rules that function well under the constraints of limited search, knowledge, and time, whether or not an optimal procedure is available' (Polič, 2009).

3. Decision Making Theories and Approaches

Decision theories can be divided into two general groups: Normative and descriptive decision theory. While normative theory explains how decision should be made, (THOMAS & ABUBAKAR, 2009) descriptive theory explains how decisions are made. However, no consensus on a universal standardized classification on the theories. The most popular theories are as follows such as Subjective Expected Utility (SEU) Theory, Prospect Theory, Satisficing Theory, Attribution Theory and Heuristics Theory

In an organization or a team, there are basically three approaches to decision making such as Authoritarian, Group, Automating System. Some Decision-Making Strategies Making decision can be more tasking than we expect. The most commonly used strategies in choosing the best choice or alternative include the Optimizing, Satisficing and Maximax strategy.

There are various kinds of decision. They have been grouped into three Decisions on Whether, Decision on Which, Conditional or Contingent decision.

4. Rational Decision-Making Models Based Studies

Decision making is assumed to be rational (RIMAMCHATEN & MUSA, 2010) accordingly a decision makers make decisions under certainty and clear understanding to the problem, also, know their alternatives; they know their outcomes; they know their decision criteria; and they have the ability to make the optimum choice and then to implement it (According to the rational model, the decision-making process can be broken down into six steps (RIMAMCHATEN & MUSA, 2010):

- Identifying the problem
- Generating alternative solutions
- Evaluating alternatives
- Choosing an alternative
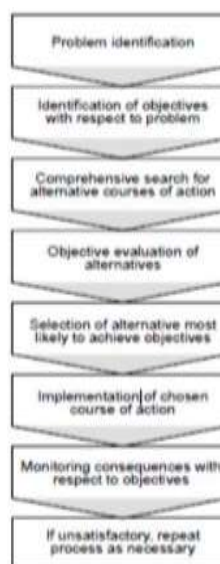- Implementing the decision 6. Evaluating decision effectiveness 7.

Figure 3. The Rational decision-making Model (Heracloeus, 1994)

The model of bounded rationality considers the limited ability of individuals to make consistent and rational choices (Brecht, G ünther, G üth, & Koroleva, 2011). Due to the scarcity of research on this phenomenon in information systems, an experimental study investigating decision-making regarding risk preferences and social preferences was conducted by (Brecht, G ünther, G üth, & Koroleva, 2011).

Four decision styles hypothesized, which are independent styles, rational, intuitive, dependent, avoidant, and spontaneous style (BRUCE & SCOTT, 1995). Those styles are reflection of individual cognitive style, and are not equally exclusive according to GDMS. This because individuals do not depend on a specific style, apply a combination while making important decisions (BRUCE & SCOTT, 1995).

A series of studies examining the elements that affect the adoption of a decision-making style (Ogarca*, 2015). Generally, people have different psychological typologies and cognitive capacities. The below model identifies determinants of the decision-making style: (Ogarca*, 2015)

Figure 4. Determinants of the decision making style, (Yousef, 1998)

The determinants of the decision-making style at the level of the small company and respectively its impact on the business success (figure 4). This model was also developed to study a similar company size as NB.
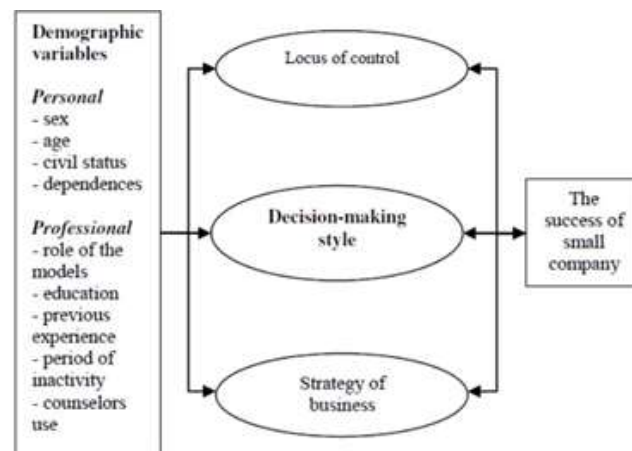

