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The nexus between big data analytics capabilities and organizational outcomes in Jordanian telecommunication companies: The mediating and moderating effects

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A B S T R A C T

This paper examines the complex interdependencies between the big data analytics capabilities, competitive intelligence, organizational agility, and organizational outcomes in the telecommunication industry in Jordan. Using a quantitative design and data gathered through 350 participants and processed by SmartPLS. The results show that big data analytics capabilities influence organizational outcomes in a positive manner both directly and indirectly via competitive intelligence. Although competitive intelligence does not influence organizational outcomes directly, it mediates the relationship between the big data analytics capabilities and organizational outcomes significantly. Moreover, organizational agility is identified to moderate positively between big data analytics capabilities and organizational outcomes, which underscores its significant contribution to boosting the success of analytics. These findings present important theoretical insights by clarifying the processes by which big data analytics competencies are transformed to generate better organizational performance, as well as have practical implications to telecommunication companies seeking to better exploit their data assets.

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1. Introduction

The telecommunications industry is a highly dynamic and challenging industry that has a high rate of technological transformation, stiff competition, and changing customer demands (Harry & Akani, 2025; Ochuba, Olutimehin, Odunaiya, & Soyomb, 2024). Telecommunications companies in Jordan are under increasing pressure to ensure that they are able to optimize their performance, increase the quality of their services and be able to maintain the sustainable competitive advantage in a market that is digitally disrupted and changing consumer patterns (Hijazin, 2024; Jreissat et al., 2024). Companies that manage to sail this landscape well are those ones that have a capability of using data-driven information to make strategic decisions and operational enhancements (Lottu, Ezeigweneme, Olorunsogo, & Adegbola, 2024). The big data analytics capabilities are an important organizational resource that helps companies generate significant intelligence out of large amounts of structured and unstructured data, and thus convert raw information into actionable business information (Fosso Wamba, Queiroz, Wu, & Sivarajah, 2024; Vats & Biswas, 2023).

Big data analytics capabilities have become an area of main concern to both scholars and players in the telecommunications sector in regards to their relationship between organizational results and higher capabilities in analytics (Aljehani, Abdo, Nurul Alam, & Aloufi, 2024; Shafqat, Zhang, Ahmed, Ullah, & Zulfiqar, 2025). IT companies that build strong big data analytics capabilities are in better positions to improve their organizational performance, customer satisfaction, and have better financial outcomes (Turi, Khwaja, Tariq, & Hameed, 2023). Nevertheless, having developed technological infrastructure and analysis tools is not enough to ensure better organizational outcomes (Eliwa, Jelodar, Poshdar, & Zavvari, 2024). To convert data-driven insights into performance improvements that can be actually implemented, there must be intermediary mechanisms by which analytical capabilities can be implemented (Wong & Ngai, 2025). The concept of

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competitive intelligence proves to be a key tool on which big data analytics capabilities can be utilized to improve the results of the organization (Chong, Abdul Rasid, Khalid, & Ramayah, 2024). Through the systematic gathering, evaluation, and sharing of the competitive intelligence, organizations are in a position to make more strategic decisions, which lead to better outcomes (Fadhlurrahman, Riyanta, & Ras, 2024).

Competitive intelligence is defined as the formal and ethical gathering, examination and utilization of data concerning competitors, market trends, and the larger business environment to be utilized in strategic choice (Maluleka & Chummun, 2023). Competitive intelligence is an element that acts as the connector between raw analytical capability and strategy in relation to big data analytics (Adewusi et al., 2024). Organizations that succeed in creating competitive intelligence by using their big data analytics capabilities are in a better position to foresee shifts in the market, discover new threats and opportunities, and position themselves into a strategic position in the competitive arena (Kanellopoulos, 2024). The competitive intelligence mediates between the big data analytics capabilities and organizational outcomes, which is reminiscent of the fact that technological capabilities are not the main determinant of success but the strategic use of the latter, which leads to performance improvements (Alzghoul, Abu Bakir, & Ghaith, 2023; Fosso Wamba et al., 2024).

Moreover, the success of big data analytics capabilities and competitive intelligence in catalyzing organizational outcomes depend on the ability of the organization to be able to adapt and be responsive to any changes in the environment in a fast and agile manner (Medeiros & Maçada, 2022). The organizational agility, which can be described as the capacity of organizations to quickly redesign their resources, processes and strategies based on the fluctuating market conditions is another critical moderating factor (Groenewald et al., 2024). Organizations with a high degree of agility are in a better position to leverage the insights that are created by use of big data analytics capabilities and competitive intelligence, and transform them into quick and efficient strategic responses (Alyahya, Aliedan, Agag, & Abdelmoety, 2023). On the other hand, the inability to be agile can mean that the analytical capacity and competitive intelligence activities have no connection to better outcomes because of organizational inertia and structural rigidity. The research of organizational agility as a moderator yields important knowledge of the circumstances in which the big data analytics capabilities and competitive intelligence are most likely to generate organizational outcomes (Turi et al., 2023; M. Zhang, Wang, & Wang, 2025).

The theoretical model that supports this study incorporates mediating and moderating variables to offer a more advanced insight into the channels through which the big data analytics capabilities lead to organizational outcome. Competitive intelligence is a mediating variable, which is a strategic expression of the big data analytics capabilities in actionable competitive insights (Alkhatib & Valeri, 2024). Such a mediating mechanism is theoretically explained by the fact that technological capabilities should be strategically oriented at creation of competitive advantage in order to produce the organizational value (Bartuś, 2023). The incorporation of the competitive intelligence as a mediator fills a crucial gap in the literature since the previous studies have frequently considered the big data analytics capabilities as directly influencing organizational outcomes without studying the mechanisms by which these impacts exist in between (Rahma, Bengana, SABRI, Mili, & Elrayah, 2025). Organizational agility is a moderating variable that describes the ability of the organization to be able to quickly rebrand its resources and strategies based on competitive insights (Mahmoud, Ali, Alrifae, Eitah, & AlZubi, 2025). The organizational agility is incorporated as a moderator, which can be discussed as the contingency perspective in the organizational theory according to which the successfulness of strategic initiatives depends on the organizational features and the organizational environmental factors (Xiufan & Yunqiao, 2025). This moderating process can be theoretically explained by the fact that the value of competitive insights is achieved only when the organization has the agility to react to the strategic responses in a fast and efficient way. By combining the functions of the mediating and moderating processes, a more compound theoretical framework enables the capture of the complexity of the process by which the big data analytics capabilities can be converted into organizational outcomes (Fosso Wamba et al., 2024).

