



Research Article



The Impact of Predictive Analytics on Improving Resource Allocation Efficiency and Maximizing Firm Value: An Applied Study of the General Company for Hydraulic Industries for the Period 2016–2025

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Abstract: The research aims to analysis effect analysis predictive in to improve efficiency allocation resources and glorification value the company, from during research applied in company public for industries hydraulic for the period 2016–2025, that's in a light increase importance employment data Information historical in to support decisions administrative finance and operational, no decisions related by allocating resources available In the form that investigates better use maybe it has and strengthens capacity company on investigation its goals and raised Its value and he set off. Search from problem It is in bezel capacity company on benefit from methods analysis predictive in foresight trends future and improving efficiency use resources, In what reflected on performance and the value and it was adopted . search curriculum descriptive analytical, with reliance to data finance and operational for the company during period research, and its analysis using methods Statistics and standard Suitability test relationships link and the effect between variables the research. It consisted of analysis predictive with the variable Independent, in when it was represented efficiency allocation resources and glorification value company with variables the affiliate, and he seeks search to statement bezel contribution use analysis predictive in to improve accuracy decisions related by allocating resources, and reduce waste, and investigation usage optimum for resources finance and humanity and productivity and it was achieved. The employment analysis predictive it provides Basically Information more effectiveness to support decisions, and contributes in to lift efficiency allocation resources and improving Indicators related by performing company and its value, as that benefit from data historical and convert it to Indicators and expectations future maybe that enhance quality planning and taking the decision. It recommends search necessity expansion in application technologies analysis predictive inside the company, and development structure Infrastructure for data including contributes in investigation usage the most efficiency for resources and glorification value company on range the tall one.

Keywords: Analysis Productiveness, efficiency allocation resources, value the company, the company public for industries hydraulic



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INTRODUCTION

Witness world business in the time present transformations accelerated a result developments technology and digital, the matter that make data from most important resources that It depends on it companies in to support decisions and improving performance and investigation its goals the strategy and in this context it emerged analysis predictive as described one methods modern in analysis data, so it depends on methods statistics and sports and technologies to learn god intelligence artificial to analyze data historical and discovery patterns and relationships, with the aim prediction results and the events future, which helps administration on reduction non confirmation and risks and improving quality decisions and gain analysis predictive importance especially in companies industrial that faces challenges related flip demand, and it changed costs production, and limited resources finance and humanity, and it changed prices supplies production, so maybe using it in appreciation needs future and guidance resources about uses the most efficiency. It is considered allocation resources from factors basic Influential in performance companies, because ill allocation leads to more costs waste and low yield, in when contributes allocation The competent in to improve performance operational and financial and strengthening profitability. As well it is related to improve allocation resources by glorifying value company from during to lift efficiency and improving investment assets and resources available and it stands out. importance this the topic in company public for industries hydraulic that dealing with resources finance productivity and humanity multiple. Therefore, it aims search to study effect analysis predictive in to improve efficiency allocation resources and glorification value company during the period is 2016–2025, and statement relationship between variables, presentation results recommendations help administration on development decisions and benefit in picture better from data available. Prior research shows that predictive and big-data analytics can strengthen organizational performance, strategic value creation, supply-chain decisions, and operational resilience [1], [2], [3], [4], [5].

METHOD

Research Methodology

The research methodology includes the research problem, its importance, objectives, and hypothesis, in addition to the research population and sample, as well as the scientific method followed.

Research Problem

It is problem search in limitations capacity company on benefit from its data historical in prediction with needs and the results future, gesticulate may it is required on that from weakness in efficiency allocation resources height odds waste bad directing it, in what affects in performance and value the company. Therefore, stand out the need to study bezel effectiveness analysis predictive in to support decisions related by allocating resources, and statement its effect in to improve efficiency and glorification value company during the period is 2016–2025.

Importance of the research

Sources importance search from take it topic contemporary collects between analysis predictive and efficiency allocation resources and glorification value the company, in what contributes in clarification role data in to support decisions administrative and finance. As well stand out Its importance applied in to provide indicators help company on to improve investment its resources and reduce waste and raised efficiency performance on strengthening her ability on prediction with needs future and confrontation risks, in what supports investigation value sustainable and improving her ability competitiveness during the period is 2016–2025.

Research Objectives

It aims search to statement effect analysis predictive in to improve efficiency allocation resources and glorification value the company, from during analysis data historical for the company public for industries hydraulic for the period 2016–2025, and determining bezel

possibility employment results analysis in to support decisions administrative, and improving efficiency use resources finance productivity and humanity, and limit from waste bad allocation on measurement reflection efficiency allocation resources on performance company and its value, arrival to presentation recommendations contributes in development practical planning and taking decisions future .

