

The effect of business intelligence on the performance of banking services in Parsian Bank, Mazandaran branches

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Article	Abstract
Article history: Received Received in revised form Accepted	The primary purpose of this study was to investigate the effect of business intelligence on bank services performance in Parsian bank in Tehran. The research method in this study was descriptive of correlation type, and the statistical population was selected from 420 employees of Parsian bank in
Keywords: Business Intelligence, Performance, Banking Services, Parsian Bank	Tehran based on the Morgan table was determined by a simple random sampling method. Data collection tools were two questionnaires of business intelligence dimensions with 0.805 reliability and bank performance with 0.846 reliability. The formal and content validity of the questionnaires was approved by the professors and then tested through the approved factor analysis. The method of data analysis using descriptive statistics (mean, standard deviation and variance) and inferential statistics (path analysis) were supported by Amos software. This study showed that business intelligence influences the performance of Parsian bank branches in Tehran. Also, business intelligence components (information content, access to information, use of information in the business process, analytical decision-making culture) affect the performance of Parsian bank branches in Tehran. The results showed that by enhancing trade intelligence in Parsian bank branches in Tehran, the performance of employees is increasing as well.

1. Introduction

Banks play a vital role in allocating economic resources in countries and creating economic prosperity by creating a channel between resource depositors in the bank and investors in industry and trade. But industry (banking), like other industries, faces environmental pressures. Hammer and Champy (1993), has referred to these pressures as 3c: change, customers and competition. These pressures cause banks always to seek to improve performance in financial and non-financial dimensions. Striving for better performance is an issue that is expected of all stakeholders in the organization, including customers, employees and shareholders. In challenging and turbulent environments, organizations realize over time that yesterday's competitive advantage does not guarantee tomorrow's survival. This puts a lot of pressure on organizations to learn how to improve their performance and advantage best and be ahead of competitors. Evaluating the performance of

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organizations and enterprises with similar activities and reviewing their performance results in a given period is an essential and strategic process that, while determining the organization's competitive position, has a significant role in continuous improvement and increasing quality and effectiveness. Has management decisions of organizations [1].

Today, one of the tools for measuring success in achieving the organization's goals is the issue of organizational performance. Managing and evaluating the performance of organizations is one of the most powerful tools that can be used to obtain the required information from the status of the organization [2]. In the world economic literature today, the role and importance of the financial system and the money and capital markets and, consequently, banks and financial and credit institutions as the executive arms of this system and tools of economic growth and development of countries is quite tangible, so that sustainable economic development It is not possible without the growth and development of these financial markets [3]. The banking system of the government as one of the most important economic sectors of the society about attracting and directing depositors, providing services to the people and participating in economic, social and cultural development have influential roles, and the inability of this system causes many problems. It will create the country, and also banks are of particular importance among different industries because they can prepare the conditions for investment through loans, facilities and participation in various economic projects, and thus in growth. And be influential in the economic development of the country. Due to the significant and fundamental role of banks in most economic activities, the study of the performance (productivity and efficiency) of each bank in Iran has become effective. On the other hand, while there is considerable evidence that business intelligence is essential to organizations, Wixon and Weston have argued that the benefits of business intelligence have not been adequately explored and therefore need more attention [4].

On the other hand, according to the subject of the present study and the performance of banks, it should be said that Bunker International is one of the reputable centres that ranks the top 1000 banks in the world every year by obtaining statistics from the world banks. The indicators that are the criterion of this classification are the amount of profit, rate of return on capital, rate of return on assets, etc. Among the seventeen Iranian banks in this institution's database, thirteen banks are in this ranking. However, despite improving its performance in 2014, the best Iranian bank has not risen from the position of seven hundred and seventy-seven. This shows that Iranian banks are far from international standards, and it is essential to pay attention to the factors affecting their performance.