Figure 5. Entrepreneurial decision making style factors of influence, (Yousef, 1998)

5. Decision Making Process Models

'Decision-Making Questionnaire' (DMQ), developed and validated to examine the factors that affect decision (Acedo, Acedo, Olivera, & Closasb, 2009) making, revealed satisfactory internal consistency and a first-order factor structure comprising 10 scales: some of which are Uncertainty, Time/money pressure, Information and goals, Motivation, Self-regulation, Cognition, Emotion, and Work pressure (Acedo, Acedo, Olivera, & Closasb, 2009). Not all the mentioned factors will have a weight in NB study, at least for the recent research, may be for future work, however, the most relevant factors to the current phase will be selected.

Work or job stress will be included in NB case, as with the uncertainty that the Egyptian market has experienced I the last decade the management team members are most of the time under different levels of stress. It is essential to determine the allocation of decision-making authority within organizations specifically in a family business company. In a study by (Meagher & Wait, 2004), Decision making is more likely to be decentralized to lower levels in the hierarchy of the organization the larger the workplace and the more competitive the product market. Figure 6 illustrates a hierarchy with four levels (Meagher & Wait, 2004).

The concept of management decision considers a systematic process that can be a useful tool for managers in many situations (NEGULESCU, 2014).
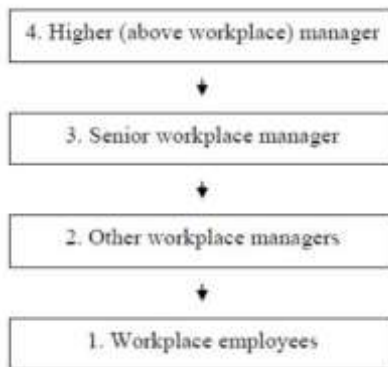
Figure 6. Implied hierarchy of decision-making authority, (Meagher & Wait, 2004)
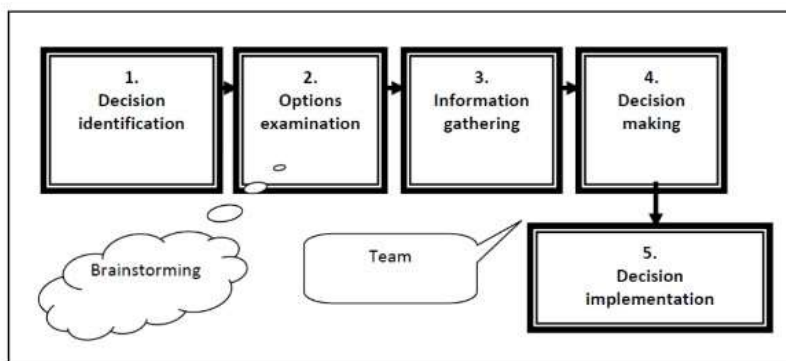
Figure 7. Decision making Process in 5 steps, (NEGULESCU, 2014)

To understand the relationship between the Management Demographics and Rational Decision making there is another model that examines it (RDM), and firm performance (Goll & Rasheed, 2005) presented in Figure 9 (Goll & Rasheed, 2005). found that, a significant support for the influence of top management demographics on rational decision making and the moderating influence of environmental generosity on the rational decision making–firm performance relationship.
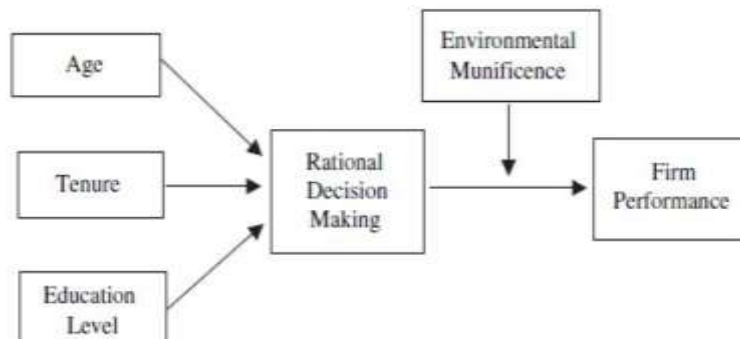
Figure 10. TMT characteristics, Rational decision making, environmental munificence and firm performance concept model, (Goll & Rasheed, 2005)

6. Data Driven Decision Making

The shown framework in Figure 10 (B., Margaret, & Daniel, 2006) represents a range in which data are transformed into information and ultimately to knowledge.