This study looks at the intricate interplay between big data analytics capabilities, competitive intelligence, organizational agility and organizational outcomes in the scenario of Jordanian telecommunications firms. The study helps further understand how competitive intelligence mediates and organizational agility moderates the direct impact of big data analytics capabilities on organizational outcomes.

2. Literature Review

2.1 Organizational Outcomes

Organization outcomes refer to the multidimensional outcomes that an organization realizes in terms of financial, operation, and strategic aspects (Aguilera, De Massis, Fini, & Vismara, 2024). These outcomes are financial performance, profitability and growth revenues, market share growth and competitive positioning (Abubakar, Ruslan, & Suriani, 2024). Organizational outcomes are not just about mere financial measurements as it involves a wider scope of performance indicators that indicate the general health and prosperity of the organization (Fagarasan, Cristea, Cristea, Popa, & Pisla, 2023). Organizational outcomes are of special significance in the context of the telecommunications industry as the sector is capital-intensive and requires constant innovation to be relevant in the competitive environment (Asfahani, 2025). The organizations that perform better are those that are capable of coordinating their strategic efforts, business operations, and technological resources in a way that generates value to the stakeholders (Aljumah, Nuseir, & Alam, 2021; Arokodare & Falana, 2021).

Organizational outcome measurement and improvement has been made highly complicated during the digital era (Abdallah & Elhoss, 2019). Although still applicable, traditional outcome measures are not as adequate as they need to be in a dynamic and interconnected business environment (Dirks & Wouters, 2025). In the modern world, organizations have to attach importance to financial performance and operational efficiency, customer satisfaction, employee engagement and the ability to innovate in the evaluation of overall outcome (Kimonyo, 2024). The adoption of big data analytics in the decision-making process of organizations has introduced a complete transformation in how organizations gauge and strive to achieve better outcomes (Li, Lin, Ouyang, & Luo, 2022). With the ability to show real-time data on operational performance and predictive analysis of future trends, big data analytics capabilities allow organizations to make better decisions that can lead to the delivery of improvements across multiple outcome dimensions at the same time (Horani, Khatibi, Al-Soud, Tham, & Al-Adwan, 2023; Su et al., 2022).

2.2 Big Data Analytics Capabilities

Big data analytics capabilities are the organizational capability to collect, process, analyze and extract actionable insights in large masses of varied and intricate data (Lozada, Arias-Pérez, & Henao-García, 2023). The capabilities are not limited to the availability of the technological infrastructure but include human resources, process-based organizations, and cultural factors that facilitate the use of data in an effective manner (Adiguzel & Sonmez Cakir, 2025). The emergence of big data analytics capabilities is costly in terms of technology infrastructure, acquisition of analytical talent and management of organizational change in order to drive a culture of data (Qaffas, Ilmudeen, Almazmomi, & Alharbi, 2023). The creation of efficient big data analytics capabilities is indispensable in the telecommunications industry where the generated data sets concerning operations are larger and more rapid than ever, ensuring that operations proceed efficiently and novel ways of generating revenues are discovered (Shafqat et al., 2025).

The strategic role of the big data analytics capabilities in the telecommunications industry is unimaginable (Aburub et al., 2024). The network operations, customer interactions, billing systems, and patterns of service usage are some of the areas where telecommunications companies make a lot of data (Kartheek, 2023). Organizations that establish an advanced level of ability to read such data have the potential of obtaining deep understanding of customer behaviour, network performance, market trends, and competitive forces (Adewusi et al., 2024). The insights can help telecommunications organizations with optimizing their network operations, designing personal customer experiences, creating targeted marketing strategies, and identifying emerging business opportunities (Vunnava, 2025). The competitive edge of the opportunities presented by big data analytics is especially significant in the telecommunications industry, where the capacity to foresee customer requirements and react to the alterations in the market swiftly might be a defining factor of market success or failure (Liébana-Cabanillas & Blanco-Encomienda, 2024).

2.3 Competitive Intelligence

Competitive intelligence refers to the methodical procedure of collecting, examining, and utilizing data on competitors, market trends, technology and the business environment in general to make strategic choices (Maluleka & Chummun, 2023; Taranu & Cioranu, 2024). Competitive intelligence is also different in that it revolves around the process of converting raw data into strategic insights, which are used in competitive positioning and strategic planning (Chukwuka & Imide, 2024). Competitive intelligence capability helps organizations to predict the moves of their competitors, determine market opportunities, threats, and proactively make strategic decisions to increase their competitive positioning (Steven, 2022). In the telecommunications sector, with the intensity of competition in this field being the highest, and the conditions in the market shifting at an extremely high rate, competitive intelligence development and its ability to be leveraged upon is an essential element of success (Alkhawaldeh, Jaran, Al-Shakri, Almahameed, & Taha, 2024; Silva-Atencio & Umaña-Ramírez, 2023).

The mediating of competitive intelligence in the connection amid colossal information analytics capabilities and organizational success signifies the truth that the analytical abilities need to be strategically focused on the production of competitive advantages (Shirazi, Tseng, Adegbite, Hajli, & Rouhani, 2022). Organizations with big data analytics capabilities that do not have the strategic framework of how to convert their capabilities into competitive intelligence might not get the benefits of their investments (Qaffas et al., 2023). On the other hand, organizations successfully generate competitive intelligence using their big data analytics capabilities, a better position to make strategic decisions leading to high organizational outcomes (Medeiros & Maçada, 2022). The change of big data analytics capabilities into competitive intelligence includes not only technical analysis, strategic interpretation, organizational communication, and decision-making procedures which make sure that the insights can be successfully implemented in the strategy planning and implementation (Yang, Xiu, Sun, Ying, & Muthu, 2022).

