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The impact of business intelligence and financial management on sales growth in manufacturing companies

Abstract. This study examined the impact of business intelligence and financial management on sales growth in Jordanian manufacturing companies. This research is applied regarding the purpose and is descriptive-survey in terms of method. The statistical population of the study included managers of 120 manufacturing companies active in various industries in Jordan, from which 180 senior and middle managers were selected using a stratified random sampling method in 2024. The data were collected through a researcher-made questionnaire and analyzed using structural equation modeling. The path coefficient of business intelligence was 0.46 and financial management was 0.32, hence both significantly and directly impacted sales growth in Jordanian manufacturing firms. Business intelligence also indirectly affects sales growth through its effect on financial management; the path coefficient is 0.48. The variance explained for the final model regarding sales growth in the Jordanian sample was 62%. Hence, these results show that it is important to give due attention to the parallel development of business intelligence and financial management in Jordanian manufacturing companies.

Keywords: Business Intelligence; Financial Management; Sales Growth; Jordanian Manufacturing Companies; Structural Equations
JEL Classifications: E24; E41; E64; I18; J28; J31
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1. Introduction and Brief Literature Review

Today's business environment has plunged manufacturers into a maelstrom of unprecedented complexity and volatility (Ghobakhloo & Fathi, 2020). Fierce competitive pressures from both domestic and international competitors, together with rapidly changing consumer preferences, have loaded enormous challenges on the path to survival and growth. Under such conditions, manufacturing companies cannot hope to achieve sustainable competitive advantage by leaning solely on traditional management and decision-making approaches (Kyläheiko & Maijanen, 2020). That brings this stark reality into sharp focus: the need to rethink doing business today and leverage modern tools. Lack of adequate and timely insight quickly translates into lost opportunities and reduced market shares.

Meanwhile, sales are considered the lifeblood of any economic enterprise for the continuity of activities (Wang & Aviles, 2023). However, the desired growth rate in sales can no longer be achieved by simply increasing the efforts of the sales team or by expanding the distribution network. Real growth presupposes deep understanding and proper forecasting of trends in the market, supported by optimal financial resource allocation (Azkiya & Wandebori, 2025). Ignoring these strategic dimensions of the selling process results in fragmented and unproductive sales activities. Addressing these complexities makes it imperative to use strong analytical frameworks. Business intelligence acts like a guiding light for the managerial personnel by transforming raw data into actionable insights (Dohale et al., 2023; Murti et al., 2023). These systems offer crystal-clear visualization of the business environment through the analysis of customer behavior patterns, evaluating competitor performance, and tracking macro market indicators. With this insight, the sales team can hence design more targeted campaigns and concentrate resources on the most profitable market segments. As a matter of fact, business intelligence does not endow companies with the gift of being able to foresee the future; it gives them the ability to understand the present better in order to make smart decisions (Kazemi et al., 2024; Tana & Chai, 2023).

In addition, efficient financial management serves as the backbone of strategic decision-making in the field of sales. Allocating budgets to marketing campaigns, determining the break-even point for new products, and managing distribution costs all require careful financial analysis. Without a clear understanding of the financial implications of sales decisions, even the most successful campaigns can lead to reduced profitability. Financial management creates a common language in which sales success is measured not only by increasing revenue, but also by profitability and return on investment metrics (Ali et al., 2024). In this sense, the intelligent interaction between business intelligence and financial management can act as the driving force for sustainable sales growth in manufacturing companies (Felsberger et al., 2022; Gomaa, 2025). The present study seeks to investigate this critical convergence with a view to pointing out the importance of giving consideration to such a strategic link. Gaining insight from this dynamic relationship may indeed drive managers in devising sales strategies that, aside from strong analytic support, also include financial discipline (Alonge et al., 2025; Latif et al., 2025). It will eventually lead not only to more sales but to the realization of a sustainable competitive advantage in today's fast-paced marketplace as well.

2. Methodology

2.1. Research Design

The study has been designed through a mixed-method approach to offer an in-depth explanation of the phenomenon under study within the Jordanian industrial context. Local concepts and measures were first investigated through the use of a qualitative method, semi-structured interviews with 15 experts and senior managers of Jordanian manufacturing industries. Second, in the quantitative stage, these concepts were measured through structured questionnaires in a wider

community. A two-stage approach like this provides the opportunity to gain in-depth insights into Jordan's specific industrial context, increasing generalization.