The style was measured by The General Decision-Making Style scale by Scott and Bruce (1995) (Allwood & Salo, 2012) , which is one of the most well-established and well-researched scales.

There are two indicators to determine Stress: The Perceived Stress Questionnaire (PSQ), and self-reported sleep quality. The PSQ is a well-established instrument that measures subjectively experienced stress, which is often a precursor of, (Allwood & Salo, 2012).

Although the relation between decision making and stress in the work context of (Allwood & Salo, 2012) might be important especially while making decision with huge amount of data, there is very little, or no, prior research that proof its existence.
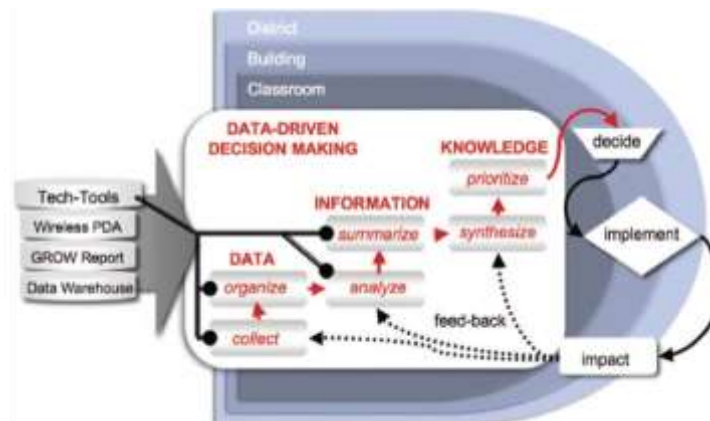

Figure 10. conceptual framework of data driven decision making, (B., Margaret, & Daniel, 2006).

7. Leadership and Decision Making

All leadership styles in making decisions, whatever styles used depends on the situation. But they are democratic, transformational, and authentic in nature. Even, where autocratic style is used they employ an authentic way of implementing it or transformational way this is supported by argument of that for leaders to gain the support of subordinates and community, decision making must be transparent as well as ethical justified (Kayode, Mojeed, & Fatai, 2014).
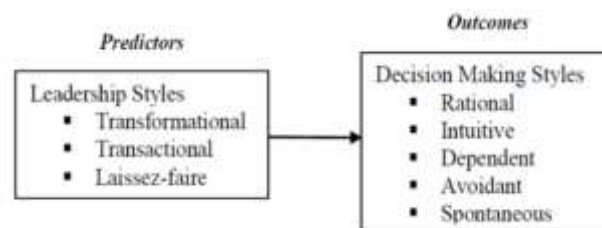

Figure 11. Schematic representation of the effect of leadership styles on the prediction of decision-making styles (Riaz & Anis-ul-Haque, 2016).

The present study examined the role of transformational, transactional, and laissez-faire leadership style on prediction of rational, intuitive, dependent, avoidant, (Riaz & Anis-ulHaque, 2016) and spontaneous decision-making style. Multifactor Leadership Questionnaire and General Decision-Making Style Questionnaire were administered on a purposive sample of 300 top, middle, and lower level bank managers (Riaz & Anis-ulHaque, 2016).

8. Research Methodology

The thesis paradigm is qualitative for an exploratory type that often relies on qualitative approaches to data gathering such as informal discussions (with consumers, employees, managers), interviews, focus groups, and/or case studies.

Descriptive purpose is to obtain data that describes the topic of interest, which is in this case to define the adopted decision-making styles. Also, it may help to understand the characteristics of the management team in a critical situation by understanding the perceived stress in tough business situations, such as in currency devaluation. Moreover, to start thinking in a systematic way when making crucial decisions that are associated with big investments. While offering ideas for further probing and research, it can help make certain (simple) decisions that might be related to new product price positioning, opening hours, and cost reduction (Sekaran & Bougie, 2016).