2.4 Organizational Agility

Organizational agility is described as the ability of an organization to quickly perceive the shifts in the surrounding environment, make decisions on how to respond, as well as how to carry out the decision by reconfiguring its resources, processes, and strategies (Hiller & Ozgen, 2023; Kumkale, 2022). Strategic agility, tactical agility, and operational agility constitute various dimensions of organizational agility all of which represent the capacity of an organization to adjust at

various levels of organizational hierarchy and over various amounts of time (Motwani & Katatria, 2024). Organizational agility has emerged as a precondition to the continued competitive success in the rapidly changing telecommunications environment (Zeb-Obipi & Irabor-Ighedosa, 2023). A highly organizational agility able to respond to changes in the market more swiftly by modifying its service portfolio, altering its competitive approach, and redesigning its business processes (Çakmak, 2023; Jaafar, Khan, & Salman, 2025).

The moderating effect of organizational agility in the association between big data analytics capabilities and organizational outcomes can be regarded as an indication of the fact that the worth of analytical insights is dependent upon the ability of the organization to act on them. An organization containing advanced big data analytics and competitive intelligence can find valuable market opportunities or competitive threats, and when the organization cannot move swiftly, the strategic worth of those insights is reduced (Medeiros & Maçada, 2022). On the other hand, organizations that possess high agility rates are well placed to leverage on the knowledge created by big data analytics and competitive intelligence and translate the knowledge to rapid and successful strategic reactions that lead to organizational outcomes (Al-Darras & Tanova, 2022; Turi et al., 2023). The relationship of big data analytics capabilities and organizational agility follows a synergistic impact wherein the capability of the combination of data-driven insights and the capability of responding in a short time achieves better outcomes (Duangekanong, 2025).

3. Hypothesis Development

3.1 Big Data Analytics Capabilities on Organizational Outcomes

Companies that create advanced big data analytics capabilities are more likely to streamline their operations, improve the accuracy of their decision-making, and discover new market opportunities on a systematic basis using mass analysis of structured and unstructured data (Hosen et al., 2024; Ojeda, Valera, & Diaz, 2025). The analytical framework and skills inherent on big data analytics capabilities facilitate organizations to draw significant trends on business data, customer relationships, and market indicators and in the process of guiding strategic initiatives that result in better performance within financial, operational, and strategic (Garmaki, Gharib, & Boughzala, 2023; Su et al., 2022). The capability to process the data in the telecommunications industry where large amounts of network, customer, and transaction data are being generated on a daily basis, offer organizations valuable information regarding how the services are being used, customer preferences, network performance, and competition in the industry (Kartheek, 2023; Simakovic, Cica, & Drajic, 2022). The better organizations utilize these analytical possibilities to make decisions about operations, resource allocation, and the creation of target service offerings have better results than those that are based on traditional methods of decision making (Li et al., 2022; Ojeda et al., 2025; Riipa, Begum, Hriday, & Haque, 2025). Through studies in various sectors, it has been continuously proven that companies that have better big data analytics perform better in terms of financial outcomes, operational effectiveness, and strategic (Chatterjee, Chaudhuri, Gupta, Sivarajah, & Bag, 2023; Gopal, Rana, Krishna, & Ramkumar, 2024; Herdinata, Pranatasari, & Santoso, 2023; Riipa et al., 2025; Zelenyi, 2025). On the premise of these, the following hypothesis is proposed:

H_1: *Big data analytics capabilities have a significant effect on organizational outcomes.*

3.2 Big Data Analytics Capabilities on Competitive Intelligence

Organizations need advanced technology infrastructure and analytical skills to systematically collect and analyze competitive data and integrate information across different sources, discern patterns in the multifaceted data, and convert raw data into actionable competitive information (Adewusi et al., 2024; Komolafe et al., 2024; Rahman, 2025). The big data analytics capabilities hold the technological and analytical base on which organizations can provide systematic monitoring of competitor actions, market conditions, customer sentiment and determination of a competitive threat and opportunity (Adewusi et al., 2024; Yang et al., 2022). A firm that has developed big data analytics capabilities can set up automated processes to receive competitive data across various sources such as competitor communications to find competitive trends and strategy (Dahiya, Le, Ring, & Watson, 2022; H. Zhang, Zang, Zhu, Uddin, & Amin, 2022). The level of sophistication of an organization in big data analytics is directly related to the extent of the comprehensiveness, timeliness and action ability of the competitive intelligence (AlBahsh, 2022). Organizations that have higher analytical advantages are in a better position to see the more delicate competitive trends, these competitive threats are recognized sooner (Khan, Hussain, Shum, & Hassan, 2024), and more sophisticated competitive advice is created than organizations that have less analytical advantages (Shah, 2022). Studies have also found out that companies with developed big data analytics are able to create more detailed competitive intelligence which makes them respond to competitive threats and opportunities with a more detailed strategy (AlBahsh, 2022; Jack, 2024; Qayyum, Siddiqui, Al Prince, Ahmad, & Raza, 2025; Taranu & Cioranu, 2024; Wallace, 2024). On the premise of past studies, the following hypothesis is proposed:

H_2: *Big data analytics capabilities have a significant effect on competitive intelligence.*

3.3 Competitive Intelligence on Organizational Outcomes

Through comprehensive competitive intelligence, organizations are in a better position to anticipate market changes and discover new opportunities ahead of their rivals (Maluleka & Chummun, 2023). This enables them to invest more resources

in high priority projects and to be proactive in addressing competitive threats (Brandmeier & Rupp, 2024). In turn, these strategic moves reinforce competitive positioning and improve the overall organizational performance (Ismail et al., 2022). The companies that plan and exploit competitive intelligence have a better understanding of competitor strategies, market forces, and new threats (Bahrami Gahrui & Omidi, 2023; Olszak, Bartuś, & Sączewska-Piotrowska, 2023). Consequently, they can make more effective decisions on service design, pricing policies, market penetration and competitive positioning that eventually leads to improved performance and success in the market (Adenuga et al., 2025). Competitive intelligence enables companies to obtain objective intelligence regarding competitor capabilities, strategic intentions, and probable actions in the future (Dzreke & Dzreke, 2025). This allows organizations to foresee competitive threats and be proactive instead of reactive action (Bisson, Calof, & Boukef, 2025). It assists in recognizing the new market opportunities and discovering the unmet customer needs and facilitates in the innovation of service and market growth (Adenuga et al., 2025).