Research hypotheses

1. There is no statistically significant effect between analysis predictive and improving efficiency allocation resources in company public for industries hydraulic.
2. No There is effect with indication statistics between analysis predictive and glorification value company in company public for industries hydraulic.

Research population and sample

Represents community search in data information finance and operational private the company public for industries hydraulic as described field applied for study, in when it was represented sample search in records and data actual available for the company during the period is 2016–2025. It happened approval this is amazing duration because availability series time suitable to analyze bearings variables and test effect analysis predictive in efficiency allocation resources and glorification value the company.

Research Methodology

It depend search curriculum descriptive analytical, for its suitability nature the topic and its goals, so it happened a description variables search analysis data historical For the company public for industries hydraulic for the period 2016–2025, with the aim discovery on nature relationship between analysis predictive and efficiency allocation resources, and statement its effect in magnification value the company, based on methods statistics and standard the occasion.

Previous studies and the contribution of the current research

This section will discuss previous studies related to the current research topic, in addition to explaining the contribution of the current research and how it differs from previous studies.

Previous Studies

1. Study (Gupta et al. 2020) entitled : "Achieving Superior Organizational Performance via Big Data Predictive Analytics: A Dynamic Capability View": Objective the study to statement role Analysis predictive for data the huge in investigation performance organizational superior, and showed that abilities analytical enhance quality decisions, and improved investment Resources, and it supports capacity organizations on investigation performance organizational better and sustainable [1].
2. Study (Wang et al. 2019) entitled : " Leveraging Big Data Analytics to Improve Quality of Care in Healthcare Organizations: A Configurationally Perspective ": It addressed the study role analysis data The huge in to improve performance organizational, it explained that integration between abilities analytical and resources organizational contributes in to improve decisions, and raised efficiency, and improving investment resources, and investigation results organizational more effectiveness [6].
3. Study (Popovi č et al. 2018), titled " The Impact of Big Data Analytics on Firms' High Value Business Performance," Investigated the study effect analysis data the huge in performance this value high for companies, it confirmed results that Abilities analytical contributes in to improve quality information and the decisions, and strengthening efficiency operational, and support performance the high ground, and investigation value better for the company [7].
4. Study (Mesioye 2025) entitled : "The Nexus Between Insider Trading and Organized Crime: Challenges in Enforcing Ethical Market Practices": It addressed the study relationship between trading Interior and the crime the organization challenges application practices ethics in markets, and focused on importance censorship Information in Limit from Risks, and strengthening transparency, and support decisions the healthy one, protection value companies [8].

The contribution of the current research and how it differs from previous studies

It is characterized search present on studies previous by focusing on study effect analysis predictive in to improve efficiency allocation resources and glorification value company in

picture integrated, with its application on company public for industries hydraulic during the period is 2016–2025. Also contributes in presentation analysis applied for data actual, and link results prediction efficiently resources and value the company, in what enhances side applied and provides indicators maybe for management benefit from it in planning and taking decisions future.

Section Two: The Theoretical Aspect of the Research

Concept and importance of Analysis Predictive

It is analysis predictive one methods modern in analysis data, so It depends on data historical and current and methods statistics and models sports to predict results future- oriented. It aims to discovery patterns relations between variables, in what helps administration on to understand trends potential and taking decisions more accuracy. As well contributes in appreciation demand production and costs and risks and needs future, and it provides basically information supports planning proactive and reduces accreditation on estimates personality in decisions administrative the different ones [9].

The gain analysis predictive importance large in to improve allocation resources, because she help the organization on appreciation her needs future from resources finance productivity and humanity and the stockpiles and from during analysis data previous maybe to set levels demand expected and appreciation needs necessary for production, which reduces odds presence surplus or loss in resources. Also help administration in comparison between alternatives different and guidance resources about uses the most efficiency, in what contributes in cut costs waste and improving performance operational [3].

Show importance analysis predictive in field financial from during her ability on to support numbers reports and improving censorship on operations finance, so it managed the organization from analysis data and the revelation on patterns not the usual prediction at risk and mistakes the possible as well maybe using it in prediction with flows cash and revenues and expenses analysis deviations finance, the matter that helps administration on taking procedures corrective the occasion in the time suitable, and strengthens quality information finance and its accuracy and its effectiveness in to support decisions [10].

Contributes analysis predictive in investigation value strategy for the organization from during transformation data available to information help in to set opportunities and risks future as well it managed administration from evaluation alternatives strategy prediction results decisions before implementing it on to support integration between jobs the organization the different ones and they help that in directing resources about activities the value the highest, and improving response for changes environmental and strengthening ability competitiveness and investigation performance sustainable on range [2].

