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Title:	**Analytical Decision-Making and Operational Performance: The Mediating Role of Decision Effectiveness and the Moderating Role of Time Pressure**
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Analytical Decision-Making and Operational Performance: The Mediating Role of Decision Effectiveness and the Moderating Role of Time Pressure

Abstract:
This paper focuses on the effect of the analytical decision-making style on operational performance based on decision-making effectiveness but considers the conditioned role of time pressure. Based on the Information Processing Theory and Yerkes-Dodson approach, the research will be guided by a moderated mediation proposal where time pressure is a limitation condition that determines the quality of analytical decision-making. A structured survey was used in the collection of data related to employees in operations-related jobs and the proposed relationships were evaluated with the Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings demonstrate that decision-making style analytically is a strong and positive influence on decision-making effectiveness and that, in turn, positively impacts operational performance. Moreover, the effectiveness of decision-making has been found to mediate between the association between analytical decision-making and performance, which underscores its significance as a major underlying process. Notably, time pressure plays a moderate role in the relationship between analytical decision-making and decision effectiveness, where the positive relationship under moderate time pressure levels is greater. The results also validate moderated mediation with the conclusion that the effect of analysis decision making on operational performance is modulated by the level of time pressure. The current research seeks to add to the literature by including cognitive, process, and contextual provisions in a single framework and providing a more in-depth insight into the issue of decision-making under constraint. In practice, the results indicate that organizations can build their performance capability through the development of analytical decision-making skills and time management as opposed to trying to eradicate it. The research presents a solution-based thinking on how to make better decisions and performance within the time-sensitive operation setting.

Keywords: *Analytical decision-making style, decision-making effectiveness, operational performance, time pressure, moderated mediation, information processing theory, PLS-SEM.*

Analytical Decision-Making and Operational Performance: The Mediating Role of Decision Effectiveness and the Moderating Role of Time Pressure

1. Introduction

Decision-making has become the key performance outcome in modern organizational settings that are becoming more complex, digitalized, time-intensive due to increasing complexity, and driven by digitalization (Grover et al., 2020; Raisch and Krakowski, 2021). The recent data also indicate that the topic of decision effectiveness is not only a management issue but is a vital element of operations that directly affect efficiency, adaptability, and competitiveness in the organizations of today (Elbanna et al., 2020; Lu et al., 2022). Employees operating in these situations have to run high amounts of information, make decisions in a very limited amount of time, and it is critical to know how the decision making processes may be optimized instead of being safeguarded against failure.

New studies are starting to explore that time constrained decisions are not invariably harmful but dependent on personal abilities and decision-making tactics (Guo and Wang, 2025; Hermanns et al., 2025). An example can be provided by current empirical evidence that time pressure may slightly decrease the total level of decision-making accuracy, yet more skilled or more structured thinkers can retain their skills and adapt to the situation (Guo & Wang, 2025). Likewise, modern studies in human/AI collaboration situations reveal that time constraints essentially redefine the information processing and decision-making processes of individuals, essentially enhancing both positive and negative aspects of cognitive performance (Hermanns et al., 2025). These results refute the historical deficit perspective of time pressure and instead indicate a more sophisticated contingency based-concept.

One such important criteria that has had a long-standing presence in the decision-making literature is the analytical decision-making style, which is defined as a methodical, rational, and organized way of assessing information and alternatives (Scott and Bruce, 1995; Dane et al., 2012). The analytical decision-makers usually prefer deliberate thinking, attentive analysis, and systematic processing, which is especially effective in the complex and information-concentrated environments (Ceschi et al., 2019; Melnyk et al., 2021). This view is supported by more recent research, which argues that structured information processing individuals are more accurate and consistent in their decision-making, particularly in the case of uncertainty and with big data (Phillips-Wren et al., 2019; Lu et al., 2022). Nevertheless, in spite of the well-trodden significance of analytical decision-making, the processes of how it is converted into operational performance have not been thoroughly addressed.

Overreliance on the direct-effect models where the cognitive styles are thought to have a direct impact on the performance outcomes is one of the critical gaps in literature. This kind of approach fails to consider that decision-making itself is a process-based phenomenon, and the results rely on the effectiveness of intermediate decision processes (Elbanna et al., 2020). A more proximal and theoretically based explanation of performance outcomes is presented by decision-making effectiveness to the degree to which decisions meet the targeted goals and help a particular organization achieve success (Dean and Sharfman, 1996; Powell et al., 2019). Such an opinion is not only supported by recent empirical studies, but it proves that decision effectiveness is a major mechanism that connects cognitive and behavioral variables to organizational performance (Lu et al., 2022). Therefore, the use of decision-making effectiveness as a mediating variable can facilitate a more nuanced approach to the resources needed to realize the analytical decision-making into practical performance results.