Companies that leverage competitive intelligence in their strategic decision making are more likely to perform better, allocate resources gainfully, adjust to changes in the market quickly and in addition to this, they are better placed to launch new services (Rane, Amol Chaudhari, & Rane, 2025). Numerous empirical studies of different industries have continually demonstrated that companies that are effective at their competitive intelligence have better financial results, growth in market share, and strategic positioning than other companies that are less effective in the same practices (Dzreke & Dzreke, 2025; Maluleka & Chummun, 2023; Salem & Awwad, 2025). Based on these developed relationships, the following hypothesis is presented:

H_3: *Competitive intelligence has a significant effect on organizational outcomes.*

3.4 Mediating Role of Competitive Intelligence

Despite the fact that big data analytics capabilities are the source of the analytical and technological infrastructure of identification of the data-driven decision-making, to transform those capabilities in the better performance of the organization, competitive intelligence should be developed and implemented strategically (Jack, 2024; Pattanayak, 2022). Big data analytics can help organizations in a systematic manner to collect, integrate, and analyze competitive data of various sources to create insights about competitor positioning, market trends, and emerging opportunities (Dahiya et al., 2022; Ochuba, Amoo, Okafor, Akinrinola, & Usman, 2024). Nevertheless, these analytical insights only create organizational values when they are strategically interpreted and shared with decision-makers in forms that inform strategic use of the information present in those forms (Ghaith, AlNawafleh, Al-Taie, & Tweiqat, 2025; Mozumder, Mishu, & Saha, 2024; Mukhtarov, 2023). Competitive intelligence is the process where raw analytical skills are converted into practice strategic information that is utilized in decisions regarding service development, competitive positioning, market entry, and resource allocation (Bartuś, 2023; B. Zhang, Yang, Akylbekova, & Ibraimova, 2026). Companies that build high-quality competitive intelligence based on their big data analytics capabilities have a greater likelihood of achieving strategic decisions that result in the creation of improved competitive advantage and outstanding organizational outcomes (Tsiu, Ngobeni, Mathabela, & Thango, 2025). On the other hand, these companies with high big data analytics capabilities but the inability to generate competitive intelligence may hoard data and produce analyses without converting these into strategic value and better organizational performance (Wang, Omar, Alotaibi, Daradkeh, & Althubiti, 2022). Studies have shown that the correlation between big data analytics capabilities and organizational outcomes is mediated through competitive intelligence (Al Daabseh et al., 2023; Komolafe et al., 2024). Based on these developed relationships, the following hypothesis is presented:

H_4: *Competitive intelligence mediates the relationship between big data analytics capabilities and organizational outcomes*.

3.5 Moderating Role of Organizational Agility

It is suggested that organizational agility is an important moderating variable that would determine the intensity of the relationship between big data analytics capabilities and organizational outcomes (Awan et al., 2022). The importance of big data analytics capabilities in influencing the organizational outcome depends on the ability of the organization to provide action on the insights created by the analytical processes (Fosso Wamba et al., 2024). A company that has developed big data analytics might not find crucial opportunities or threats, however, without the capability of the organization to respond promptly and efficiently, the strategic value of these insights is lowered (Siddiqui et al., 2024). On the other hand, companies where agility is high are better placed to leverage the revelations created by big data analytics to transform the revelations into rapid and prompt strategic actions that result in the best organizational performance (Alyahya et al., 2023; Duangekanong, 2025).

Organizational agility is a concept that denotes how an organization is able to feel the shifts in the competitive environment and respond to the changes with appropriate strategic decisions and rapidly adapt them by effectively reorganizing its resources and operations (Çakmak, 2023; Kumkale, 2022). The companies that possess high organizational agility can respond promptly to threats posed by competing organizations, introduce new services much faster to seize the opportunities present in the market identified with the help of competitive intelligence, and effectively redistribute the resources to facilitate the new strategic initiatives (Bisson et al., 2025; Penchev & Kenarova-Pencheva, 2025). Such an organizational agility to act fast allows the organizations to turn on the competitive insights created within the framework of big data analytics and better

organizational outcomes (Al Kamzari, Asad, & Suliman, 2024; Khalil, Aziz, Ariffin, & Ngah, 2023). On the other hand, low organizational agility organizations can be unable to respond strategically in a short period even when they have advanced analytical skills as well as extensive competitive intelligence, which leads to the decrease in competitive strength and low performance of the organization (Akkaya & Mert, 2022; Ludviga & Kalvina, 2024). Based on this, the following hypothesis is proposed:

H_5: *Organizational agility moderates the relationship between big data analytics capabilities and organizational outcomes.*

4. Research Gaps

Even though there is an increasing amount of literature addressing the concepts of big data analytics capabilities and organizational outcomes, still have much to learn about how the big data analytics capabilities can determine organizational outcomes when applied within the telecommunications industry (Aburub et al., 2024; Aljehani et al., 2024). To begin with, although previous studies have discussed the direct impacts of big data analytics capabilities on organizational outcomes, the intermediating processes by which these impacts are realized are yet to be adequately studied (Garmaki et al., 2023; Su et al., 2022). Competitive intelligence mediator role of big data analytics capabilities into strategic action and enhanced outcome has had little coverage in the literature (Alwi Mahmudin & Rajak, 2023). In this study, the gap is filled by developing and evaluating a model that has competitive intelligence as the key factor that bridges the ability of big data analytics to organizational outcomes.