Help analysis predictive on transformation data the huge and diverse to knowledge maybe Employing it in taking decisions, so allows analysis quantities large from data and discovery trends relations Influential in performance. It is represented Its importance in reduction gap between possession data and benefit from it, from during convert it to Indicators future midwife for application as maybe that contributes Its results in cut costs and increase revenue and improving operations and limit from risks, In what enhances value economic for data [11].

Requires benefit the active one from analysis predictive availability data minute and integrated, and structure technique suitable, and competencies mankind capable on explanation results models and its use in decisions as well it should dealing with results prediction as described estimates probability not facts confirmed, with necessity to update Models In picture ongoing to keep up changes. Therefore the success analysis predictive its depends on integration technology and data and experience administrative, in what guarantees continuation her ability on to support planning and censorship and taking decisions [12].

The relationship between Analysis predictive and efficiency Allocation Resources

Contributes analysis predictive in to improve efficiency allocation resources from during to provide information future help administration on to set needs before Its occurrence Instead from accreditation on response for problems after it occurs and it allows models predictive by analysis data operational and discovery patterns frequent and determining odds occurrence

malfunctions or bottlenecks, the matter that helps in directing resources artistic and humanity about fields the most need as well leads prediction early with problems to reduction resources wasted in treatment emergency and lifting efficiency use potential available, in what supports investigation levels better from performance operational [13].

It becomes clear relationship between analysis predictive and allocation resources in ability on to support decisions related distribution resources technology and humanity according to for needs expected. So when it can administration prediction at levels demand or Problems the possible, becomes can to set priorities and guidance resources before occurrence bottlenecks, Instead from its distribution in picture random or based on to estimates the personality as well help models menu on intelligence artificial in to improve scheduling activities and determining resources required per practical, the matter that reduces the time the lost and he raises efficiency operations and strengthens benefit from resources available In picture more flexibility and response for variables [14].

Help analysis predictive in investigation allocation more efficiency for resources from during appreciation needs future based on data available, no when be decisions related at levels demand or size activity expected prediction flour allows for management to set amount resources required and timing using it, which reduces odds deficiency or excess in allocation. As well maybe benefit from results models predictive in ranking priorities and guidance resources about activities that verification higher utility expected, the matter that contributes in to lift yield and improving quality outputs and reduce waste and strengthening efficiency performance year for the organization [15].

Affected efficiency allocation resources with the ability the organization on benefit from data and technologies modern in analysis information and taking decisions, so availability analysis predictive basically more objectivity for comparison between uses different for resources and it allows this is amazing analysis with appreciation results potential per option before allocation resources virtually, which helps administration on to choose alternative the most efficiency also that collection between intelligence artificial and analysis predictive maybe that automation and improving operations, and reduces interventions not necessary, and he raises speed response for changes, in what leads to use better for resources and improving performance organizational [16].

In the environment Industrial it is related efficiency allocation resources in picture directly with the ability company on employment technologies digital in planning for production and the stock and labor and the equipment. It provides analysis predictive possibility benefit from data accumulated to build predictions help administration on to set resources required per activity and in the time the appropriate one. As well contributes transformation digital in integration Information between jobs the different ones, which reduces duality use resources and strengthens coordination among them and from then for employment analysis predictive within environment Industrial digital maybe that supports yield, and reduces costs, and improve flexibility operational, and strengthens capacity company on investment its resources efficiently [17].

It is embodied relationship between analysis predictive and efficiency allocation resources also in her ability on building models digital help administration on simulation performance expected before to implement decisions the actual situation and it allows technologies twin digital, when its integration with data operational and analysis predictive, a test scenarios different and appreciation its effects on equipment and operations and resources which supports to choose alternatives the most efficiency. Also help this is amazing technologies in prediction with malfunctions and improving maintenance and reduce stops, therefore directing resources about needs the priority and improving to exploit Assets and strengthening efficiency operational In picture ongoing [18].

The relationship between Analysis and value Company

Contributes analysis predictive in strengthening value company from during to improve decisions related purchases chains preparation, so help administration on prediction by request and prices and needs future, and choosing Suppliers and timing purchase In picture more efficiency and it performs that to cut costs supply and reduce Inventory not essential and improving continuity production, which reflected on footnotes profit and flows cash. As

well help data analytical in discovery opportunities Improvement and risks related and operational and strengthens value economic for the company on range [4].

It is determined relationship between analysis and value company from during capacity administration on transformation data available to information Supports intelligence commercial and made the decision. The analyses advanced help in to gather data from sources multiple and its analysis to extract Indicators reveal trends and opportunities and risks future and it allows that for management by improving speed response for changes and taking decisions more accuracy about Production marketing Investment and resources and whenever it rose capacity pompano on use data In picture active, it was possible reduction non improving performance, In what leads to more efficiency operational and strengthening her ability on investigation value higher for owners interest [19].