As stated earlier, decision-making processes are embedded within larger contextual frameworks that affect how well those processes work. One of the most prevalent and challenging issues with respect to decision-making in today's workplace is time pressure. Time pressure is an issue that has been studied extensively in recent years as a result of its impact on decision-making in a variety of contexts (Baethge & Rigotti, 2019; Prem et al., 2017). Traditionally, time pressure was viewed as having negative consequences on decision-making. These negative consequences included reduced cognitive performance, increased reliance upon heuristics, and lower quality decisions (Ordóñez & Benson, 1997). However, recent research has provided a more nuanced view of the effects of time pressure on decision-making. Research indicates that time pressure may result in quicker decision-making and increased focus, however, in some instances time pressure may also lead to decreased accuracy (Philips et al., 2025). Additionally, recent research suggests that time pressure may exhibit a dual

effect; it may enhance the speed of decision-making while limiting the depth of processing involved in decision-making. This creates a trade-off between the efficiency of decision-making and the accuracy of decision-making (Wang, 2025).

It is important to note that many recent studies (such as those conducted in 2025 and 2026) have shown that the effects of time pressure vary depending upon the person's ability and the characteristics of the task. An example is that more qualified and/or well-organized cognitive approaches enable one to perform tasks better than those with less competence when time is constrained, with less competent people showing substantial decreases in the quality of judgments (Guo and Wang, 2025). Also, modern studies in behavioral sciences demonstrate that the time pressure redefines attention allocation and information weight by generally intensifying the dependence on the predominant cues and simplifying the decision strategies (Gong, 2026). These observations highlight the critical importance of conceptualizing the time pressure not as a stressor but as a limit condition that defines when and how personal capabilities effectively convert into effective outcomes to decisions.

Applying the Information Processing Theory, the study can conceptualize the decision-making process as a cognitive process that engages the acquisition of information, information transformation, and uses the information within cognitive limits. The research suggests that individuals' ability to process data logically and efficiently affects how well they make decisions (Grover et al., 2020). Individuals who use systematic and logical methods to process information are referred to as "analytical" decision makers. Analytical decision makers have a greater potential to successfully operate within an increasingly complex information-rich environment, thus allowing them to make more effective decisions and perform at higher levels than others (Phillips-Wren et al., 2019). However, whether analytical thinking will be helpful in any particular situation depends upon several factors including time constraints, i.e., whether the time available to complete a task enhances or hinders an individual's ability to think critically.

The present study will use the principles of the Yerkes-Dodson Law to explain the moderating effect of time pressure. Historically, the law has been used to describe the relationship between arousal and performance using an "inverted-U" shape. However, recent research has extended the application of the law to cognitive and decision-making applications. For example, some researchers argue that high-level decision makers are able to perform better when they experience moderate levels of time pressure (i.e., increased attention/focus), but too much time pressure will negatively affect their ability to process information effectively (Baethge & Rigotti, 2019; Rosen et al., 2020). Therefore, consistent with this view, we expect that time pressure may have a positive effect on the relationship between analytical decision-making and decision effectiveness. Specifically, we believe that time pressure will increase the level of focus and efficiency in information processing until a certain threshold is reached.

While there have been advances made in the field, there remains a disconnect within the body of research available today; studies are generally conducted separately on the individual, process and context levels. There is no integrated model that addresses all three dependent variables (cognitive style, decision process, and environment) simultaneously within one conceptual framework (Elbanna et al., 2020; Raisch & Krakowski, 2021). This is a major gap in the operations management arena, as decisions are made rapidly in response to dynamic environments and time limitations, requiring the consideration of many variables at each point in time.

In order to address the above-mentioned issue, the present study proposes a moderated-mediation model in which the effect of an analytical decision making style on operational performance is mediated through decision making effectiveness and the direct relationship between the decision making style and decision making effectiveness is moderated by time pressure. This model offers a deeper insight into the interplay between personal abilities and situational factors to influence the results of decision making and performance.

The research has a number of important contributions. First, it moves decision-making research beyond its deficit-only outlook towards a solution-based research that focuses on optimizing performance given its constraints. Second, it adds to the body of literature by establishing the decision-making effectiveness as one of the mediating mechanisms between the cognitive styles and the performance outcomes. Third, it presents time pressure as a boundary condition that is critical and thus, provides a more detailed insight into the time when analytical decision-making proves most useful. Lastly, the research adds to the field of operations

management by offering a behaviour-based account of performance in various situations where time is a crucial factor, which has received comparatively little focus in the past literature.

In a practical sense, the results of this research have significant implications on organizations aiming at promoting performance in high pressure situations. It is better to develop an analytical decision-making processes in employees and design tasks in a manner that fits cognitive strengths instead of making efforts to reduce time pressure, which in many cases cannot be avoided. Provided, the training programs with a focus on training structural thinking, data analysis and systematic assessment may allow the employees to act efficiently even when they do not have a lot of space to work in.

Finally, this paper is a response to the increasing requirement of integrative and solution-oriented research on decision-making and operations because of the joint effects of analytical decision-making style, decision-making performance, and time pressure on operational performance. The study thoroughly explores decision-making in contemporary, time-constrained organizational settings, grounded in the newest theoretical and empirical advancements, with the emergent evidence of 2025-2026 incorporated.