Second, it has generally been neglected in the literature that organizational contextual factors are critical determinants of big data analytics capabilities effectiveness (Maroufkhani, Iranmanesh, & Ghobakhloo, 2023). The effect of the big data analytical capabilities on organizational outcomes is not applied uniformly across all organizations; on the contrary, it depends on the capacity of the organization to take action on the insights received as a result of analytical processes (Fosso Wamba et al., 2024). This study fills this gap by exploring organizational agility as a factor that is important as a moderating variable. The moderating of organizational agility is an indication of the fact that the usefulness of analytical insights is only achieved when the organizations possess the ability to swiftly adapt to the changes in the market and the threat of competitors (Mahmoud et al., 2025). Through examining this moderating factor, the study adds to the existing body of knowledge on the factors in which big data analytics capabilities are most useful in delivering organizational outcomes (Makhloufi, Vasa, Rosak-Szyrocka, & Djermani, 2023).

Third, the available literature on big data analytics capabilities and organizational outcomes has been carried out in highly developed economies and manufacturing environments (Shahzad, Wang, Chen, Li, & Riaz, 2025). The telecommunication industry in the developing economies like Jordan has special challenges and opportunities that would change the relationship between the big data analytics capabilities, competitive intelligence, organizational agility, and organizational outcomes (Al Jarrah, Alhawari, Almodallah, & Jarah, 2025). This paper fills this gap by targeting the analysis of telecommunications firms in Jordan in particular, and providing context-specific information that allows developing a more globally reflective picture of how firms in the emerging markets can use big data analytics capabilities to realize better outcomes.

Fourth, there is a dearth of literature in the integration of several theoretical perspectives to explain the multifaceted nature of relationships between big data analytics capabilities and competitive intelligence and organizational agility and outcomes. The paper combines the Resource-Based View, the Dynamic Capability View, and the Strategic Management Theory to have a strong theoretical content, in gaining an insight into these associations. Resource-Based View can be used to comprehend the skills in big data analytics as valuable organizational outcomes that create competitive edge (Dahiya et al., 2022; Kumar, Raut, Mangla, Moizer, & Lean, 2024). The Dynamic Capability View describes the process of development and deployment of such capabilities by the organizations that are responsive to environmental changes (Tawalbeh, Alzghoul, & Ghaith, 2025; Zahra, Petricevic, & Luo, 2022). The Strategic Management Theory has offered a guide on the importance of competitive intelligence in making strategic decisions and positioning the company to compete effectively (Qiu, 2025). Through the combination of these theoretical approaches, the research provides a deeper and more detailed insight on how organizations can utilize big data analytics to reach high organizational outcomes.

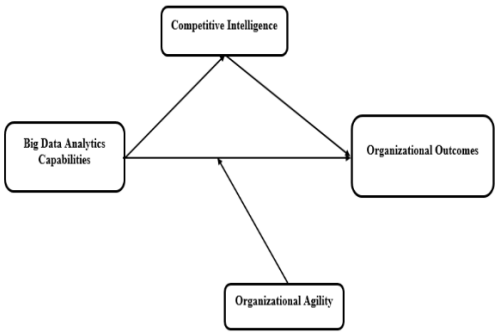

Fig. 1. Theoretical Framework

The theoretical framework of the study is shown in Fig. 1, and it also represents the hypothesized relationships among the big data analytics capabilities, competitive intelligence, and organizational agility, and the mediating variable competitive intelligence and the moderating variable organizational agility.

4. Research Methodology

The research design used in this study is a quantitative research design based on cross-sectional survey. The proposed relationships between the variables of the study big data analytics capability, competitive intelligence, organizational agility, and organizational outcomes are best tested using this methodology at the same time.

Under the study focus, the employees of the mobile communication companies in Jordan and specifically on Zain Jordan, Orange Jordan and Umniah were studied. These are the leading companies in the Jordan market as mobile operators. The sampling frame was narrowed down in such a way that the study concentrated on the operational and mid-level strategic variables by limiting the sample to employees that are in top and mid-level positions with these companies. It employed a probability sampling procedure and the use of stratified random sampling was considered to be the most suitable approach to the study. The number of employees is 3889 and a sample size of 350 according to Krejcie and Morgan (1970).

As the methods state, in this research, a self-administrator was the primary tool that was used to gather data among employees in the telecommunications industry in Jordan. The questionnaire is divided into five parts that are associated with the key notions of the research: big data analytics capabilities, competitive intelligence, organizational agility, and organizational outcomes. The majority of the questions were done on a five point Likert scale of Strongly Disagree to Strongly Agree (J. F. Hair, 2014).

Behl, Gaur, Pereira, Yadav, and Laker (2022) designed (4) items adapted as Big data analytics capabilities. In addition, competitive intelligence scaled (4) items based on (Al Daabseh et al., 2023). Organizational agility (8) items based on (Bekos, Jaakkola, & Chari, 2025). Finally, organizational outcomes (11) items (Fosso Wamba et al., 2024). The information used in this analysis was gathered along with the Human Resources Departments of the three-telecommunication companies in Jordan.

5. Data Analysis

The target respondents were provided with 400 questionnaires. Among these 350 were returned, which is a good response rate. Following the screening of the data in terms of missing values and unanswered forms all questionnaires were found valid and were analysed statistically using SmartPLS (I. K. Alamri, Watfa, Alzboon, Al-Sarayrah, & Momani, 2025; Alhatmi, Eisheh, & Alrhaba, 2024; J. Hair & Alamer, 2022). Fig. 2 indicates that indicators whose outer loadings were less than 0.70 were dropped out in order to guarantee sufficient reliability of the indicators. Particularly, OA1, OO6, OO7, OO8, OO9, OO10, and OO11 were eliminated because of low loadings. Only indicators of the recommended threshold were kept in the revised measurement model, therefore, enhancing the construct reliability and convergent validity to further examine the structural model with SmartPLS (I. Alamri, 2025; Alawamreh & Elias, 2015; Qawaqneh, Ahmad, & Alawamreh, 2023).