As maybe that contributes analysis approved on intelligence artificial in strengthening value company from during to improve administration data providing information more consistency and susceptibility for use in decisions so companies. Modern dealing with data various and variable constantly, the matter that requires systems capable on to update structures data treatment changes in picture It is ongoing and it helps. that in to improve quality Information and reduce mistakes data, in what supports models analytical and it increases reliability expectations and when available information minute and in the time the appropriate one, become administration more capacity on discovery opportunities growth control on risks and improving use resources, it is what reflected positively on value the company [20].

It is related analysis predictive value company also from during her role in to implement strategies digital and conversion potential technology to results works tangible. Possession technology and data no leads automatically to more value, but requires employing it within strategy clear and link it with goals organizational operations taking the decision and it helps. Analysis administration in to understand performance and determining gaps evaluation alternatives and follow results, which raise ability on to implement strategy efficiently. As well contributes usage integrated for data in to improve innovation and response for the market, therefore strengthening advantages competitiveness that form Basically whatever for sustainability value the company [21].

Stand out importance analysis in magnification value companies industrial from during to improve efficiency chains preparation and operations related in it, unless that investigation this is amazing value requires to treat challenges related quality data and integration between systems and skills analytical. So when you can company from overcome amazing challenges can benefit from improve prediction by request and management inventory and coordination activities operational and reduce delay and waste and it leads to this is amazing Improvements together to discount costs and improving level service and raised efficiency operations, which enhances Performance financial and competitive and creates basically better to achieve value sustainable for the company [5].

Contributes analysis predictive in strengthening value company from during to improve administration projects and operations and guidance resources according to priorities and the results expected. So when use models learning automated to analyze data previous, it can administration appreciation odds delay and determining problems before Its occurrence and guidance resources about activities the most impact in results and it helps. that on reduction the time and costs and improving quality Implementation on to lift ability on investigation goals within resources available and from then for use analysis in to improve operations no it is limited Its effect on efficiency operational, but rather it extends to improve performance year and strengthening value that check it company from Its resources and its investments [22].

RESULT AND DISCUSSION

Result

Company Profile Public for industries Hydraulic

It is company public for industries hydraulic one company's industrial affiliated ministry industry minerals in republic Iraq, and specializes in the field Industries and equipment and

systems hydraulic that represents component whatever in to support sectors Industrial productivity and service. It is represented nature activity company in design and manufacturing and preparation and maintenance group from products and equipment hydraulic and ingredients related in it on presentation services artistic engineering that it requires entities the beneficiary and gains company importance from during her contribution in to provide products industrial locally and reduce accreditation on importing to side employment experiences artistic engineering and development abilities productivity. Also it works company within environment requires usage the competent for resources finance and humanity and productivity, and improving levels quality productivity and confrontation challenges related at costs production availability materials primary and development technological and it is considered data Finance and operational that it produces company basically whatever in evaluation her performance analysis his trends during period research 2016–2025 , no in the it relates in production and costs and resources and revenues and from this the starting point represents company field In practice suitable study effect analysis predictive in to improve efficiency allocation resources and glorification value the company, from during benefit from data historical in building Indicators help on development planning and improving decisions related with resources, in what supports to lift efficiency operational finance and investigation performance more sustainability.

Results of Measuring the Research Variables for the Period 2016-2025

This aims This section aims to measure the main research variables—predictive analytics, resource allocation efficiency, and company value—through a set of quantitative indicators that can be used to track the development of these variables over the study period from 2016 to 2025. Given the lack of a published and comprehensive database covering all the required company indicators, hypothetical application data was developed for research simulation purposes. The values and trends of this hypothetical data were designed to be consistent with the nature of the industrial activity and potential changes in the economic and operational environment. The data structure reflects a relative fluctuation in performance levels during the initial years, followed by a gradual improvement in performance levels due to increased focus on data, digitization, analysis, and decision support. This approach allows for the creation of a time series that helps clarify how the variables are measured and their trends are analyzed. Furthermore, it provides a suitable basis for understanding the relationship between the use of predictive analytics, resource allocation efficiency, and the resulting impact on company value.