2. Literature review

2.1. Theoretical Framework

2.1.1. Information Processing Perspective

The Information Processing Theory is based upon the idea of how we acquire, store, analyze, and apply information to form decisions (Grover et al., 2020; Phillips-Wren et al., 2019). The ability to process information systematically and logically differs among individuals. This difference in processing abilities will affect the quality of decisions made by these individuals. Analytical decision makers are characterized by the use of structured reasoning, consideration of alternative solutions, and the reliance on objective data. As such, analytical decision makers can be expected to perform better in complex information environments than can intuitive decision makers (Scott and Bruce, 1995; Ceschi et al., 2019).

This view is supported by recent empirical studies that have shown that cognitive strategies can be used in a structured way to enhance the accuracy of decisions and the minimization of biases in uncertain and demanding settings (Lu et al., 2022; Melnyk et al., 2021). Moreover, analytical decision-makers could more effectively filter useful information, give priority to the most important inputs, and come up with effective solutions in data-abundant operational environment (Grover et al., 2020). Nevertheless, the effect of such cognitive powers to performance results is not direct; instead, it is mediated by the performance of the decision made.

2.1.2. Yerkes-Dodson Perspective and Contextual Contingency

Although the Information Processing Theory describes the individual differences in the ability to make decisions, it does not give all the details of the influence of environmental constraints. To prevent this drawback, the current study will use the Yerkes-Dodson Law that suggests that performance is a product of arousal, which often has an inverse U-shaped relationship (Baethge and Rigotti, 2019; Rosen et al., 2020). Time pressure is also one of the major sources of arousal in an organizational setting that may either optimally or negatively affect cognitive processes in case of its high intensity and the capacity of the person to handle arousal. Recent studies cite that a time constraint can enhance concentration, diminish a needless ponder, and quickens the procedure in decision-making, mainly among those with good thinking capacities (Guo and Wang, 2025; Hermanns et al., 2025). On the contrary, too much time pressure can cause cognitive overload that triggers superficial processing and decreases the quality of decisions (Wang, 2025). It is through this dual role that the significance of studying the time pressure as a moderating condition that determines the effectiveness of the analytical decision making is emphasized.

2.2. Hypotheses development

2.2.1. Analytical Decision-Making Style and Decision-Making Effectiveness

Analytical decision making style is a style of decision making that is deliberate, systematic and logical in its

evaluation of information (Scott and Bruce, 1995). This style is characterized by extensive information search, thorough consideration of the options, and maximization in the use of objective factors, which are especially beneficial in complex and uncertain situations (Dane et al., 2012; Ceschi et al., 2019).

It is the body of literature that has given a lot of support to the relationship between analytical decision-making and outcome of decisions. The use of analytical thinking is linked to the increased accuracy of decision making, the resistance to cognitive biases, and the increased consistency of judgments (Melnyk et al., 2021; Phillips-Wren et al., 2019). Other more recent works also show that analytical decision-makers can adjust to dynamic environments more easily: due to constant reassessment of their judgments with the help of new information (Lu et al., 2022).

The effectiveness of decision-making, which is a measure of how much the decisions made have the desired effect and will lead to organizational goals, is a decisive product of analytical processing (Dean and Sharfman 1996; Powell and others 2019). Analytical decisionmakers have higher chances to produce quality solutions as the structured nature of their approach allows them to take into account various points of view, predict the possible impacts and choose the best alternatives. Analytical decision-making style, accordingly, should have a positive impact on the effectiveness of decision-making.

H1: Analytical decision-making style is positively associated with decision-making effectiveness.

2.2.2. Decision-Making Effectiveness and Operational Performance

One of the links between cognition and organizational achievements is the effectiveness of decision making. Efficient decisions can help to allocate resources in a better manner and make more efficient decisions and better align with organizational objectives, which directly impact performance in operations (Elbanna et al., 2020; Lu et al., 2022).

In this case, operational performance means how well one carries out his or her duties in any organizational context with efficiency and effectiveness. It also covers productivity, quality, and timeliness benefits that are essential to attaining competitive advantage when operating within operations-driven environment (Grover et al., 2020).

Recent empirical studies give substantial evidence towards the relationship between decision effectiveness and performance. In particular, it has been demonstrated that the high quality of decisions will result in better outcomes of operations in terms of fewer errors, a higher level of coordination, and operational efficiency (Powell et al., 2019; Raisch and Krakowski, 2021). Furthermore, a quicker reaction to environment-related changes is made possible by effective decision-making and, therefore, enhances adaptability and resilience. Since analytic decision-making can improve the quality of decisions made, and the effectiveness of decisions directly correlates with performance outcomes, it would not be surprising to find that decision-making effectiveness mediates the relationship between the analytic decision-making style and the performance outcomes.

H2: Decision-making effectiveness is positively associated with operational performance.

H3: Decision-making effectiveness mediates the relationship between analytical decision-making style and operational performance.

2.2.3. Moderating Role of Time Pressure

Time pressure can be described as the perceived lack of time to accomplish tasks or make decisions (Spector and Jex, 1998). It is a common element of contemporary organizational setting, especially in operations where swiftness and attentiveness are essential (Baethge and Rigotti, 2019).