The statistical population of the present study consisted of senior and middle managers of 120 manufacturing companies operating in various industries in Jordan. Considering the complex nature of the research topic, its limitation to access specialized samples allowed for the use of a purposeful sampling method to select participants in the qualitative section. In the quantitative section, considering the geographical dispersion of manufacturing companies in different cities in Jordan, a multi-stage cluster sampling method was utilized. The sample size in the qualitative section was determined based on theoretical saturation, while in the quantitative section, using the Cochran formula and considering the limited community of 120 companies, 180 managers were determined.

2.2. Data Collection and Analysis

The data collection tool in the qualitative section was a semi-structured interview, and in the quantitative section, a researcher-made questionnaire. Based on the findings of the qualitative stage and a study of research literature about the Middle East context, the questionnaire was designed, and its content validity was confirmed by five management experts. Its reliability was subsequently measured using Cronbach's alpha. The data collection process followed full ethical considerations of the field research in Jordan and with the informed consent of the participants.

In this context, the qualitative data were analyzed based on the content analysis and theoretical coding methods. Quantitatively, data analysis was done by structural equation modeling and specialized software. More specifically, advanced statistical methods were applied, such as path analysis and hierarchical regression, in order to test the research hypotheses. This approach allowed analyzing both explicit and implicit variables in the same framework, considering specific characteristics of the Jordanian business environment.

3. Results

The sample includes senior and middle managers from various manufacturing sectors across Jordan's main industrial zones. As shown in Table 1, most respondents (65%) had over 10 years of experience in Jordanian industries, ensuring practically grounded data. The balanced distribution across company sizes and geographic locations provides a comprehensive view of Jordan's manufacturing part.

Table 2 presents the central tendency and dispersion measures for the core constructs. The mean score for the effective use of Business Intelligence (BI) was notably high, suggesting a growing recognition of its value among leading firms. In contrast, a wider standard deviation for certain

Table 1:
Demographic Characteristics of the Sample (N = 180)

Demographic Variable	Category	Frequency	Percentage
Job Position	Senior Management	85	47.2%
	Middle Management	95	52.8%
Industry Experience	<5 years	25	13.9%
	5-10 years	38	21.1%
	>10 years	117	65.0%
Company Size	<50 employees	42	23.3%
	50-200 employees	68	37.8%
	>200 employees	70	38.9%
Industrial Zone	Amman	72	40.0%
	Zarqa	54	30.0%
	Irbid	36	20.0%
	Other Regions	18	10.0%

Source: Authors' findings

Table 2:
Descriptive Statistics for Key Research Variables

Variable	Mean	Standard Deviation	Min	Max
BI System Maturity	4.25	0.82	2.1	5.0
Financial Management Precision	3.89	1.15	1.5	5.0
Sales Growth Rate	4.12	0.91	2.3	5.0
Data-Driven Culture	3.95	1.07	1.8	5.0

Source: Authors' findings

financial management metrics shows varying levels of maturity in financial practices across the sampled companies.

The structural model examines the relationships between the constructs. Figure 1 visually summarizes these relationships, illustrating the standardized path coefficients. The model demonstrates a strong direct effect of BI on sales growth, while also highlighting a significant mediating role of financial management efficacy.

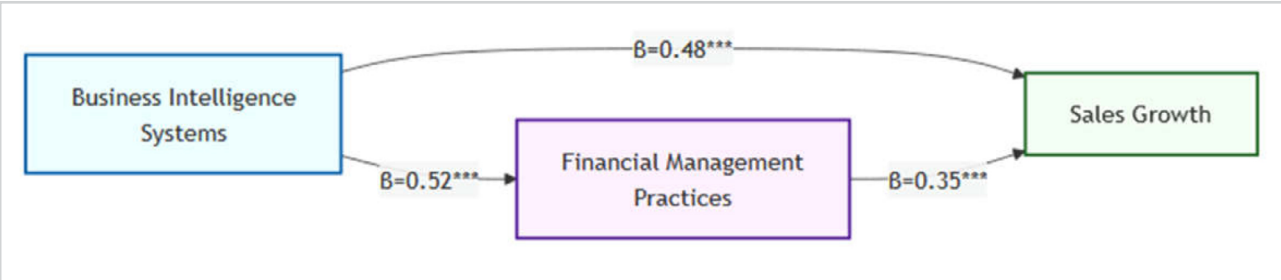

Figure 1:
Path Diagram of the Final Research Model
Source: Authors' findings

The correlation matrix, shown in Table 3, reveals insights into the relationships between variables. A strong positive correlation ($r = 0.72$, $p < 0.01$) was found between BI system maturity and sales growth, indicating a significant bilateral relationship. Similarly, financial management precision positively correlated with both BI and the outcome variable.