The logic of this thesis is deductive, as the proposed model was initially designed to study what variables are affecting the

decision-making styles, the found models in the science are almost covering most of the variables, such as the demographics and perceived work stress. However, further search and study that use technique will be Quantitative and the outcome is applied, to identify the amount and direction.

8.1 Research Questions

8.1.1 Major questions

This research will answer the question of What are the applied decision-making styles among NB decision makers, and to what extend these styles define their decision-making process?

8.1.2 Minor questions

Minor Q.1: Does the different Age groups influence the decision-making styles?

Minor Q.2: Does the Job Stress affect the adopted decision-making styles?

Minor Q.3: Does the Leadership Style influence the adopted decision-making styles?

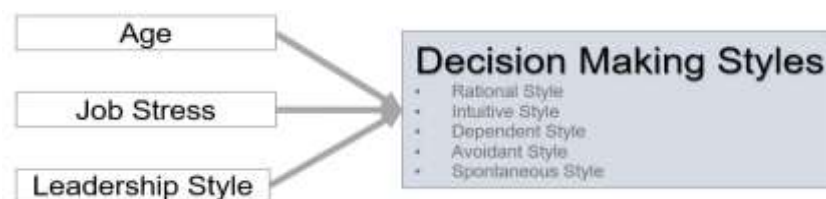**9. Theoretical/Conceptual Framework**

Figure 12. Theoretical/Conceptual Framework

Decision making styles

Decision-making styles can be understood as a habitual pattern which individuals use in decision-making. Furthermore, decision-making styles can be understood as individuals' characteristic mode of perceiving and responding to decision-making tasks such as Rational, Intuitive, Dependent, Avoidant, Spontaneous.

According to Scott and Bruce, individuals generally have different levels of all five styles, although one style is usually dominant.

Age, as managers become older, most of them show more interest in the aspects that interfere in decisions. While young managers often make decisions under the guidance of their feelings and of social aspects, contrasting seniors (Acedo, Acedo, Olivera, & Closasb, 2009).

Job stress

The definition of stress is "a process by which certain environmental demands evoke an appraisal process in which perceived demand (Cannon-Bowers & Salas, 1994) exceeds resources and results in undesirable physiological, psychological, behavioral, or social outcomes

Leadership Styles

Leadership is defined as the process of inspiring others to work together to achieve a common goal in each entity, it is an inevitable element of group dynamics (Kayode, Mojeed, & Fatai, 2014).

10. Hypotheses

As introduced in many models that decision making styles are affecting by multi factors, accordingly the below hypothesis will reflect the relevant to the case.

H1o: There is no relationship between the **age** and the adopted decision-making style.

H1a: There is a relationship between the **age** and the adopted decision-making style.

H2o: There is no relationship between the **Job stress** and the adopted decision-making style.

H2a: There is a relationship between the **Job stress** and the adopted decision-making style.

H3o: There is no relationship between the **Leadership Style** and the adopted decision-making style.

H3a: There is a relationship between the **Leadership Style** and the adopted decision-making style.

Decision making style measures

The research using a GDMS questionnaire

This scale provides a broad perspective on decision styles and is one of the most well established and well-researched scales for decision-making styles (Scott & Bruce, 1995). The GDMS questionnaire measures five decision-making styles and consists of 25 items (Scott & Bruce, 1995, use of the Decision-Making Styles(Scott & Bruce, 1995).. Each item describes decision making in practice, and the respondent rated the extent to which he or she agreed with the stated decision behavior on a five-point scale (1 Strongly disagree, 5 Strongly agree) (Scott & Bruce, 1995)..

Job Stress

Job Stress is measured using the questionnaire developed by Parker and DeCotiis (1983) (Ugur, Serra, & Elif Bilginoglu, 2013).

Multi-factor Leadership Questionnaire (MLQ) - Form 6S

It is a well-known and effective tool for Transformational Leadership measurement is the Multifactor Leadership Questionnaire, known as the MLQ (Ugur, Serra, & ElifBilginoglu, 2013).