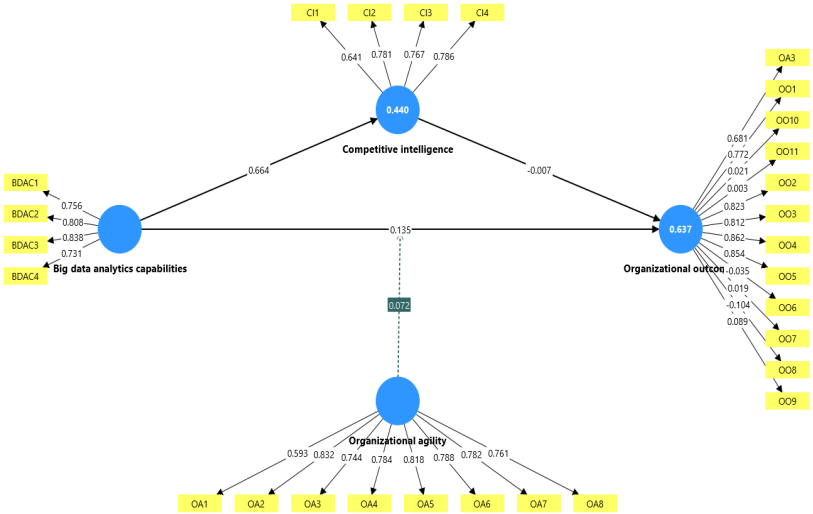

Fig. 2. Evaluation of measurement model

The measurement model illustrates good reliability and convergent validity based on the acceptable PLS-SEM guidelines. Cronbach's alpha of all constructs are above 0.70, which means that the internal consistency is acceptable (Alawamreh et al., 2023; J. Hair & Alamer, 2022; Hammadi, Mohadat, & Alawamreh, 2024). The composite reliability is between 0.833 and 0.921, which is within the recommended range of 0.70-0.95 and indicates strong construct reliability as shown in Table (1).

Furthermore, there are no lower than 0.50 AVE values which indicate that there is sufficient convergent validity. Thus, the measurement model is statistically sound and can be proceeded to the assessment of the structural model (J. Hair & Alamer, 2022; Sweidan, Alawamreh, & Thabet, 2026).

Table 1
Construct Reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Big data analytics capabilities	0.792	0.799	0.864	0.615
Competitive intelligence	0.733	0.744	0.833	0.557
Organizational agility	0.900	0.903	0.921	0.625
Organizational outcomes	0.889	0.889	0.916	0.645

Table 2 shows the evaluation of the discriminant validity based on Fornell-Larcker criteria. The diagonal aspects are the square roots of the Average Variance Extracted (AVE) of each construct, and all of them (0.784 of Big Data Analytics Capabilities, 0.746 of Competitive Intelligence, 0.791 of Organizational Agility, and 0.803 of Organizational Outcomes) are greater than the inter-construct correlations. It implies that one construct has more variance with its indicators as compared to others, which underpins the sufficient discriminant validity and proves that the constructs are empirically independent (Alawamreh, Musleh, et al., 2025; Fornell & Larcker, 1981; J. Hair & Alamer, 2022).

Table 2
Discriminant Validity Fornell-Larcker Criterion

	Big data analytics capabilities	Competitive intelligence	Organizational agility	Organizational outcomes
Big data analytics capabilities	0.784			
Competitive intelligence	0.663	0.746		
Organizational agility	0.435	0.551	0.791	
Organizational outcomes	0.473	0.497	0.783	0.803

The results of the model fit as shown in Table 3 show that the SRMR of the saturated model (0.090) is near the acceptable value, whereas the estimated model (0.110) is slightly larger indicating that the model fits modestly. The d ULS values indicate a little variance between the models (1.873 vs. 2.792), which implies that the model in question is not as close to the ideal fit as the saturated model (Al-Shaikh, Deeb, Kanan, Shehadeh, & Alawamreh, 2025; J. Hair & Alamer, 2022). Additional indices, including d G, chi-square and NFI, are not available or infinity, which restricts additional evaluation. In general, the findings indicate that the model only moderately fits the data.

Table 3
Model of fit

	Saturated model	Estimated model
SRMR	0.090	0.110
d_ULS	1.873	2.792
d_G	n/a	n/a
Chi-square	∞	∞
NFI	n/a	n/a

The findings in Table 4 and Fig. 3 indicate that the capabilities of Big Data Analytics positively impact the organizational performance (H1, $\beta = 0.148$, $t = 3.061$, $p = 0.002$) significantly, and that the capabilities of Big Data Analytics have a strong positive influence on competitive intelligence (H2, 0.663, $t = 20.407$, $p < 0.001$). Nevertheless, competitive intelligence is not a major determinant of organizational performance (H3, = 0.014, $t = 0.262$, $p = 0.794$) and its direct impact is insignificant (Al-Shaikh, Deeb, et al., 2025; J. Hair & Alamer, 2022). The indirect role of the big data analytics capabilities on organizational outcomes via competitive intelligence (H4, 0.716, $t = 15.988$, $p = 0.001$) is large and indicates a significant intermediate step. Moreover, the correlation of organizational agility and the analytical capabilities of Big Data has a positive impact on the organizational performance (H5, 0.077, $t = 3.236$, $p = 0.001$), which provides support to the idea that agility enhances the influence of analytics on organizational performance.