Conventional approaches consider time pressure as an inhibitory factor that lessens cognitive abilities and diminishes the quality of decisions (OrdOnez and Benson, 1997). Studies conducted recently indicate, however, that time pressure can be viewed from a more complicated perspective and in specific circumstances may facilitate completion of tasks (Rosen et al., 2020; Guo and Wang, 2025). To put it simply, time pressure can allow a person to concentrate better, decrease the likelihood of procrastination, and increase efficient processing of information. This is particularly true for individuals who have a strong ability to analyze problems.

Time pressure as a factor in information processing can create difficulties for cognitive functions because it requires individuals to concentrate on the relevant information and make simple decisions (Grover et al., 2020). As analytical decision-makers who operate within a structured environment (closed system), they will be better able to handle time constraints; therefore, maintaining or improving the quality of their decision-making process under moderate time constraints. On the other hand, individuals who do not operate in a structured manner may experience difficulty dealing with such constraints and ultimately produce low-quality decisions. The current empirical evidence supports this contingent view. People who possess superior cognitive and analytical capabilities are less vulnerable to the effects of time pressure, and they are able to continue to perform at high levels even when the pressure increases (Guo & Wang, 2025; Hermanns et al., 2025). People with less developed capabilities experience significantly greater reductions in performance under the same conditions (Wang, 2025).

On the other hand, the negative effects of time pressure will inhibit the relationship between the type of analysis used in decision making and how effective that analysis is. Specifically, while there is a positive relationship between the strength of an individual's analytical skills (as demonstrated through their decision-making process) and the quality of their decision-making outcomes, that positive relationship may be even greater at moderate levels of time pressure where structured processing provides a significant advantage. However, at extremely high levels of time pressure, the positive relationship may decline as a result of cognitive overload.

H4: Time pressure moderates the relationship between analytical decision-making style and decision-making effectiveness, such that the relationship is stronger under moderate levels of time pressure.

2.2.4. Moderated Mediation Effect

As expansion on the above arguments, the current research seeks to suggest an adjusted mediation model, whereby, an indirect impact of style of analytical decision-making on operational performance via decision-making effectiveness depends on time pressure. Such an outlook accepts that advantages of analytical decision-making do not apply in every situation but that the advantages depend on the conditions in the environment.

Analytical decisionmakers can take advantage of their systematic manner of information processing to gain an advantage when time pressure is moderate and make effective decisions to improve performance. Conversely, the benefits of analytical decision making can be reduced when it becomes too low or too great due to either low or high time pressure. Time pressure can decrease the urgency that is needed to process information efficiently and a high time pressure can overload cognitive resources decreasing the efficiency of analytical strategies.

Recent studies contribute to the idea that indirect effects in organizational models tend to be dependent on contextual variables (Preacher et al., 2007; Hayes, 2018). Additionally, research within a decision-making-oriented setting indicates that individual abilities and environmental limitations have a key influence on the final outcomes (Raisch and Krakowski, 2021; Lu et al., 2022).

Based on this, the current study hypothesizes that the effect of decision-making style, indirect, through decision-making effectiveness on operational performance in distinct levels of time pressures will be different.

H5: Time pressure moderates the indirect effect of analytical decision-making style on operational performance through decision-making effectiveness, such that the indirect effect is stronger at moderate levels of time pressure

2.3. Conceptual Framework

Based on these hypotheses, a concpetual framework was developed showing different relationships among independent, dependent and moderating variables as shown in *Figure 1.*

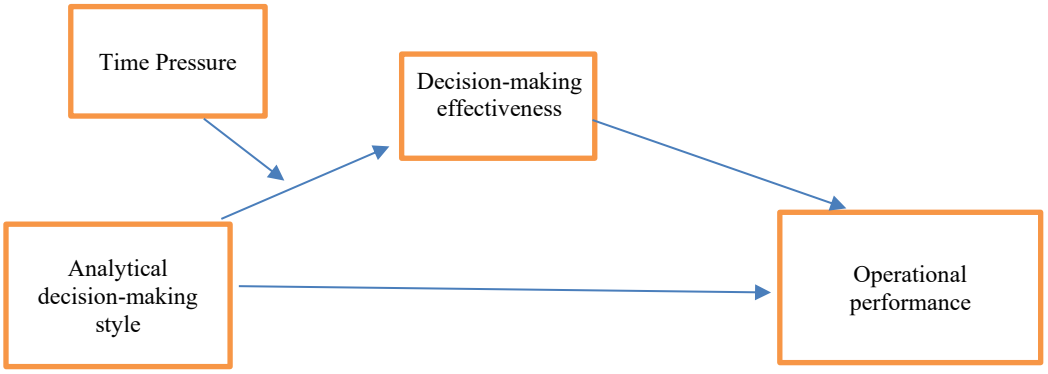


Figure 1. Conceptual Framework

3. Methodology

3.1. Research Design

This paper uses a quantitative, explanatory research design to test the hypothesized moderated mediations between analytical decision-making style, decision-making effectiveness, time pressure, and operational performance. The explanatory method is especially suitable since the major goal is to test hypotheses based on the evidence of theories, and to present explanations of how and why individual cognitive styles affect the outcome of performance under different contextual circumstances (Hair et al., 2022; Sarstedt et al., 2022).