For the quantitative study, the shortened form of Multifactor Leadership Questionnaire, Form 6S (MLQ-6S) was used and these factors are grouped according to Avolio and Bass's (2004) definitions.

11. Data Collection

Data collection has been started from a pilot test from around 8 respondents to test the reliability of the model. During filling in the survey, some comments from the respondents were related to the language or the used wording, accordingly, added between parentheses the synonym's keep the original words. This was only for the uncommonly used words. Third step after conducting the reliability test of the model, the sample were calculated using the rules of 95% confidence level and 5% margin of error, given that the population that represent the decision makers in NB is 80 managers in different departments and levels.

All items of both the GDMS and Job stress surveys were chosen, however for the Leadership styles identification a shorter form of questionnaire used. This to avoid increase the length of the questionnaire, since the number of items reached 60. The survey was distributed among the closest members of the management team of NB to the researcher. This is order to be able to get their evaluation and feedback regarding the questionnaire. Data collection has been started from a pilot test from around 8 respondents to test the reliability of the model. After conducting the reliability test of the model, the sample were calculated using the rules of 95% confidence level and 5% margin of error, given that the population that represent the decision makers in NB is 80 managers in different departments and levels.   Then the survey to the targeted sample of 69 members sent before starting the analysis using SPSS analysis tools.

From the demographic analysis we can find that 4.1, 71.0% of the sample size were males, while the rest of 29.0% were females, which shows that most of the management team consists of men. This is very normal in the tires sector in Egypt since the job requires qualifications and requirements that men can fit in more than female. Moreover, up to 36% from the respondents are in the age group from 29-33, while the two groups ranging from 34-36 and 37-40 have 31% and 23% respectively. Only 10% were ranging from 41-45 years old. The sample design considered the different management positions to ensure that all key decision makers are included in all business divisions. From the collected responses, we can find that Marketing & sales professionals presents the highest percentage of 45%. This is quite expected since the core business depends on selling and marketing different products and services. Then operation and financial professionals come after that with 17 % and 13 % respectively. The figures of technical, HR, and supply chain professionals were around 10%, 9% and 6% respectively. 35.0% of the respondents have 9-12 years of experience, 32% of the respondents have 13-17 years of experience, and 26.0% of the respondents have 18-20 years of experience, while only 7% have above 20 years of experience. It can be understood that different ranges of managers' years of experience might help increasing the decision accuracy and speed up the process in especially in the difficult market situations. Also, past experience may help in predicting the future decision making.

To measure the internal consistency Cronbach's alpha test was conducted, that is to define how closely related the proposed variables to each other. Cronbach's alpha is a measure of scale reliability. The alpha coefficient for the Decision-making style is 0.505, which contains 25 items. For the job stress and leadership styles which have Cronbach's alpha of 0.797 and 0.645 respectively.

12. Data Analysis, Findings, and Discussion

Descriptive Statistics

This section presents a descriptive analysis of the question items of the variables: Decision making styles, age, Job stress, and Leadership styles. The analysis shows the Mean, Median, Mode, and Standard Deviation of each item and the conclusions drawn from this data.

Decision making styles (Dependent Variable)

The first question that we need to answer is to define the most dominant decision-making style or styles. As can be seen in below table 1, the mean of Rational, Dependent, and Intuitive decision-making styles is higher than the spontaneous and avoidant.

Table 1. Statistics of decision-making styles

	Rational	Intuitive	Dependent	Avoidant	Spontaneous
N Valid	69	69	69	69	69
Missing	0	0	0	0	0
Mean	4.2174	3.2261	3.5246	2.5536	2.6232
Median	4.2000	3.2000	3.6000	2.6000	2.6000
Mode	4.20	3.20	3.60[a]	2.80	2.60
Std. Deviation	.47371	.60187	.43264	.50544	.53746

a. Multiple modes exist. The smallest value is shown

For the decision-making style output, it is obvious that the mean is higher than both median and mode, thus, distribution shows left skewness. Which is an indication that respondents lean towards adopting specific styles when making their decisions. For which above 70% prefer to apply the rational decision-making style, while 16.2% and 13.5% adopt the dependent and intuitive style respectively.