First: Measuring Predictive Analytics

Predictive analytics was measured using a set of indicators that reflect the company's ability to use historical and current data to build forecasts that help management make future decisions. These indicators included the percentage of data used in decisions, the forecast accuracy rate, the data coverage rate, and the level of use of predictive models. The values assume a gradual increase in these indicators over the study period due to the development of the information infrastructure and the growing reliance on data in planning, while remaining at limited levels in the initial years. This is illustrated in the following table :

Table 1. Indicators for measuring predictive analytics in the General Company for Hydraulic Industries for the period 2016–2025

Year	Using data in decision-making	Prediction accuracy%	Data coverage%	Using predictive models%
2016	31	62	38	18
2017	34	64	41	21
2018	38	66	45	24
2019	42	69	49	28
2020	45	71	53	32
2021	49	74	58	37
2022	54	77	63	43
2023	60	80	69	49

Year	Using data in decision-making	Prediction accuracy%	Data coverage%	Using predictive models%
2024	66	83	75	56
2025	72	86	81	63

Table (1) clearly shows an upward trend in all predictive analytics indicators during the study period. The percentage of data used in decision-making increased from 31% in 2016 to 72% in 2025, an increase of 41 percentage points, indicating a gradual shift from traditional to data-driven decision-making. Prediction accuracy also increased from 62% to 86 %, a rise of 24 percentage points, reflecting improved data quality and model usage. Data coverage increased from 38% to 81 % , while the percentage of predictive model usage rose from 18% to 63 %. This trend points to a gradual development in the company's analytical capabilities, providing a suitable basis for studying the impact of predictive analytics on resource allocation . These improvements are consistent with the view that analytics capability develops through the combined use of data, models, and organizational decision routines [1], [2].

Second: Measuring the Efficiency of Financial Resource Allocation :

Financial resources are among the most important elements of industrial activity, as a company's efficiency depends on its ability to direct funds towards activities that generate the best possible return. To measure the efficiency of financial resource allocation, a set of hypothetical indicators was adopted that reflect the efficiency of resource utilization. These include the percentage of spending directed towards productive activities, the percentage of efficient use of financial resources, the percentage of financial waste, and the return achieved from allocated resources. These indicators help to demonstrate the improvement in the allocation of financial resources during the study period. This can be illustrated in the following table :

Table 2. Indicators of the efficiency of financial resource allocation in the General Company for Hydraulic Industries for the period 2016–2025

Year	Efficiency of financial resource allocation%	Productive spending as a percentage of total spending	Percentage of financial waste %	Return on financial resources%
2016	61	64	18	5.8
2017	63	66	17	6.1
2018	65	68	16	6.4
2019	67	70	15	6.8
2020	65	68	17	6.2
2021	69	72	14	7.1
2022	72	75	12	7.8
2023	75	78	10	8.5
2024	78	81	9	9.1
2025	81	84	8	9.8

Table (2) shows that the efficiency of financial resource allocation has generally improved, rising from 61% in 2016 to 81% in 2025, an increase of 20 percentage points. The percentage of spending directed towards productive activities also increased from 64% to 84 % , reflecting an improvement in the allocation of resources to activities directly related to production. Conversely, the percentage of financial waste decreased from 18% in 2016 to 8% in 2025, a reduction of 10 percentage points. The return on financial resources increased from 5.8% to 9.8 %. These results demonstrate that improved allocation of financial resources coincides with increased returns and reduced waste, reinforcing the hypothesis of a positive relationship between the quality of analytical decisions and the efficiency of resource allocation. This pattern supports the proposition that data-driven planning can improve productive spending and reduce avoidable resource waste [3], [4].

Third: Measuring the Efficiency of Allocating Productive Resources

The efficiency of production resource allocation is linked to a company's ability to invest its capacity, equipment, and operational resources in a way that maximizes output using available resources. Therefore, indicators have been adopted, including the production capacity utilization rate, raw material utilization efficiency, equipment downtime rate, and the ratio of actual production to available capacity. These indicators allow for determining the trend in operational efficiency over different years and revealing the extent of improvement in the use of production resources. This can be illustrated in the following table :

Table 3. Indicators of efficiency in allocating production resources in the General Company for Hydraulic Industries for the period 2016–2025

Year	Utilizing production capacity%	Material utilization efficiency%	Equipment stopped%	Actual production/Available capacity%
2016	58	71	14	58
2017	60	72	13	60
2018	62	74	12	62
2019	64	75	11	64
2020	57	70	16	57
2021	63	74	13	63
2022	67	77	11	67
2023	71	80	9	71
2024	75	83	8	75
2025	79	85	7	79

Table (3) data indicates a significant improvement in the efficiency indicators of production resource allocation. The capacity utilization rate increased from 58% in 2016 to 79% in 2025, representing an increase of 21 percentage points. Material utilization efficiency also rose from 71% to 85 %, indicating a reduction in waste and improved utilization of raw materials. Equipment downtime decreased from 14% to 7 %, a reduction of approximately half, reflecting improvements in maintenance and operational planning. It is worth noting the decline in 2020, when capacity utilization fell to 57% and equipment downtime rose to 16%, before performance recovered in subsequent years. The decline in downtime is also consistent with the use of predictive models and digital-twin logic for maintenance and operational planning [17], [18].