Taken together, these conditions require banks to pursue strategies to improve their performance. All the efforts of an organization in all areas must be reflected in its performance. Most organizations try to improve their performance by using various tools and mechanisms. For this purpose, measuring performance status is one of the essential categories considered by organizations. Examining different perspectives on performance shows that many variables can be influential in it. One of these variables that leads to improved performance is business intelligence. Business intelligence helps organizations equip themselves with new business ideas to manage and improve their performance continuously. One of the current and future needs of the organization's management is to support the decision-making processes that the organization's resource planning systems must cover in addition to their real goals of mechanization, integration and process improvement. Several organizations believe that if the organization's tools are equipped with business intelligence systems, they will create a higher value for the organization [5].

Business intelligence aims to help control the resources and flow of business information that exists within and around the organization. With the help of managers in decision-making, business intelligence can enable the bank to solve problems in all areas of work such as customer relationship management, performance management, risk management, asset management, and complaint management, which

ultimately leads to improved bank performance. The central relationship between business intelligence and organizational systems lies in the fact that the secondary purpose of these systems is to create a decision support space for management, and business intelligence can be located in the heart of these systems and by converting data into knowledge to achieve this goal. Makes him a researcher. In this study, the researcher intends to measure the impact of business intelligence on the performance of banks (Parsian Bank, Mazandaran Province Branches) and, in the meantime to present better and more effective methods to future managers. According to the mentioned cases, the research question is as follows:

What is the effect of business intelligence on the performance of Parsian Bank in Mazandaran province?

Importance and necessity of research

Therefore, in this study, the researcher intends to assess the impact of business intelligence on the performance of Parsian Bank branches in Mazandaran province.

Research objectives

The primary goal

Identifying the effect of business intelligence on the performance of Parsian Bank branches in Mazandaran province

Sub-objectives

Identifying the effect of information content quality on the performance of Parsian Bank branches in Mazandaran province

Determining the impact of quality of access to information on the performance of Parsian Bank, Mazandaran branches

Identifying the implications of using the information in the business process on the version of Parsian Bank branches in Mazandaran province

Determining the effect of analytical decision-making culture on the performance of Parsian Bank, Mazandaran branches

Research hypotheses:

The central hypothesis of the research

Business intelligence affects the performance of Parsian Bank branches in Mazandaran province.

Research sub-hypotheses

The quality of information content affects the performance of Parsian Bank branches in Mazandaran province.

Access to information affects the performance of Parsian Bank branches in Mazandaran province.

The use of information in the business process affects the performance of Parsian Bank branches in Mazandaran province.

Analytical decision-making culture affects the performance of Parsian Bank branches in Mazandaran province.

2. Background of study

One of the current and future needs of the organization's management is to support the decisionmaking processes that the organization's resource planning systems must meet in addition to their real goals of mechanization, integration and process improvement. Several organizations believe that if the organization's tools are equipped with business intelligence systems, they will create a higher value for the organization. By helping managers make decisions, business intelligence can enable the bank to solve problems in all work areas, such as customer relationship management, performance management, risk management, asset management, and complaint management, which ultimately lead to improvement. Bank performance. Business intelligence aims to help control the resources and flow of business information that exists within and around the organization. The central relationship between business intelligence and organizational systems lies in the fact that the secondary purpose of these systems is to create a decision support space for management, and business intelligence can be located in the heart of these systems and by converting data into knowledge to achieve this goal. Makes a researcher.

Rabiee Mandjin et al. (2015) conducted a study entitled "Determining the effect of business intelligence on financial performance: Ayandeh Bank branches in Mazandaran province" The statistical population in this study is the staff of Ayandeh Bank branches in Tehran, which is about 365 people according to The Cochran's formula is approximately equal to 189. The reliability test of the questionnaire was performed on 36 samples. As can be seen, the Cronbach's alpha value for all variables is higher than the acceptable value for practical purposes, which is 0.7, so it can be claimed that the questionnaire has sufficient reliability. Due to the normality of the data, we should use parametric tests to test the first central hypothesis and related sub-hypotheses, a significant linear regression test is used, which the results of the regression test show that the dimensions of business intelligence (quality Information content, quality of access to information, use of information in the business process and analytical decision-making culture) have a significant impact on financial performance. Then we will use the Kolmogorov-Smirnov test.