The mean of answers provided by the respondents where the rational decision making has the highest mean value of 4.2, which means they tend to adopt the rational style in their decision-making thinking process.   While the dependent style has lower mean of 3.5 that also means decision makers tend to ask for support from others when they have an important decision. But when there is insufficient information, they tend to rely on their intuition, which mean value is 3.2.

Finally, from the mean of the two styles, Avoidant and spontaneous, which mean respondents are less likely to avoid making decisions as well as they don't rush to make quick decisions.

As a result, the Standard deviation of Decision-making styles, as a very commonly used measure of dispersion, indicates a high variability in the responses to the GDMS questionnaire since none selected the remaining two styles, avoidant and spontaneous.

The results of the data analysis show that more decision makers used the rational decision-making model than any other model, which is based on the descriptive analyses of the current study.

Age (independent Variable)

Age descriptive presents equal mean and median of 35 years old, while the mode is lower by 2 years at 33 years old. Age has is left skewed distribution. This reflect that the most frequent age of the management team in NB is 33 years old.

Job Stress (independent Variable)

For the job stress variable, results are categorized into three Low, Moderate and High. Where we can find that up to 58% consider their job stress level is moderate, while 30% perceived higher job stress level and only 11.6% have low level of job stress.

Leadership Styles (Independent variable)

The mean is slightly lower than the median and mode, which reflects a left skewed distribution as 56.8% of respondents lean towards the transactional leadership style, 29.7% incline to the transformational style, and only 13.5% prefer the Laissez-faire style.

Inferential Analysis

To determine the relationship and differences between categorical variable, The ChiSquare test is applied. Also, to show the cross tabulations of survey response data. As cross tabulations reveal both percentage and frequency of answers to questions per category of respondents (job stress, decision making style, and leadership style).

Association between Decision Making styles and Age

To study the association between the Decision-making style and Age factor, a chi squared test is applied. Usually, this test is used to examine impartiality between two nominal variables. In the case of rejecting the null hypothesis of independence between two factors, then the source of significance has to be defined (Guogen Shan*, 2017). The factors that usually used to define this are Cell residuals, including standardized residuals and adjusted residuals. This is known as a post hoc test after a statistically significant chisquared test (Guogen Shan*, 2017). For the adjusted residual value if it is above +/- 2, then there is a significant relationship.   As seen in table 2, the Pearson Chi-Square is bigger than 0.05%, which means the relationship is insignificant between the decision-making styles and Age. This rejects H1 and

Fail to Reject Ho. It is important to note that the age questions were a ratio question not categorical. However, because the dependent variable is categorical Age had to be turned into categories, for example Cat. 2 range is from 26-30, Cat. 3 (31-35), Cat. 4 (36-40), and Cat. 5 (41-45). It was claimed that Decision making style is influenced by the age of the decision maker, and similar age groups prefer to apply relatively the same styles. However, we find a significant relationship between the two age groups of Cat. 3 and Cat 4, and the Dependent decision-making style. While other age categories have insignificant relationship.

Table 2. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	10.442[a]	8	.235	.275		
Likelihood Ratio	11.319	8	.184	.160		
Fisher's Exact Test	11.337			.151		
Linear-by-Linear Association	2.649[b]	1	.104	.106	.061	.022
N of Valid Cases	69					

a. 12 cells (80.0%) have expected count less than 5. The minimum expected count is .13.

   b. The standardized statistic is 1.628.

Association between Decision Making styles and Job stress

In table 3, we can find that who adopt the Rational decision-making style are experiencing moderate level of job stress. The adjusted residual is above +/- 2 then the relationship can be considered significant.

Also, the Pearson Chi-Square shows less than 0.05%, then there is a significant relationship between the two styles, rational and intuitive, and the job stress. This answers the null hypothesis no.2 that there is a relationship between the adopted decision-making styles and job stress.

Table 3. Chi-Square Tests table_ DMS and Job Stress Association

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1sided)	Point **Probability**
Pearson Chi-Square	10.228[a]	4	.037	.034		
Likelihood Ratio	10.836	4	.028	.041		
Fisher's Exact Test	10.700			.017		
Linear-by-Linear Association	1.1 34[b]	1	.287	.310	.176	.059
N of Valid Cases	69					

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.04.

b. The standardized statistic is -1.065.