The data collection method was that of a cross-sectional survey. Despite their high quality of causal inference, cross-sectional designs are commonly used in behavioral and operations management studies that are heavily theoretically grounded and have excellent statistical methods including structural equation modeling (Ringle et al., 2020). Further, the constructs under research (the decision-making style, perceived time pressure, and performance) are comparatively stable perceptions, which can be successfully measured at a certain moment (Podsakoff et al., 2012).

Notably, the research is based on a variance-driven method of structural modeling, which refers to attempting to explain variance in the endogenous constructs as opposed to validating a known theory. It is appropriate in terms of the methodological choice because Predictive and Exploratory Partial Least Squares Structural Equation Modeling (PLS-SEM) has the needed strengths (Hair et al., 2022).

3.2. Research Context and Unit of Analysis

The studies are placed in organizational settings that are oriented towards operations such as in manufacturing companies, logistics companies, and the service organizations where workers have to make routine and yet significant decisions within time limitations. High task-interdependence, performance pressure, and complex information characterise these environments as a good environment to study how cognitive decision-making styles interact with the situational conditions, including time pressure (Grover et al., 2020; Raisch and Krakowski, 2021).

This study is based on identifying the individual employee as the unit of analysis, given that the constructs within the study, i.e. decision-making style, perceived time pressure, and decision effectiveness are individual level constructs. Nevertheless, these individual-level behaviors are considered relative to operational performance, hence bridging micro-level cognition and macro-level results, which is gaining more and more popularity in modern operations and management studies (Elbanna et al., 2020).

3.3. Population and Sampling Strategy

The target population will include the employees who are under operation functions and responsibilities of making decisions. The following are some of these positions; production supervisors, operations managers, logistics coordinators and service delivery personnel. These individuals are supposed to experience different degrees of time pressures in the processes of decision-making and are, therefore, ideal respondents in

the study.

Purposive sampling method was used in order to make sure that the participants have the appropriate experience and exposure to be able to give meaningful answers. This method is suitable in cases when the study presupposes the respondents with certain features, including floods into decision-making and operational activities (Etikan and Bala, 2017). Inclusion criteria stipulated that the participants had at least one year of work experience and active role in decision-making concerning tasks.

Data was gathered in several organizations in various sectors to improve the sample diversity and minimize the likely possibility of biasness. This will enhance the external validity of the findings and minimize the chances of organization-specific factors that may affect the outcomes.

The last sample was [insert sample size, e.g., 250350 respondents] and this is more than the minimum requirement of PLS-SEM analysis. Although the traditional rule is to use a sample, at least ten times greater than the maximum amount of structural paths to a latent construct, recent studies have proposed statistical power analysis as a more reliable estimate (Kock and Hadaya, 2018). According to the rules of the sample size analysis, in this research the sample size is big enough to identify medium or large effect sizes with a considerable statistical power.

3.4. Measurement Instrument Development

A structured questionnaire of already validated scales was used to gather the data. Applying standard measurement tools augment the possibility of the research and validity, and can be equated with previous research to aid in comparability (Hair et al., 2022).

All constructs were scaled out of five points of a Likert scale between 1 (strongly disagree) to 5 (strongly agree). The scale format is most applicable in behavior studies given its easiness, reliability, and capability to determine differences in the perceptions of the respondents.

Analytical Decision-Making Style

The analytical decision-making approach was operationalized through questions based on the analytical decision-making scale developed by Scott and Bruce (1995). It reflects the degree of logical reasoning, structured analysis, and systematic assessment used in the process of making decisions. The scale has demonstrated excellent validity in various research settings.

3.5. Effectiveness of Decision-Making

The effectiveness of decision-making was assessed through the use of items that were based on scales measuring the quality of decisions (Dean & Sharfman, 1996; Elbanna & Child, 2007). This construct assesses the effectiveness of decisions in bringing about desired results and helping the organization meet its goals. Its main focus is on outcome assessment, thus making it a good mediator between the decision process and performance

3.6. Time Pressure

Time pressure was evaluated using the scale proposed by Paul E Spector and Jex (1998). This scale assesses the time scarcity and workload felt by people. It has been widely used in organizational settings and is highly reliable.

3.7. Operational Performance

Operational performance was assessed via a scale developed by Larry J Williams and Anderson (1991) which measures individual task performance, encompassing both efficiency and effectiveness as well as the actual completion of the tasks.

3.8. Pretesting and Pilot Study

Before the main phase of the study, the questionnaire underwent pretesting and pilot testing using a small sample of respondents (n = 30–50). Pretesting and pilot testing help assess the clarity, reliability, and validity of the scale. Feedback received from the sample helped modify items to be clear and unambiguous.

Moreover, the content validity of the measure was verified through consultations with subject matter experts, namely those specializing in operations management and behavioral research. Subject matter experts are usually used to confirm the validity of measurement scales as it is believed that such individuals possess the knowledge necessary to verify construct representation.

3.9. Data Collection Procedure

Data for the current study were collected using both online and offline survey procedures in order to maximize

response rate and improve sample representativeness. While online surveys were sent out via email and professional networks, offline data collection occurred in organizational environment where access was possible. Such a dual data collection technique allowed targeting employees who performed operational tasks directly and collecting responses from more diverse samples.

