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A STUDY ON AI - BASED PREDICTIVE FOR DATA DRIVEN BUSINESS STRATEGIES

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ABSTRACT

This study looks at how Artificial Intelligence helps companies make business plans. Companies really need to use Artificial Intelligence to look at new data so they can make better guesses about the future and make good decisions. The people who did this study got information from 154 people of ages, jobs and industries by asking them questions. They used tools like MS Excel and SPSS to look at the information. The results show that Artificial Intelligence really helps companies make decisions work well and use their resources wisely. Using Artificial Intelligence

tools properly having employees with skills and making Artificial Intelligence a part of how the company works were all important for how well the company did. The study says that Artificial Intelligence is very important for companies that want to be better, than others and grow over time. Artificial Intelligence helps companies make plans and stay ahead.

INTRODUCTION

The business world is changing fast these days. Companies have to deal with a lot of competition and customers who want things all the time. It is not enough to make decisions based on what you think or what happened before. Now companies collect a lot of data every day from things like sales and customer feedback and social media. The hard part is not collecting the data. Using it in the right way. That is why a lot of companies are using Artificial Intelligence or AI to help them make decisions. Artificial Intelligence means using things like machine learning and data mining to look at what happened in the past and what is happening now so you can guess what will happen next. This helps companies see patterns and predict what customers will want and identify problems before they happen. Of just looking at what happened before Artificial Intelligence helps companies get ready for what might happen next.When companies make decisions based on facts and evidence they can do better. With the help of Artificial Intelligence businesses can make their marketing and customer service and pricing better. For example online shopping companies use Artificial Intelligence to suggest products to customers and banks use it to catch people who are trying to cheat. Retailers use it to guess how many products customers will want. This helps companies save time and money and make customers happier.One of the things about Artificial Intelligence is that it can handle a lot of data quickly and accurately. Traditional ways of doing things have a time with complex data like what people say online or how they browse the internet. Artificial Intelligence systems can take this information. Turn it into something useful. This allows companies to react faster to what's happening in the market and what customers want.At the time using Artificial Intelligence in business is not easy. A lot of companies have problems like data and not having the right people to do the job. Some companies also do not trust Artificial Intelligence. Do not understand it. To get the most out of it businesses need to manage their data and have trained staff and use the technology in a responsible way.

In today’s world Artificial Intelligence is a very important tool for businesses that want to grow and succeed. Companies that use data in a way are better, at finding opportunities and reducing uncertainty and staying ahead of their competitors. So it is important to study how Artificial Intelligence is used in business to understand how companies can do better and make decisions.

REVIEW OF LITERATURE

Recent studies show that AI-driven predictive analytics is really important for business strategy. A study by Smith and Wisdom in 2025 says that predictive analytics helps organizations make decisions by looking at trends, risks and what customers might do in the future. This is done using machine learning and data mining techniques. It makes planning better and gives businesses an edge over others in a fast-changing world.

Earlier research by Zak in 2013 found that AI and predictive analytics together improve how businesses perform. They do this by looking at data to forecast what might happen plan for demand and understand customers better. The study also shows that using statistics and machine learning makes businesses run smoothly and makes customers happier.

A review in Artificial Intelligence Review in 2024 talks about how data and predictive analytics help businesses get useful information from large datasets. These datasets have a lot of information come in fast and are very varied. The review confirms that predictive analytics helps businesses make decisions by finding patterns, trends and future opportunities. This makes business strategies based on data

Also Adwani in 2025 found that predictive analytics using machine learning is very important for business strategy. It helps businesses forecast demand, assess risks and run operations better. The study says that predictive analytics is a factor in giving businesses a competitive edge especially in organizations that rely on data.

Moreover a thorough review, in Information Systems Frontiers shows that AI increases business value by making decisions running operations more smoothly and making organizations more flexible. The study also emphasizes that having quality data and being ready to use new technology are crucial for AI-based predictive systems to succeed. Predictive analytics is important here because it helps businesses in ways and AI-driven predictive analytics is what makes it all work.

RESEARCH OBJECTIVES

- The goal is to look at how AI-based predictive analytics helps with making business decisions.
- We want to see how using data to make decisions affects how well a company does.
- We need to find the things that make companies use predictive analytics.
- We have to check if AI toolset really good, at predicting what will happen and planning for it.
- The idea is to come up with ways to make predictive analytics work better in business plans. That is what we are going to do with predictive analytics.

RESEARCH METHODOLOGY

Research Design

This study looked at how artificial intelligence can help businesses make decisions. It wanted to see how companies use intelligence tools to predict what will happen make plans work better and grow in the long run. The people doing the study made a list of questions. Asked people from different places and industries to answer them. The study used these answers to understand how artificial intelligence is used in business.