Table 4
Evaluation of Structural Model - Path coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H_1: Big data analytics capabilities → Organizational outcomes	0.148	0.148	0.048	3.061	0.002
H_2: Big data analytics capabilities → Competitive intelligence	0.663	0.664	0.033	20.407	0.000
H_3: Competitive intelligence → Organizational outcomes	0.014	0.017	0.055	0.262	0.794
H_4: Big data analytics capabilities → Competitive intelligence → Organizational outcomes	0.716	0.715	0.045	15.988	0.000
H_5: Organizational agility x Big data analytics capabilities → Organizational outcomes	0.077	0.077	0.024	3.236	0.001

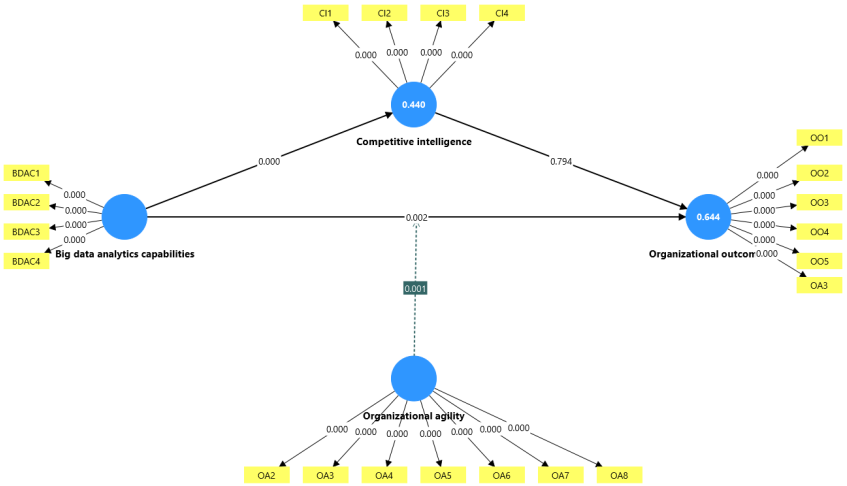

Fig. 3. Path coefficient

6. Discussion

The purpose of this research was to determine how big data analytics capabilities affect an organization outcome, where competitive intelligence mediates and organizational agility moderates these effects, in the context of the telecommunication companies in Jordan. The results represent subtle research on these relations, with both affirmations of the pre-existing theories and the novel contribution into the particular setting of the Jordanian telecommunications market.

The research discovered that the capabilities of big data analytics have a positive and significant influence on organizational outcomes (H1: 0.148 = 3.061 = 0.002). This finding is consistent with a large body of literature that underscores the strategic value of utilizing big data to enhance organizational outcomes (Li et al., 2022; Ojeda et al., 2025; Riipa et al., 2025). By doing this successfully, organizations can acquire, process, and analyze large volumes of varied data, thus being in a better position to make informed decisions, optimize operations, and create new opportunities, which ultimately result in the best outcomes. The capability to utilize big data is a disastrous benefit in the extremely competitive and dynamic telecommunication industry, where companies may comprehend customer behavior, anticipate market trends, and improve service delivery (Garmaki et al., 2023; Su et al., 2022).

As anticipated, the capabilities of big data analytics were observed to positively affect competitive intelligence in a strong manner (H2: 0.663, t = 20.407, p = 0.001). This observation highlights the critical nature of big data analytics in the creation and improvement of competitive intelligence (AlBahsh, 2022; Jack, 2024; Qayyum et al., 2025; Taranu & Cioranu, 2024; Wallace, 2024). Through analyzing large volumes of data, telecommunication firms will be in a better position to understand the strategies of competitors, market forces, technological changes, and the preferences of customers. This increased insight enables more proactive and successful modern competitive responses, cementing the idea that strong big data analytics capabilities are a precondition of excellent competitive intelligence (Adewusi et al., 2024; Yang et al., 2022) .

Surprisingly, the direct effect of competitive intelligence on organizational outcomes was not found to be significant (H3: 8 = 0.014, t = 0.262, p = 0.794). This finding, though counterintuitive, indicates that competitive intelligence alone might not necessarily lead to better organizational outcomes without other facilitating factors or clear mechanisms to use it. It suggests that having competitive intelligence is not enough, but organizations should be able to integrate and implement these insights in order to achieve tangible benefits. This observation underscores the significance of strategic execution and incorporating intelligence in decision-making, as opposed to considering competitive intelligence as an independent determinant of results (Gainor, 2014; Maritz & Du Toit, 2018; Mekimah et al., 2024; Taib, Yatin, Ahmad, & Mansor, 2008).

Competitive intelligence has an important indirect role although its direct impact is minimal. The indirect impact of the capability of big data analytics on organizational outcomes through competitive intelligence was revealed to be huge and significant (H4: 8 = 0.716, t = 15.988, p = 0.001). This implies that competitive intelligence is a key medium where big data analytics potentials can be converted into better organizational performance. This effect is chain mediated, implying that the capacity of big data analytics strengths enables organizations to produce better competitive intelligence, and the latter, when properly leveraged, helps organizations to perform better. The discovery confirms the fact that competitive intelligence is not the goal, but the crucial intermediate phase of the value creation process based on the big data analytics (Bartuś, 2023; B. Zhang et al., 2026)

Therefore, it was also found that organizational agility has a positive moderation effect on the relationship between the capabilities of big data analytics and organizational outcomes (H5: = 0.077, t = 3.236, p = 0.001). The discovery is especially important because it has demonstrated the value of agile organizational structure and culture in the process of optimizing the advantages of big data analytics. A more agile organization has flexibility, adaptability, responsiveness that are more likely to translate the insights produced by analytics of big data, and then make timely action, which is more responsive (Akkaya

& Mert, 2022; Ludviga & Kalvina, 2024). The nature of the telecommunication industry, where the market conditions and technological environment are continuously changing, makes organizational agility a guarantee that the intelligence provided by the big data is quickly converted into strategic decisions and operational changes, thus, improving organizational performance. Even the most advanced big data analytics may not be able to deliver their best without agility (Al Kamzari et al., 2024; Khalil et al., 2023).