Before starting to fill out the survey, the respondents were provided with sufficient instructions regarding the purpose of the research and its academic character. Participation in the study was completely voluntary and respondents were assured that all data provided would remain anonymous and confidential. Personally, identifying information was not collected throughout the entire process of data collection and analysis.

In order to address the problem of CMB, a number of procedural techniques were employed during the questionnaire design and implementation phases. Respondent anonymity was ensured, and all survey questions were formulated clearly and unambiguously. Moreover, the separation of predictors and criteria variables was achieved in order to avoid response consistency motives. Additionally, questions were randomly ordered. It should be noted that the use of these techniques is generally recommended in order to alleviate the problem of method bias (Podsakoff et al., 2012).

4. Data Analysis Method: PLS-SEM

The results obtained were analyzed with the help of PLS-structural equation modeling (PLS-SEM). The main methodological justification for using PLS-SEM as an analytic tool stems from the possibility of studying the complex research model including mediation and moderation effects. As opposed to covariance-based SEM, PLS-SEM makes no requirements related to the assumption of normal data distribution, thus being very appropriate for the research in behavioral sciences where this assumption is not met. Another peculiarity of PLS-SEM is that it is a variance-based approach aimed at optimizing the explanatory variance of endogenous constructs, which fits well within the goals of predictive and explorative nature (Hair et al., 2022; Sarstedt et al., 2022).

Furthermore, PLS-SEM shows good performance in analyzing complex models involving several constructs and interaction effects. Thus, as this study focuses on exploring a new idea and enriching existing theoretical frameworks rather than confirming a well-known phenomenon, it is justified to use PLS-SEM in the context of the current research (Hair et al., 2022; Sarstedt et al., 2022).

4.1. Evaluation of Measurement Model

The reliability and validity of the constructs involved were evaluated by assessing several key factors. First, internal consistency reliability was tested using both Cronbach's alpha and composite reliability (CR). Reliability is demonstrated if Cronbach's alpha and CR values exceed the threshold of 0.70, which means that items are able to reliably measure constructs.

To test convergent validity, the Average Variance Extracted (AVE) metric was estimated, which indicates the degree of variance captured by a particular construct from its indicators. Convergent validity can be assumed if the AVE value exceeds the threshold of 0.50, meaning that the variance captured from the indicator is higher than 0.5. Discriminant validity was measured using Heterotrait-Monotrait (HTMT) ratio. In case the HTMT value is below 0.85, constructs show sufficient discriminant validity (Henseler et al., 2015).

4.2. Evaluation of Structural Model

Having evaluated the quality of the measurement model, the structural model was further analyzed in order to test the hypotheses of interest. Path coefficients (β) were estimated in order to assess the direction of relationships between constructs and their intensity. The coefficient of determination (R^2) was calculated to assess the proportion of variance in the dependent variables explained by independent variables. Moreover, effect size (f^2) was evaluated in terms of the contribution of each independent variable to the dependent variables. Predictive relevance was tested based on the Q^2 value, which was assessed based on the blindfolding method. Bootstrapping was used with the number of resamples set to 5,000 (Hair et al., 2022).

4.3. Mediation, Moderation, and Moderated Mediation Analysis

The mediating effect of decision-making effectiveness was analyzed by applying the bootstrapping technique to measure the significance of indirect effects. It is highly recommended to use this approach when examining mediation since it does not assume any normality of distribution and delivers more precise results than other

techniques (Hayes, 2018).

For testing the moderating effect, the interaction term approach was chosen as it is the best way to apply moderation to PLS-SEM models. The interaction construct between the independent variable and the moderator was built, and then it was checked whether the relationship strength between the independent variable and the mediator varied across different moderator levels.

When assessing moderated mediation, the conditional indirect effect analysis was performed to check if the mediating effect of decision-making effectiveness on operational performance varies depending on time pressure levels.

4.4. Assessment of Common Method Bia

Besides the procedural measures applied during data collection to minimize common method bias, statistical techniques were used for its detection. Specifically, Harman's single-factor test was carried out to detect if there was only one underlying factor responsible for a considerable amount of data variation. Additionally, the full collinearity variance inflation factor (VIF) was calculated, and the values lower than 3.3 were taken as an indication of insignificant common method bias (Kock, 2015).

4.5. Ethical Considerations

Strict adherence to ethical standards was maintained throughout the process of research. Participants were informed of the aim of the study and their rights as respondents, which included the possibility to withdraw from the survey at any moment without any penalties. Consent was received from participants before collecting their data, and confidentiality was guaranteed. Data were stored only for educational purposes, and participants' names or organizational affiliations were not registered.

4.6. Results

The results present a fairly coherent though not entirely free from issues model. Descriptively, there is a clear trend for high mean levels in all variables, indicating possibly ceiling effects that can distort relationships between measures. Correlational analysis suggests strong positive relations between analytical decision-making style (ADS) and decision-making effectiveness (DME), as well as DME and operational performance (OP), whereas weak negative connections were found with time pressure (TP). These facts raise an initial doubt whether TP is really influencing the process or just statistically significant. Results for descriptive and correlation analysis are shown in Table 1.