Sabeti and Mollai (2015), a study entitled "Study and description of the relationship between business intelligence and relative performance" Case study: Branches of Agricultural Bank of Kerman Province The statistical population of the survey includes all managers and active users of 18 branches of Agricultural Bank of Kerman Province. In this study, in addition to library studies to review the research literature, field studies in the branches of agricultural banks in Kerman province with a questionnaire that includes components of business intelligence such as (quality of information content, quality of access to information, use of information in the acquisition process. The questionnaire was distributed among managers and bank staff. The results were extracted from the questionnaires by descriptive and inferential statistical methods (Pearson correlation coefficients and regression using SPSS software to investigate). The accuracy of the hypotheses was used, and the relative performance was calculated using the data envelopment analysis technique. The results showed a significant relationship between business intelligence and its components with the relative performance of agricultural bank branches.

Fakhr Al-Ali (2017) conducted a study entitled "The effect of using business intelligence on the performance of domestic, international companies" The statistical population of the study included managers of domestic, international companies in Mazandaran province. The sample size was determined based on the Krejcie Morgan table, and the random cluster sampling method was used to select the samples. According to Krejcie and Morgan table, 132 people were selected as a statistical sample. These numbers were chosen as a random cluster. In this way, domestic and international companies (210 companies) were selected as clusters, and managers were randomly selected within them. The results showed that business intelligence has been influential on productivity, international satisfaction, improving financial status, and empowering employees of domestic, multinational companies.

Jafari Yousefi et al. (2017), a study entitled The study of the effect of business intelligence on the performance of managers: Isfahan Polyacryl Company conducted this study, which is a descriptive survey with practical nature and cross-sectional time to investigate the effect of current intelligence on the performance of case managers Isfahan polyacrylic has been done. One hundred seventy of them were selected as a statistical sample. Two business intelligence questionnaires and managers'

performance questionnaires were used as data collection tools to measure the validity of the questionnaires by content method and to determine its reliability; Cronbach's alpha was calculated. It was estimated to be 0.888 for the business intelligence questionnaire and 0.881 for the managers 'performance questionnaire. Kolmogorov-Smirnov test was used to evaluate the normality of the data, and Pearson and regression tests were used to analyze the data. The results showed a relationship between business intelligence and managers' performance. There is a relationship. Also, the research hypotheses were confirmed, i.e. the hypotheses between business intelligence and managers' performance in the information communication roles of decision making and change in the polyacrylic company have a significant relationship.

Charghani et al. (2017) conducted a study entitled "The effect of business intelligence on competitive organizational advantages of Parsian Insurance Company in Mazandaran province". In the present study, by designing a questionnaire and distributing it among 761 managers and employees of Parsian Insurance Company in The field study was conducted in Mazandaran province. Data were collected and analyzed using Spss and LISREL software. The statistical analysis results showed that the business intelligence variable has a positive and significant effect on the variables of cost leadership, product differentiation and focus.

Qanavati Asl and Ghasemizad (2016) conducted a study entitled Structural Equation Modeling of the Relationship between Business Intelligence and Organizational Performance of Managers of Companies Based in Technology Development Centers of Tehran State Universities. The research method was descriptive-correlational because of the model of causal structural equations. The data collection tool was a questionnaire of business intelligence and organizational performance, and after assessing the validity according to the opinion of experts; Cronbach's alpha method was used to determine the reliability, which showed that the reliability was above 0.90 for business intelligence and 0.92 for managers' organizational performance. Findings showed that the dimensions of business intelligence have a positive and significant effect on the organizational performance of managers of companies located in growth centres. There is also a meaningful relationship between the dimensions of business intelligence and the organizational performance of managers of companies located in growth centres.