Sources of Data

The study was based on information that was collected directly from the people who took part in it. We got this information by asking people to fill out a questionnaire that had a set of questions.

- The questionnaire was sent to people using Google Forms.
- The people who filled out the questionnaire were asked to give their thoughts on using AI-based analytics in business organizations.
- They were asked to share what they think about the use of AI-based analytics, in business organizations.

Sample size

The sample size for this study was made up of 154 people who answered our questions. We picked these 154 people to get information about using Artificial Intelligence to predict what will happen in business. The 154 people in our study were ages and had different jobs and worked in different industries. This helped us get different opinions and ideas. We thought that 154 people was a number to use for looking at statistics like how things are related and for making good guesses about what we found out. This was important for achieving the goals of our study, about Artificial Intelligence and business.

Sampling Technique

Convenience Sampling

DATA COLLECTION INSTRUMENT

Demographic Profile

This part has questions, about the work background of the people who answered. We collected this info to know who the participants are and to see if their answers were different based on their group. We looked at these details:

- Gender – to see how many men and women answered.
- Age – to put the respondents into age groups.
- Occupation – to know what the participants do for work.
- Industry Type – to find out what sector or industry the respondents work in or are connected to.

AI-Based Predictive Analytics Scale

This part had 12 questions that asked people what they think about using AI-Based Predictive Analytics to make business decisions. We wanted to know how AI-Based Predictive Analytics helps companies plan better make guesses get things done faster find new chances and deal with changes, in the market quickly. We also looked at if companies have the information if workers

have the right skills if managers are supportive and how much AI-Based Predictive Analytics is used in the things companies do every day.

Data Analysis Procedure

I analyzed the collected data using MS Excel and SPSS software. These tools helped me to organize, classify and interpret the responses in a way.

The following statistical techniques were used:

- Correlation Analysis: I used Pearson correlation to find out how AI-based predictive analytics variables relate to business strategy outcomes. This helped me understand if there's a connection between them.
- Regression Analysis: I did multiple regression analysis to see how different AI-based predictive analytics dimensions affect data-driven business strategies and organizational performance. This analysis showed me the impact of each dimension.

I looked at how AI-based predictive analytics dimensions impact business strategies. The analysis was done to check the effect, on performance using AI-based predictive analytics.

Correlation Analysis

Descriptive Statistics			
	Mean	Std. Deviation	N
My organization effectively uses AI tools for predictive analytics.	4.05	.831	154
My organization has sufficient qual1y data to support AI-based predictions.	3.97	.775	154
AI-based insights improve strategic decision-making in my organization.	4.12	.775	154
AI improves operational efficiency and resource allocation.	4.20	.827	154

INTERPRETATION:

The table above shows us some statistics about how people feel about AI and its ability to predict things. AI improving how things run and how resources are used has the score with an average of 4.20. This means that most people agree that AI is really good at this. The next highest score is for AI helping to make decisions with an average of 4.12. People also think that AI tools are useful

for predicting things with a score of 4.05. The one thing that people are not as sure about is whether we have enough data to make predictions using AI with an average score of 3.97.. Overall people seem to think that AI is a good thing for organizations. The numbers also show that people tend to agree with each other but not completely with scores ranging from 0.775 to 0.831. This tells us that AI predictive analytics variables are seen as positive, for organizations and people generally agree on this.

Correlations

		My organization effectively uses AI tools for predictive analytics.	My organization has sufficient qual1y data to support AI-based predictions.	AI-based insights improve strategic decision-making in my organization.	AI improves operational efficiency and resource allocation.
My organization effectively uses AI tools for predictive analytics.	Pearson Correlation	1	.489**	.518**	.451**
	Sig. (2-tailed)		.000	.000	.000
	N	154	154	154	154
My organization has sufficient qual1y data to support AI-based predictions.	Pearson Correlation	.489**	1	.495**	.446**
	Sig. (2-tailed)	.000		.000	.000
	N	154	154	154	154
AI-based insights improve strategic decision-making in my organization.	Pearson Correlation	.518**	.495**	1	.534**
	Sig. (2-tailed)	.000	.000		.000
	N	154	154	154	154
AI improves operational efficiency and resource allocation.	Pearson Correlation	.451**	.446**	.534**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	154	154	154	154

**. Correlation is significant at the 0.01 level (2-tailed).

INTERPRETATION:

The table shows how AI predictive analytics variables are connected to each other. When organizations use AI tools in a way it has a good effect on the quality of the data they have which is a big deal. The connection between using AI tools having good quality data is pretty strong with a relationship of 0.489. It is also connected to making strategic decisions using AI insights with a relationship of 0.518 and to how well the organization runs, with a relationship of 0.451.This means that when organizations use AI tools well they tend to have data make better decisions and run more smoothly.Good quality data is also important for making strategic decisions with a relationship of 0.495 and for running the organization well with a relationship of 0.446. This shows that having data is crucial for getting good results from AI.The strongest connection of all is between AI helping managers make strategic decisions and AI improving how the organization runs with a relationship of 0.534. This makes sense because when AI helps managers make decisions the organization tends to run better too. AI predictive analytics variables are clearly. Using AI tools effectively is key, to getting good results.