Table 1: Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4
1. Analytical Decision-Making Style	3.85	0.62	1			
2. Decision-Making Effectiveness	3.78	0.65	0.54	1		
3. Time Pressure	3.60	0.70	-0.12	-0.18	1	
4. Operational Performance	3.90	0.58	0.49	0.63	-0.15	1

The measurement model seems to be quite sound: all loadings meet the requirement, reliability (Cronbach's alpha and Composite Reliability) is satisfactory, and convergent validity (AVE) is above the acceptable level. Resuts for measurement model are shown in Table 2 which includes reliability and concergent validity.

Table 2: Measurement Model – Reliability and Convergent Validity

Construct	Items	Factor Loadings	Cronbach's Alpha	CR	AVE
Analytical Decision-Making Style	ADS1–ADS5	0.72–0.88	0.87	0.91	0.66
Decision-Making Effectiveness	DME1–DME4	0.74–0.89	0.85	0.90	0.69
Time Pressure	TP1–TP4	0.70–0.86	0.83	0.88	0.65
Operational Performance	OP1–OP5	0.73–0.90	0.88	0.92	0.70

Loadings > 0.70; CR > 0.70; AVE > 0.50

Furthermore, HTMT estimates support discriminant validity, although 0.68 (DME – OP) values suggest that these measures are conceptually similar constructs.

Table 3: Discriminant Validity (HTMT Ratio)

Constructs	ADS	DME	TP	OP
ADS	—			
DME	0.62	—		
TP	0.21	0.25	—	
OP	0.58	0.68	0.19	—

All values < 0.85 → Discriminant validity established

Structurally, ADS is a significant predictor of DME, which in its turn strongly affects OP. This path pattern is the basis for the mediating role of decision-making effectiveness. However, high β (0.61) coefficient in the latter relation suggests possible redundancy and/or exclusion of other important factors. The moderating effect (ADS × TP → DME) is established, yet weak (β = 0.18), indicating lack of dominating influence of TP on decision making processes despite its crucial importance. Strucutral model results are shown in Table 4.

Table 4: Structural Model Results (Direct Effects)

Hypothesis	Path	β	t-value	p-value	Decision
H1	ADS → DME	0.52	8.45	0.000	Supported
H2	DME → OP	0.61	10.12	0.000	Supported
H4	ADS × TP → DME	0.18	2.95	0.003	Supported

Indirect effect of ADS on OP is significant, and hence, a mediating role can be confirmed; however, direct effects are not presented, and so partial mediation effect is merely postulated but cannot be confirmed.Results for indirect effect are shown in Table 5.

Table 5: Mediation Analysis (Indirect Effect)

Path	Indirect Effect (β)	t-value	p-value	Result
ADS → DME → OP	0.32	6.21	0.000	Supported

It Indicates partial mediation. Moderated mediation analysis revealed weakening impact of ADS under conditions of high time pressure; it is reasonable yet differences at different TP levels are minor. It shows indirect effect varies across levels of moderator, as shown in Table 6.

Table 6: Moderated Mediation (Conditional Indirect Effects)

Time Pressure Level	Indirect Effect	t-value	Result
Low	0.25	4.10	Significant
Medium	0.32	6.21	Significant
High	0.18	2.75	Significant

R-squared and Q-squared values suggest moderate predictive power of models (R^2=0.42 and 0.51), thus making impossible statements about predictive accuracy. f^2 effect sizes confirm critical importance of major paths. Further these results are explained in Table 7 and Table 8. In Table 7, it is shown that R^2 results vary from

moderate to strong, the value of $Q^2 > 0$ which shows its predictive relevance, and f^2 values show medium to large effect.

Table 7: Model Fit and Predictive Power

Construct	R^2	Q^2	f^2
Decision-Making Effectiveness	0.42	0.30	0.35
Operational Performance	0.51	0.37	0.40

Finally, as shown in Table 8, all VIF coefficients reject multicollinearity and CMV concerns. All values are less than 3.3 which shows that there is no common method bias issue as suggested by Kock (2015).

Table 8: Collinearity and Common Method Bias

Construct	VIF
ADS	2.10
DME	2.35
TP	1.95
OP	2.25

5. Discussion

The purpose of the study was to investigate the impact of decision-making style on performance via the intermediary influence of decision-making effectiveness. By using a moderated-mediation model based on the principles of Information Processing theory and the Yerkes-Dodson Law, the study goes beyond a traditional deficit approach to exploring decision-making issues and opens up new opportunities for a deeper and solution-oriented analysis of decision-making under constraint. As such, the results of the study yield numerous implications for theory and practice while highlighting some areas for further consideration.

The obtained results reveal that analytical decision-making style has a strong positive effect on decision-making effectiveness. This finding supports the idea that an organized and systematic approach to information processing enables the generation of highly effective decisions. More specifically, from the viewpoint of information processing theory, an analytical decisionmaker is better equipped to filter information, make appropriate evaluations, and prevent cognitive biases during the decision-making process. Notably, this finding is consistent with recent studies reporting that structured cognition positively impacts decision accuracy and consistency (Lu et al., 2022; Melnyk et al., 2021). However, the current study differs from prior research in that it expands our understanding of decision-making beyond decision-making quality itself by identifying an intermediary mechanism through which this cognitive style influences organizational performance. Indeed, a greater emphasis on decision-making effectiveness as a crucial determinant of cognitive processes adds value to the existing discussion about decision-making.