A regression analysis was conducted as results in Table 4 indicate that two components of BI - predictive analytics and customer segmentation - were the strongest unique predictors of sales growth, together explaining 58% of its variance. This confirms the importance of looking beyond descriptive data.

Table 5 presents the results of the regression analysis for financial management. Budgetary control and investment in marketing ROI analysis were identified as critical financial factors, showing a significant positive effect on sales growth. This confirms that financial discipline is not merely a cost-control mechanism but a strategic driver.

Table 3:
Pearson Correlation Matrix for Main Variables

Variable	1	2	3	4
1. BI System Maturity	1			
2. Financial Management Precision	0.64**	1		
3. Sales Growth Rate	0.72**	0.58**	1	
4. Data-Driven Culture	0.81**	0.52**	0.61**	1

Source: Authors' findings

Table 4:
Regression Analysis: BI Components Predicting Sales Growth

Predictor Variable	β	t	p	VIF
Predictive Analytics	0.42	5.82	<0.001	1.89
Customer Segmentation	0.38	5.15	<0.001	1.76
Data Infrastructure	0.15	1.98	0.051	2.12
R^2	0.58			
Adjusted R^2	0.56			

Source: Authors' findings

Table 5:
The Impact of Financial Management on Sales Growth

Financial Factor	β	t	p	VIF
Budgetary Control	0.31	4.12	<0.001	1.45
Marketing ROI Analysis	0.28	3.85	<0.001	1.52
Cost Management	0.18	2.41	0.018	1.67
R^2	0.47			
Adjusted R^2	0.45			

Source: Authors' findings

A comparative analysis was performed between firms reporting high versus low sales growth. Figure 2 clearly shows that high-growth firms consistently reported more advanced capabilities across all BI components, particularly in the areas of data-driven culture and real-time analytics, suggesting a key differentiator.

The question of whether larger firms benefit more from these practices was explored here. Table 6 summarizes a one-way ANOVA, revealing statistically significant differences in BI adoption levels based on company size. Post-hoc tests confirmed that large enterprises (more than 200 employees) report significantly higher adoption rates than small and medium-sized firms.

A t-test was conducted to compare the perceptions of senior and middle management regarding the impact of BI. The results in Table 7 show a significant difference ($t(178) = 2.45$, $p < 0.05$), indicating that senior managers tend to perceive the strategic value of BI more positively than their middle-management counterparts.

A comprehensive multiple regression model was tested here. As summarized in Table 8, the combined effect of BI and financial management practices explains a substantial 65% of the variance in sales growth ($R^2 = 0.65$, Adjusted $R^2 = 0.63$). This result confirms the powerful synergistic effect when these two domains are aligned.