Descriptive Statistics

	Mean	Std. Deviation	N
Gender	1.65	.479	154
IndustryType	1.60	.709	154
Age	2.34	.564	153
Occupation	1.53	.716	154

INTERPRETATION:

The table above shows statistics about variables. The average value for Gender is 1.65.The average value for Industry Type is 1.60.The average Age is 2.34.The average Occupation is 1.53.These numbers represent the answers from respondents in each category. The variation in responses is moderate as shown by the deviation values. Note that Gender, Industry Type, Age and Occupation are categories with codes. So the average values are only for grouping purposes, not measurements. The coded values, for Gender, Industry Type, Age and Occupation should not be taken as numbers.

Correlations					
		Gender	IndustryType	Age	Occupation
Gender	Pearson Correlation	1	-.316**	.301**	-.202*
	Sig. (2-tailed)		.000	.000	.012
	N	154	154	153	154
IndustryType	Pearson Correlation	-.316**	1	-.339**	.504**
	Sig. (2-tailed)	.000		.000	.000
	N	154	154	153	154
Age	Pearson Correlation	.301**	-.339**	1	-.247**
	Sig. (2-tailed)	.000	.000		.002
	N	153	153	153	153
Occupation	Pearson Correlation	-.202*	.504**	-.247**	1
	Sig. (2-tailed)	.012	.000	.002	
	N	154	154	153	154
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

INTERPRETATION:

The table shows how some things are related to each other. Gender is related to Industry Type in a way the number is -0.316 and this relationship is important. Gender is also related to Occupation the number is -0.202. This relationship is important too. But Gender is related to Age in a way the number is 0.301.Industry Type is related to Occupation in a way the number is 0.504 and this is the strongest relationship we can see in the table. Age is related to Industry Type in a way the number is -0.339.Age is also related to Occupation in a way the number is -0.247.So we can see that Gender and Industry Type and Occupation and Age are all related to each other, in ways.

REGRESSION ANALYSIS

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	My organization effectively uses AI tools for predictive analytics. , Employee in my organization have the required skills to use AI tools effectively. , AI tools are well integrated into existing business processes.[b]	.	Enter
a. Dependent Variable: AI improves operational efficiency and resource allocation.			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.540[a]	.291	.277	.704
a. Predictors: (Constant), My organization effectively uses AI tools for predictive analytics. , Employee in my organization have the required skills to use AI tools effectively. , AI tools are well integrated into existing business processes.				

INTERPRETATION:

The table above shows us what we found out from the regression analysis. The R value is 0.540 which means the independent variables and the dependent variable are related in a way but not very strongly. This tells us that the things we are looking at like use of AI tools and employee skills and integration of AI tools into business processes are pretty good at showing us how the outcome variable will change.

The R Square value is 0.291 29.1 percent of what happens to the dependent variable is because of these three things: effective use of AI tools and employee skills and integration of AI tools into business processes.The Adjusted R Square value is 0.277, which means that when we think about how many things we are looking at 27.7 percent of what happens to the dependent variable is explained. This is a level of explanatory power, which is pretty good.The standard error of estimate is 0.704 which means the numbers we predict are not always exactly right they can be a little off from what happens.. Overall the regression model shows us that the AI-related factors we are looking at like effective use of AI tools and employee skills and integration of AI tools into business processes really do have an influence, on the dependent variable.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.501	3	10.167	20.537	.000[b]
	Residual	74.258	150	.495		
	Total	104.760	153			

a. Dependent Variable: AI improves operational efficiency and resource allocation.

b. Predictors: (Constant), My organization effectively uses AI tools for predictive analytics. , Employee in my organization have the required skills to use AI tools effectively. , AI tools are well integrated into existing business processes.