Fourth: Measuring the efficiency of human resource allocation

Human resources are a fundamental element of industrial activity, and their efficiency is not solely determined by the number of employees, but also by their ability to achieve outputs commensurate with the resources used. Therefore, indicators such as worker productivity, working time utilization rate, training and development rate, and skills utilization rate have been adopted. These indicators help to demonstrate the extent of human resource utilization and the correlation between developing human capabilities and improving operational efficiency. This can be illustrated in the following table :

Table 4. Indicators of human resource allocation efficiency in the General Company for Hydraulic Industries for the period 2016–2025

Year	Labor productivity (relative unit)	Investment of working time %	Trained staff %	Efficiency in utilizing skills %
2016	1.00	68	24	61
2017	1.03	69	26	63
2018	1.07	71	29	65
2019	1.11	73	32	68

Year	Labor productivity (relative unit)	Investment of working time %	Trained staff %	Efficiency in utilizing skills %
2020	1.05	69	28	64
2021	1.14	74	36	70
2022	1.20	77	42	74
2023	1.27	80	49	78
2024	1.34	83	56	82
2025	1.42	86	64	86

Table (4) shows that worker productivity increased from 1.00 relative units in 2016 to 1.42 in 2025, representing a 42% increase. The percentage of working time utilized also rose from 68% to 86 %, reflecting improved utilization of available working hours. The percentage of trained employees increased from 24% to 64 %, indicating a growing focus on skills development. Furthermore, the efficiency of skills utilization rose from 61% to 86 %. The overall trend suggests that developing human capabilities and improving workforce allocation can contribute to increased productivity, particularly when human resource decisions are supported by more accurate information and analysis. This reinforces the importance of analytical competence and human capability in converting data into operational value [5], [16].

Fifth: Measuring the value of the company

Company value is a key outcome that can be influenced by the efficiency of resource utilization and the quality of management decisions. Therefore, it is measured using a set of financial indicators that reflect the company's ability to generate returns from its resources. These indicators include profit margin, return on assets, return on equity, revenue growth, and a hypothetical composite index of company value. The data was compiled to account for a relative decline in some years followed by a gradual improvement in subsequent years. This can be illustrated in the following table :

Table 5. Company Value Indicators at the General Company for Hydraulic Industries for the period 2016–2025

Year	Profit margin%	Return on assets%	Return on equity%	Revenue growth%	Company Value Index
2016	4.2	2.1	3.4	2.5	61
2017	4.5	2.3	3.7	3.1	63
2018	4.8	2.5	4.0	4.0	65
2019	5.2	2.8	4.4	5.2	68
2020	4.1	2.0	3.2	-2.8	64
2021	5.6	3.0	4.8	6.1	70
2022	6.3	3.5	5.7	7.4	74
2023	7.1	4.0	6.6	8.8	79
2024	7.8	4.5	7.5	9.7	84
2025	8.6	5.1	8.6	10.5	89

Table (5) shows an overall improvement in the company's value indicators during the study period. The profit margin increased from 4.2% in 2016 to 8.6% in 2025, nearly doubling. Return on assets rose from 2.1% to 5.1 %, and return on equity increased from 3.4% to 8.6 %. Revenue growth also increased from 2.5% to 10.5 %, with a negative value of -2.8% recorded in 2020, which was reflected in a decrease in the company's value index to 64 points. The index then resumed its upward trend, reaching 89 points in 2025, indicating improved financial performance coupled with enhanced resource utilization efficiency and the development of analytical indicators. The simultaneous improvement in profitability and asset returns is aligned with studies connecting analytics capability to higher-value business

performance [2], [7].

Sixth: A composite analysis of the relationship between predictive analytics, resource allocation efficiency, and company value

After measuring the key variables separately, a composite comparison can be made between the development of predictive analytics, resource allocation efficiency, and company value to illustrate the overall trend in their relationship. Three composite indices representing the key variables were adopted: the predictive analytics index, the resource allocation efficiency index, and the company value index. This table allows for a comparison of annual developments and reveals the extent to which improvements in predictive capability coincide with improvements in resource allocation efficiency and value. This can be illustrated in the following table :

Table 6. Composite indicators of predictive analytics, resource allocation efficiency, and company value for the period 2016–2025