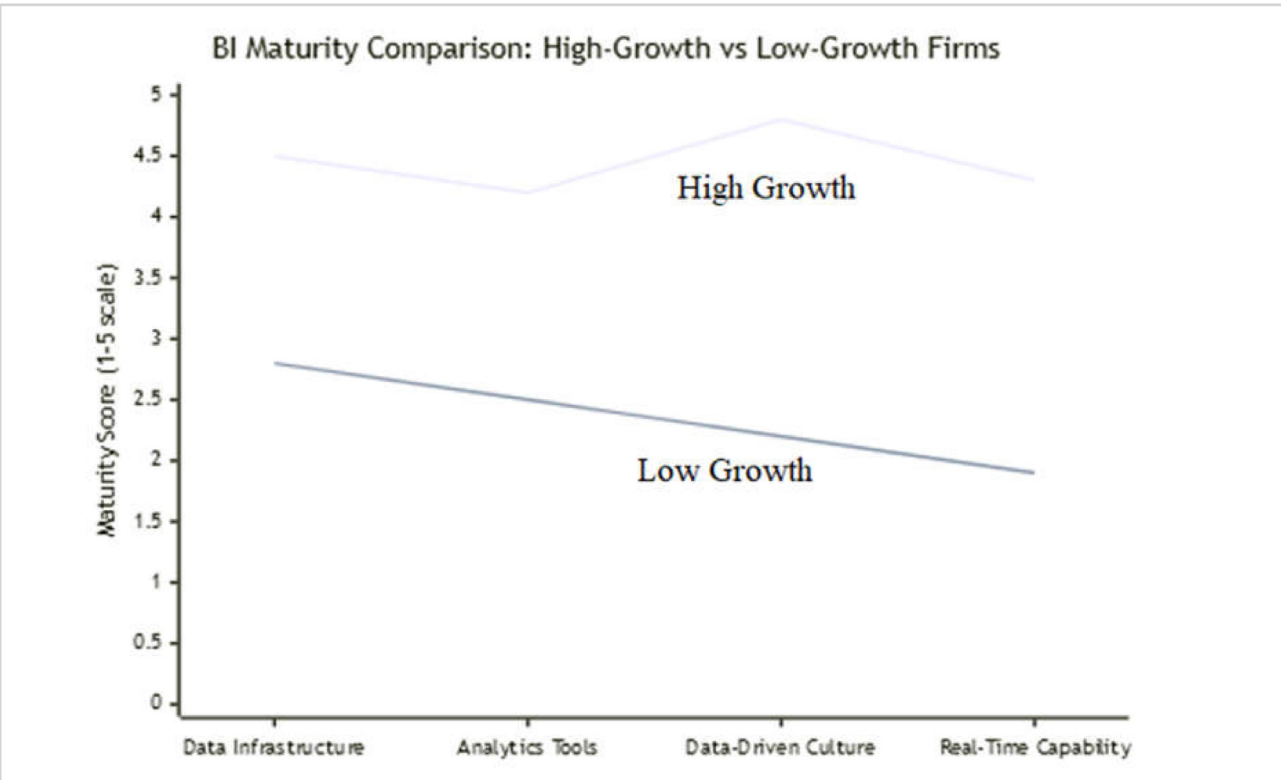

Figure 2:
Comparative Analysis of BI Maturity
Source: Authors' findings

Table 6:
One-Way ANOVA: Company Size and BI Adoption

Company Size	N	Mean BI Score	F	p
Small (<50 employees)	42	3.12	18.45	<0.001
Medium (50-200 employees)	68	3.89		
Large (>200 employees)	70	4.52		

Source: Authors' findings

Table 7:
Independent Samples T-test: Management Level Perception

Management Level	N	Mean Perception Score	t	p
Senior Management	85	4.45	2.45	0.016
Middle Management	95	4.12		

Source: Authors' findings

Finally, a path analysis was performed to discover the effects. Table 9 provides a detailed breakdown, confirming a significant direct effect of BI on sales growth. Furthermore, it quantifies a meaningful indirect effect mediated through financial management, providing robust evidence for the hypothesized mechanism.

Table 8:
Multiple Regression Model Summary

Model	R	R^2	Adjusted R^2	F	p
BI + Financial Management	0.81	0.65	0.63	42.18	<0.001

Source: Authors' findings

Table 9:
Results of the Path Analysis (Direct, Indirect, and Total Effects)

Relationship	Direct Effect	Indirect Effect	Total Effect	p
BI → Sales Growth	0.48	0.18	0.66	<0.001
BI → Financial Management	0.52	-	0.52	<0.001
Financial Management → Sales Growth	0.35	-	0.35	<0.001

Source: Authors' findings

4. Conclusion

In light of the above, this study was conducted to explore how business intelligence and financial management influence sales in manufacturing firms. The quantitative findings of the current study indicate that the maturity of a business intelligence system, having the greatest direct impact on sales growth with a path coefficient of 0.48 and a significance level of less than 0.01, suggests that any single improvement level in business intelligence directly results in a remarkable development in the performance of sales. An interesting point, however, would be to identify a mediating mechanism in this relationship. Based on the results shown in Table 9, apart from the direct impact, business intelligence has an effect of 0.52 on financial management and via this route also indirectly impacts sales. This finding confirms that business intelligence creates a platform for effective financial decision-making by improving the accuracy of financial forecasts, optimizing budget allocation, and improving the analysis of return on investment in marketing.

The discriminant analyses of the components in business intelligence, predictive analytics, and customer segmentation contribute more with their coefficients at 0.42 and 0.38, respectively, to explain the variance of sales growth. In the field of financial management, budget control and marketing return on investment analysis were identified as the most effective factors with coefficients of 0.31 and 0.28, respectively. These results determine the priorities of investment for the managers. It can be seen from Figure 2 that the difference between high and low growth companies is significant, which proves that the superiority of successful companies mainly lies in the data-driven culture and real-time analysis capabilities. In addition, it can be found in Table 7 that there was a significant difference in the attitude of senior and middle managers ($p < 0.16$), which reflected the fact that different levels of management have different understandings of the strategic value of business intelligence.

The final research model, explained 65% of the variance in sales growth. This impressive results in Figure 1 underscores that combining business intelligence with financial management can indeed trigger transformations in sales performance. Given these facts, investing in both areas simultaneously is not a choice; it is a strategic imperative for manufacturing companies in contemporary competitive environment.

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