7. Theoretical Implications

This paper has a number of theoretical implications. To begin with, it strengthens the existing literature on the strategic importance of big data analytics capabilities, especially in the setting of the rising markets, such as Jordan. It offers empirical data on the direct relationship that exists between big data analytics capabilities and the organizational results, which continues to reinforce big data analytics capabilities as being an important organizational resource. Secondly, the study adds to the more refined knowledge of competitive intelligence. Although some past research tends to believe that competitive intelligence has a positive direct relationship with performance, this study argues that the influence of competitive intelligence may be indirect and mediating in the relationship between big data analytics capabilities and the outcome of an organization (Ahmad & Mustafa, 2022; Alawamreh, Obeidat, et al., 2025; Ghaith, Albhirat, & Alzghoul, 2025). This necessitates a re-consideration of the position of competitive intelligence in theoretical frameworks, when it comes to current theoretical models, which should highlight its role as an enabler of strategic action, and not a driver of performance, per se. Thirdly, the research also builds on the literature by providing empirical support on the moderating nature of organizational agility. It points out that the effectiveness of big data analytics capabilities in motivating organizational results varies depending on the organizational environment but becomes highly enhanced where there is high organizational agility. It implies that organizational agility should be included in theoretical frameworks in the future as an important aspect of context in studying the implications of data-driven capabilities on performance. Lastly, the combination of these constructs into one model gives the study a more holistic approach to the role of data in helping firms in the telecommunication industry to gain competitive edge and excellent performance (Mashau, Nenzhelele, & Ramasimu; Siddiqui et al., 2024) .

8. Managerial Implications

The research results in this paper have a number of implications on the telecommunication companies and policymakers in Jordan. Managerially, telecommunication companies ought to invest in effective creation of big data analytics, such as technology infrastructure, human resources, and data management systems (Aburub et al., 2024; Alshawawreh, 2025). Nevertheless, it is not enough to invest in big data analytics capabilities only; the managers should also develop the culture of appreciating and making use of competitive intelligence. This entails the development of effective frameworks to gather, analyze, share and act on the competitive intelligence (Al-Shaikh, Qabalan, Kanan, & Alawamreh, 2025; Madureira, Popovič, & Castelli, 2023). Since the direct impact of competitive intelligence is insignificant, managers ought to concentrate on the inclusion of competitive intelligence in the strategic planning and operational decision making to make sure that the insights are translated into a workable strategy (Alshammakh & Azmin, 2021). Moreover, the importance of organizational agility should be encouraged. Managers need to aim at developing flexible organizational systems, employee empowerment and a culture of responsiveness and adaptability to market changes. This will help companies to swiftly exploit the insights that are produced by big data analytics capabilities and competitive intelligence hence maximizing its effects in organizational outcomes (Madureira et al., 2023; Maluleka & Chummun, 2023).

As a policy, government and regulatory bodies in Jordan may want to consider projects that can help develop big data analytics infrastructure and skills in the telecommunication industry. The policies to promote data sharing (with the appropriate amount of privacy and security measures), digital literacy, and research and development in the field of data analytics may provide a healthier environment in which telecommunication companies could flourish. It is also possible to encourage the policies that will promote the creation of a competitive yet fair market environment and thus encourage the companies to constantly advance their big data analytics capabilities and competitive intelligence endeavors, which will eventually help consumers in the form of better services and innovations (Ahmad & Mustafa, 2022; Liébana-Cabanillas & Blanco-Encomienda, 2024).

9. Limitations and Future Studies

Although this study has a number of commendable contributions, there are a number of limitations, which must be recognized. To begin with, the study was undertaken in the telecommunication industry of Jordan only. Although it gives specific information, it remains possible that the results cannot be applied to other industries or geographical settings. The research can be replicated in other sectors or nations in future to determine the generalizability of these relationships. Secondly, the research design used was a cross-sectional study, which measures relationships at a given moment (Aburub et al., 2024; Ahmad & Mustafa, 2022). This design does not provide the possibility of causing or seeing the causal development of these relationships with time. Longitudinal studies would offer a better perspective of interaction of big data analytics capabilities, competitive intelligence, organizational agility, and organization outcome on a long-term basis. Third, there may be the self-reported survey data which may lead to common method bias but this was countered with statistical measures. The objective performance measures or the multi-source collection of data could be included in future research to strengthen the findings. Lastly, the model fit was moderate as there was a difference between the estimated and the saturated model

although the model could be refined further in future studies by adding more variables or the measurement model might be refined further (Aburub et al., 2024; Ahmad & Mustafa, 2022; Hamzeh & Aburub, 2024).

Based on the results and constraints of this study, there are various directions of future research. To begin with, another way of research in the future is to investigate the particular aspects of big data analytics capacity (e.g., infrastructure, people, management) and their varying effects on competitive intelligence and organizational outcomes. This would give a more detailed insight on what characteristics of big data analytics capabilities are most important. Secondly, it is possible to consider the future research since the direct impact of competitive intelligence is insignificant and thus, the follow-up research may examine how competitive intelligence finally impacts the outcomes of an organization with regard to its mechanism or intermediate variables (Alkhawaldeh et al., 2024; Hamzeh & Aburub, 2024). This may include an investigation of the strategic decision-making process, innovation or market responsiveness as its direct implications of good competitive intelligence use. Thirdly, organizational agility was found as a moderator, however, future studies can focus more on the aspects of agility (e.g., strategic agility, operational agility, cultural agility) and their unique moderation impact (Liébana-Cabanillas & Blanco-Encomienda, 2024). Furthermore, a discussion of other possible moderators, including organizational culture, leadership styles, or environmental dynamism, would give more information on what the boundaries of these relationships are. Fourthly, it would be beneficial to conduct comparative studies of various industries or nations to determine the relevance of the present-day findings and find out any local peculiarities. Lastly, the mixed-methods method with the combination of quantitative data and the qualitative approach, which would include interviews or case studies, might provide a deeper and more detailed picture of the complicated relationship between big data analytics, competitive intelligence, organizational agility, and organizational outcomes (Aljawarneh, 2024; Ranjan & Foropon, 2021).

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