Year	Predictive analytics index %	Resource allocation efficiency index %	Company Value Index %	Change in the value index %
2016	37.3	63.0	61	—
2017	40.0	64.5	63	3.28
2018	43.3	67.0	65	3.17
2019	47.0	69.5	68	4.62
2020	50.3	65.0	64	-5.88
2021	54.5	71.0	70	9.38
2022	59.3	75.0	74	5.71
2023	64.5	79.0	79	6.76
2024	70.0	83.0	84	6.33
2025	75.5	86.0	89	5.95

Table (6) reveals a general upward trend for the three variables. The predictive analytics index rose from 37.3% in 2016 to 75.5% in 2025, while the resource allocation efficiency index increased from 63% to 86 %, and the company value index rose from 61 to 89 points. It is worth noting that 2020 represents an exception, as the resource allocation efficiency index declined to 65% after reaching 69.5% in 2019, and the company value index fell from 68 to 64 points. After 2020, however, the three indices followed a simultaneous upward trajectory, with the predictive analytics index reaching 75.5% in 2025, compared to 86% for resource allocation efficiency and 89 points for company value. These trends, within the framework of the hypothetical data used, suggest a potential positive relationship between the development of predictive analytics capabilities and improved resource allocation efficiency, accompanied by an increase in company value indices. This result supports the core idea of the research, which is that using data and forecasting future needs can help management direct resources more efficiently, which is reflected in financial and operational performance and therefore in the value of the company.

Hypothesis Testing

This section aims to statistically test the research hypotheses to ascertain the nature of the relationship and impact between predictive analyses and both resource allocation efficiency and company value at the General Company for Hydraulic Industries during the period 2016–2025. To achieve this, Pearson's correlation coefficient was used to measure the direction and strength of the relationship between the independent and dependent variables. Additionally, simple linear regression was employed to measure the magnitude of the impact of predictive analyses on each dependent variable. A significance level of 0.05 was adopted, whereby the null hypothesis was rejected if the p-value (Sig.) was less than 0.05, and accepted if it was greater. Since the data used in the analysis are simulated, hypothetical application data, the following results represent an illustrative statistical model that can be replaced with actual data when available.

First: Testing the First Hypothesis

The first hypothesis states that there is no statistically significant effect between predictive analytics and improved resource allocation efficiency at the General Company for Hydraulic Industries. To test this hypothesis, Pearson's correlation coefficient was used to measure the strength and direction of the relationship, and simple linear regression was used to determine the magnitude of the change in resource allocation efficiency resulting from the change in the level of predictive analytics. The statistical judgment is based on the correlation coefficient (R), the coefficient of determination (R^2), the t -test value, and the level of statistical significance ($Sig.$). This can be illustrated in the following table :

Table 7. Results of the test on the impact of predictive analytics on resource allocation efficiency

Independent variable	Dependent variable	Correlation coefficient R	Coefficient of determination R^2	Regression coefficient B	Value of t	Sig.	Decision
Predictive analytics	Efficiency of resource allocation	0.970	0.942	0.608	11.377	0.000	H0 rejected

Table (7) clearly shows a very strong positive correlation between predictive analytics and resource allocation efficiency, with a correlation coefficient ($R = 0.970$). This indicates that higher levels of predictive analytics use are associated with a significant improvement in resource allocation efficiency. The coefficient of determination ($R^2 = 0.942$) means that predictive analytics explains approximately 94.2% of the variation in resource allocation efficiency within the model used, while the remaining 5.8% is attributed to other factors not included in the model. The regression coefficient ($B = 0.608$) indicates that a one-unit increase in the predictive analytics index is associated with a 0.608-unit increase in resource allocation efficiency. The t -value was 11.377, a high value, while the significance level ($Sig. = 0.000$) was less than the established significance level of 0.05. Accordingly, the first null hypothesis is rejected and the alternative hypothesis is accepted, which assumes that predictive analyses have a statistically significant effect on improving the efficiency of resource allocation.

Second: Testing the second hypothesis

The second hypothesis states: There is no statistically significant effect between predictive analytics and company value maximization at the General Company for Hydraulic Industries. To test this hypothesis, Pearson's correlation coefficient and simple linear regression were applied to determine the nature of the relationship between the level of predictive analytics and the company value index, and to measure the percentage change in company value that can be explained by the independent variable. The same statistical indicators—correlation coefficient, coefficient of determination, regression coefficient, t -value, and significance level—were used to evaluate the hypothesis at a significance level of 5%. This can be illustrated in the following table :

Table 8. Results of the test on the impact of predictive analytics on company value

Independent variable	Dependent variable	Correlation coefficient R	Coefficient of determination R^2	Regression coefficient B	Value of t	Sig.	Decision
Predictive analytics	Company value	0.974	0.949	0.718	12.144	0.000	H0 rejected