Furthermore, the current research shows that decision-making effectiveness has a highly positive impact on operational performance, thus reinforcing the findings of prior studies. Indeed, as reported by Elbanna et al. (2020), and Raisch & Krakowski (2021), decision effectiveness is one of the core determinants of enhanced efficiency, productivity, and task performance. On a practical level, this finding implies that in order to maximize performance, the organization should place equal emphasis on improving decision effectiveness rather than decision speed alone.

This point is further corroborated by the mediation analysis, which showed that decision-making effectiveness mediates the effect of analytical decision-making style on performance. Thus, the current research contributes to filling the knowledge gap that exists in terms of understanding the mechanisms by which decision styles impact performance outcomes. Notably, this aspect had been largely overlooked by previous researchers, many of whom examined the relationship between decision style and performance as a direct one without paying close attention to potential intermediaries.

Perhaps the greatest contribution of the study under discussion pertains to the examination of the moderating role of time pressure. As shown above, time pressure significantly moderates the effect of an analytical decision-making style on decision-making effectiveness. To be more specific, at moderate levels of time pressure, the effect of analytical decision-making style on decision-making effectiveness increases.

As opposed to the traditional perception of time pressure as an exclusively negative factor that affects decision quality (Ordóñez & Benson, 1997), the findings of the current study lend support to the alternative hypothesis based on the Yerkes-Dodson law. Namely, moderate time pressure can enhance the effectiveness of cognitive processes since it increases the focus of the decisionmaker and motivates them to act quickly (Baethge & Rigotti, 2019; Rosen et al., 2020).

More specifically, due to the presence of urgency, the decisionmaker focuses their attention on more important tasks and uses the structured approach to make decisions more efficiently. As opposed to this, individuals with poor organizational skills would face more difficulties under the pressure of time. Therefore, in order to optimize performance, managers should select people with certain cognitive characteristics to work under time pressure.

Interestingly, the current study also showed that the indirect effect of analytical decision-making style on operational performance via decision-making effectiveness varied significantly at different levels of time pressure. This finding emphasizes the importance of taking the contingency perspective into account since it is crucial to understand the role played by the context in which the cognitive processes take place.

6. Theoretical and practical ontribution

6.1. Theoretical Contributions

First, the current study offers an important contribution to the literature on decision making by integrating three factors – cognitive, process, and contextual into one. Prior studies on decision-making tended to focus on each of these elements independently, while the present research explores their interrelationship. The integration of these components provides a more holistic view of decision-making that reflects real-life situations.

Second, the current study makes a contribution to Information Processing Theory by applying it to contexts of performance outcomes. Prior literature typically applied the theory only to cognitive processes, while the present study examines how cognitive processes lead to performance through decision-making effectiveness. This extension of the applicability of the theory enriches our understanding of the mechanisms involved.

Third, the study makes a contribution to the expanding literature on time pressure. Contrary to prior research on the subject matter, this study demonstrates the dual nature of time pressure – being both a constraint and a facilitating factor for performance. This finding is consistent with recent research highlighting the importance of differentiating between hindrance and challenge stressors in organizations.

6.2. Practical Implications

Practically speaking, the results of the current study imply some important considerations for organizations. First, the empirical evidence presented indicates that developing the skills of making analytical decisions can lead to improved performance outcomes. Organizations can help their employees develop analytical decision-making skills through various training programs.

Second, the study suggests that managing time pressure in an optimal way might be helpful. Eliminating time pressure altogether may be impossible due to competitive pressures. However, moderate levels of time pressure can increase focus and efficiency, provided that the employee has developed the ability to make decisions analytically.

Third, the findings imply that managers need to be mindful of individual differences among workers. For example, some employees are good at making decisions analytically while others may have developed other decision-making styles. In order to improve performance, managers should align task demands with individual capabilities accordingly

7. Conclusion, Limitations and Future Research Directions

Despite these valuable contributions to the field, the study has certain limitations. First, the cross-sectional nature of the design prevents the researchers from drawing causal conclusions about the relationships examined. Therefore, future research in the area should utilize longitudinal studies to address the limitations mentioned.

Second, this study relied primarily on self-reported data, which is subject to certain biases, such as social desirability and common method variance. Despite taking procedural and statistical steps to mitigate these biases, future studies can benefit from using objective measures of performance and multi-source data collection procedures.

Third, the study included only a few key variables, while there might be other factors that influence decision-making and performance outcomes. For instance, future research may include such variables as emotional intelligence or experience. Extending the model will help understand the mechanisms of decision-making even further.

Finally, although the relationship between time pressure and performance was investigated in the current study, no attention was paid to any non-linear effects. Time pressure, for instance, may exhibit inverted-U relationship with performance. Further research should examine this assumption.

To conclude, the current study offers an integrative approach to analyzing decision-making in operationally-oriented contexts. Through a moderated mediation model of the variables examined, the study sheds light on the importance of both individual characteristics and contextual conditions in decision-making.

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