Association between Decision Making styles and Leadership Styles

71% of respondents selected the rational decision-making style and up to 80% of this percentage classified as Transactional leadership style leaders. As presented in table 4, the adjusted residual is above +/- 2 then the relationship can be considered significant. And the Pearson Chi-Square value is less than 0.05%, so there is a significant relationship between the adopted or the most dominant decision-making styles and the leadership styles. Thus, Reject Null Ho. Both styles Transactional and Transformational have a significant relationship with the decision-making style, but not with the laissez style.

Table 4. Chi-Square Tests table_ DMS and Leadership styles Association

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	11.282[a]	4	.024	.022		
Likelihood Ratio	11.423	4	.022	.035		
Fisher's Exact Test	10.905			.015		
Linear-by-Linear Association	1.450[b]	1	.229	.267	.141	.049
N of Valid Cases	69					

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.43.

   b. The standardized statistic is -1.204.

13. Discussion, Findings and Conclusion

NB decision makers correspond to the classical economic view of decision-making. The main issue is when formulating

the problem that needs action to be taken, different styles are mixed together to create the final decision. Although the dominant style is the rational, the respondents are preferring more than one style. Despite that, to simplify the analysis, the major style was selected to be able to define the characteristics of the decision making.

From this, it can be concluded the way in which individuals gather and process information, for instance, individuals may balance between habit and strategic way of thinking in approaching a problem. Real life example is when approaching a market price issue, individuals may think of reacting directly by applying a counter price action, instead others think of the impact of price fluctuation in the market in terms of the future sales and growth. Furthermore, the information gathered most of the time lack the scientific way of analysis, which makes it difficult to create alternatives that drive the decision in the systematic process.

Accordingly, the decision is characterized by a detailed search for and logical judgement of alternatives and is by a search for support and direction from different members of the team. Also, and always the emotional factor plays a pivotal contribution in the final decision. Moreover, the decision-making profile of NB management team tends to Rationality with its emphasis on collection of information and extensive analysis even if not in a systematic fully organized way, team engagement and support, as well as the emotional considerations of the leaders. This helps to reduce the associated risk in the major strategic decisions.

From literature we can find endless number of independent variables that affect eh decision making style. For which, three main variables are selected to be the most relevant to the NB case. These as presented in the theoretical framework are Age, Job stress and leadership style. Model has been validated and findings are presented in details in the previously.

14. Conclusion, Recommendation and Future Work

Integrating the literature review and the problem definition developed a theoretical model revealed that 70% of the decision makers in NB prefer to apply the rational decision-making style and the remaining 30% apply the dependent and intuitive styles, whereas none adopted the spontaneous and/or avoidance styles. Furthermore, the model analysis proved that decision making is influenced by both Job stress and leadership styles, but not the age of the management members generally.

Transformational Leadership style has a significant relation with both rational and intuitive decision-making style, which means the team members have a strong set of ethics, values and beliefs. Transactional style also found as one the leader's profile in NB case, leaders who seek to uphold stable performance to achieve the regular sales targets. Which means NB has a profile that contains both styles with little presence to the Laissez-faire leadership style who leave the decision completely to their followers. Mostly important is the used tools, NB depends much and only on their built-in system which is an SQL system, that doesn't support the many of the essential analyses needed to support the decision.

The proposed solution might be using one of the Microsoft ERP modules, and or python to analyze the huge amount of data since 2006.

The world is experiencing different economic, political, and pandemic risks. I'd suggest studying the impact of Covid-19 on the decision-making process to examine the consequences of such a pandemic. The trigger of this study was the financial crisis of currency devaluation in Egypt in 2016. Since, many reviews warn of a second wave of the virus with even more severe symptoms.

15. Limitations of the Study

This study is methodologically limited to the quantitative paradigm, with the sample respondents chosen from selected population. However, the study presents opportunities for future research which could employ mixed methods and also draw samples from qualitative and large-scale quantitative respondents.

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