The results in Table (8) indicate a very strong positive correlation between predictive analytics and company value, with a correlation coefficient of ($R = 0.974$). This demonstrates that a higher level of predictive analytics coincides with a higher company value index. The coefficient of determination ($R^2 = 0.949$) means that predictive analytics explains approximately 94.9% of the changes in company value according to the model used, while other factors account for about 5.1% of the changes. The regression coefficient ($B = 0.718$) indicates that a one-unit increase in the predictive analytics index is associated with a 0.718-unit increase in the company value index. The t-value was 12.144, while the significance level (Sig.) was 0.000, which is less than the 0.05 significance level. Therefore, the second null hypothesis is rejected, and the alternative hypothesis, which states that predictive analytics has a statistically significant effect on maximizing company value, is accepted.

Based on the results of the statistical testing of the two hypotheses, it is clear that predictive analytics is strongly and positively correlated with both resource allocation efficiency and firm value. This is evidenced by the high correlation coefficients of 0.970 and 0.974, respectively, as well as the high coefficients of determination of 94.2% and 94.9 %, with a statistical significance of 0.000 in both models. These results, within the limitations of the hypothetical data used, indicate that employing predictive analytics can be a significant factor in improving resource allocation decisions, and that improvements in resource utilization efficiency can be reflected in performance indicators and value. Thus, the results support the overall research hypothesis, which posits that predictive analytics has an impact on improving resource allocation efficiency and maximizing firm value.

Discussion

The results indicate that the predictive analytics index increased together with resource allocation efficiency and company value over the 2016–2025 period. The strong correlations with resource allocation efficiency ($R = 0.970$) and company value ($R = 0.974$) are consistent with evidence that analytics capabilities improve organizational performance when data, technology, and managerial routines operate as complementary resources [1], [2]. The reduction in financial waste, higher productive spending, and improved capacity utilization also accord with supply-chain research showing that analytics can improve forecasting, procurement, and operational coordination [3], [4], [5]. In this setting, predictive analytics appears to provide management with a more systematic basis for prioritizing financial, productive, and human resources rather than relying solely on historical averages or personal judgment.

The observed relationship with company value can be interpreted through two pathways. First, predictive information can reduce resource mismatch, equipment downtime, and unnecessary expenditure, thereby improving margins and returns. Second, better data coverage and model use can support faster strategic responses and higher-quality investment decisions. These mechanisms are compatible with prior findings on high-value business performance, business intelligence, digital strategy, and data quality [7], [19], [20], [21]. The 2020 decline across operational and value indicators is important because it shows that analytics does not eliminate external disruption; rather, its value depends on data quality, infrastructure, employee competence, and the organization's ability to act on model outputs [5], [12], [17].

The statistical results should nevertheless be interpreted as illustrative rather than as verified causal evidence. The annual series contains only ten observations, and the indicators were constructed as hypothetical application data because a complete published company database was unavailable. Consequently, the high R^2 values may reflect the designed common trend in the simulated series, and the regression estimates cannot establish that predictive analytics alone caused the improvements. Future empirical work should replace the simulated values with audited company records, document the construction and reliability of each composite index, test time-series assumptions, control for inflation and macroeconomic shocks, and compare predictive models against non-predictive benchmarks. This caution is consistent with literature emphasizing implementation challenges, model updating, and the organizational conditions required to realize value from analytics [5], [12], [16].

CONCLUSION

The study concludes that predictive analytics can support more efficient allocation of financial, productive, and human resources by providing forward-looking information for identifying needs, reducing waste, improving productive capacity utilization, and strengthening employee productivity. Across the illustrative 2016–2025 series, the predictive analytics indicators improved gradually alongside profitability, return on assets, return on equity, revenue growth, and the company value index. The statistical model showed strong positive associations between predictive analytics and resource allocation efficiency ($R = 0.970$; $R^2 = 0.942$; $p < 0.001$) and between predictive analytics and company value ($R = 0.974$; $R^2 = 0.949$; $p < 0.001$). Because the analysis relies on a ten-year hypothetical data series, these findings demonstrate the proposed analytical relationship but should not be interpreted as causal evidence from audited company records.

The company is recommended to develop an integrated information system linking financial, production, and human-resource databases; invest in reliable analytical infrastructure and staff capability; and apply predictive models periodically to estimate production needs, raw materials, labor, equipment use, and potential operational disruptions. Management should establish performance indicators that compare forecasts with actual outcomes, update models as operational and economic conditions change, and connect analytical outputs directly to strategic planning and resource-prioritization decisions. Future studies should validate the model using audited observations, a larger sample, transparent index construction, appropriate time-series diagnostics, and controls for external economic shocks so that the effect of predictive analytics can be distinguished from broader changes in the firm's operating environment.

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