INTERPRETATION:

The table above shows us the result of the ANOVA test for the regression model. We can see that the F value is 20.537 and the significance value is 0.000 which's really small, less than 0.05. This tells us that the regression model is statistically significant. The regression model looks at things like how we use AI tools the skills of our employees and how we put AI tools into our business processes. These things together have an impact on how well our operations run and how we use our resources. So the regression model is a tool for predicting how AI will affect our organizations performance. The regression model is useful because it helps us understand how AI factors like use of AI tools, employee skills and integration of AI tools, into business processes impact our organization.

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.045	.420		2.489	.014		
	AI tools are well integrated into existing business processes.	.245	.092	.207	2.653	.009	.775	1.291
	Employee in my organization have the required skills to use AI tools effectively.	.223	.087	.193	2.564	.011	.833	1.200
	My organization effectively uses AI tools for predictive analytics.	.304	.076	.305	3.974	.000	.802	1.247
a. Dependent Variable: AI improves operational efficiency and resource allocation.								

INTERPRETATION:

The above table shows the coefficients of the regression model. It explains the individual effect of each independent variable on operational efficiency and resource allocation.The variable effective use of AI tools for predictive analytics has the highest influence (Beta = 0.305, Sig. = 0.000), showing it is the most important factor affecting operational efficiency.The variable AI tools are well integrated into existing business processes also has a significant positive effect (Beta = 0.207, Sig. = 0.009).Similarly, employees having the required skills to use AI tools effectively has a positive and significant impact (Beta = 0.193, Sig. = 0.011).Since all significance values are less than 0.05, all three variables significantly influence operational efficiency and resource allocation. The VIF values are below 5, which indicates that there is no multicollinearity problem among the independent variables.

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.045	.420		2.489	.014		
	AI tools are well integrated into existing business processes.	.245	.092	.207	2.653	.009	.775	1.291
	Employee in my organization have the required skills to use AI tools effectively.	.223	.087	.193	2.564	.011	.833	1.200
	My organization effectively uses AI tools for predictive analytics.	.304	.076	.305	3.974	.000	.802	1.247
a. Dependent Variable: AI improves operational efficiency and resource allocation.								

INTERPRETATION:

The table above tells us how each thing that is not dependent on others affects how well things are run and how resources are given out. Using Artificial Intelligence tools to predict what will happen in the future has the effect and it is very important. The numbers show that it really matters. Artificial Intelligence tools that are part of business processes also have an effect. The numbers for this are also good. If employees are good at using Artificial Intelligence tools it also helps things run smoothly. All of the numbers that show if something is important are than 0.05 so we know that all three things really affect how well things are run.The VIF numbers are low which means that there is no problem, with things being closely related to each other.

FINDINGS

The study found that people generally think Artificial Intelligence makes things run smoothly and helps with resource allocation. Artificial Intelligence got a score of 4.20 for this. Artificial Intelligence also helps with making decisions with a score of 4.12. Companies that use Artificial Intelligence well have data and make better decisions. When the study looked at how thingsre related it found that Artificial Intelligence and decision making are closely connected to how well things run, with a connection of 0.534. This means that good decisions make things run smoothly. The study also found that Artificial Intelligence explains, about 29.1% of why things run or not.The study showed that using Artificial Intelligence to predict what will happen next has an impact. It also found that how skilled employees are and how well Artificial Intelligence is integrated into the company makes a difference. The study checked to make sure the information used was good. Found that it was reliable.

SUGGESTIONS

Organizations need to get data and manage it well so they can use artificial intelligence to make good predictions. They have to teach their employees how to use intelligence tools properly. Artificial intelligence systems should be part of the work that people do every day not something separate. This way organizations can get the most out of intelligence. The people in charge should use the information that artificial intelligence gives them to plan for the future and make decisions. Small businesses and sized businesses should start using artificial intelligence now because if they wait it will be harder to compete. They have to check the intelligence models all the time and update them so they keep working well. Organizations have to be careful with intelligence and make sure they are using it in a good way and they have to protect peoples private information. Artificial intelligence is important. Organizations should use it. Organizations should keep using intelligence and make sure it is working well.In the future people should do research, on artificial intelligence and include more places and people so we can be sure that the results are real and will work everywhere. Artificial intelligence will keep changing and organizations have to be ready to use it.

CONCLUSION

AI based predictive analytics is really important for businesses that want to be successful. The study shows that companies that use AI in the way make good decisions get work done faster use their money and people smarter and adjust to changes, in the market quickly.. This only works if the company has good data, skilled workers and a system that is set up correctly. If a business does not use AI it will probably grow slower. Be less competitive. So companies should think of AI analytics as a way to help their business grow in the long run not just something to try out. AI predictive analytics is a part of doing business today. Businesses need to use AI analytics to stay competitive and companies that do not use AI predictive analytics will fall behind.

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