Majdtaheri et al. (2016) Study on the effect of business intelligence on organizational agility and performance through new technologies in the banking industry: Agricultural Bank conducted the present study in terms of purpose, applied, and research method, descriptive survey, and cross-sectional is. The study's statistical population included all managers, deputies, experts of the IT department, and experienced staff of the central building of Keshavarzi Bank to 796 people. The research is based on data collected from 260 subjects based on Cochran's formula using simple random sampling of the target population. The research findings related to the one-sample t-test showed that considering the mean values, deviation from the criterion, the value of t-statistic and the value of probability, there is a zero hypothesis about all research variables; As described in business intelligence, new technologies (technology), organizational agility and organizational performance are rejected; as a result, the status of these variables is above average or in other words is desirable. Findings related to the six hypotheses of the research show that, from the perspective of research subjects, new technologies (technology) on business intelligence, business intelligence on organizational agility, new technologies (technology) on organizational agility, new technologies (Technology) affects organizational performance as well as organizational agility on organizational performance. By upgrading the predictor variable, the status of the criterion variable also improves in the organization under study. Therefore, the research's first, second, third, fifth, and sixth hypotheses are confirmed. But the variable of business intelligence on business performance has not had a significant effect, so the fourth hypothesis of the research is rejected. In the end, according to the results, to improve the agility and organizational performance of the Agricultural Bank through the promotion of business intelligence and new technologies, practical and applicable proposals are presented.

Hemmati et al. (2016), a study entitled The effect of business intelligence on financial performance Case study: Branches of private banks in Guilan province conducted a statistical population of all managers and active users in 19 branches of private banks in Guilan province. In addition to library studies to review the literature, field studies were conducted in branches of private banks in Guilan province with a questionnaire that includes components of business intelligence and financial performance. Questionnaires were distributed among bank staff. After collecting descriptive statistics to examine the community's demographic variables, structural equations and LISREL and SPSS software were used to check the accuracy of the hypotheses. The results showed business intelligence and its components on performance. Financial branches of private banks in Gilan province have a positive impact.

Strategic. Sorayai et al. (2015), a study entitled Business Intelligence Performance Evaluation Based on Network Analysis Process Case Study: Cooperative Development Bank The statistical population of this study is the managers of all branches of Cooperative Development Bank in the country with 45 people, all in a meeting dated 27/27 93.6 In Tehran, they were present to pass the training course. After distributing the questionnaire among the statistical population, 34 questionnaires were returned, analyzed using SUPER DISITION software. They were adapting to business needs After operating business intelligence systems, the flexibility of the system to supply and meet the organization's services, and the ability to integrate and integrate customer experiences and needs, prioritizing index options, adapting to business needs.

Zare Ameli and Bagheri (2015) conducted a study entitled "Identifying the effects of business intelligence through the business process on the performance of Bank Melli Iran". The research tool included a questionnaire. Subjects were selected by simple random sampling using the Morgan table. The validity of the questionnaire was confirmed using the content validity method, and the reliability of the questionnaire was confirmed using Cronbach's alpha test. Data analysis was performed using SPSS and Lisrel software. The results showed that business intelligence affects the organization's performance, business processes have a mediating role between business intelligence and organizational performance. Also, data mining affects the organization's performance; analytical data warehousing affects the organization's performance; data mining affects the business processes; analytical data warehousing involves the business processes; and finally, Organizational dashboard influences business processes.

Mansourlkorj et al. (2015) conducted a study entitled "Explaining and measuring business intelligence indicators for implementation in the monetary and financial system": Bank Saderat Nowshahr conducted this research in terms of practical purpose and perspective and collecting descriptive survey information based on honest models 1388) and Mirzajani (2011), four dimensions and 19 indicators were identified to explain and measure business intelligence indicators for implementation in the monetary and financial system of Nowshahr Export Bank. The statistical population of the study consists of all deputy managers and staff of Nowshahr Export Bank. Due to the limited statistical population of 200 people, it was decided to census the above statistical population and 200 people were selected as a statistical sample. The same number of questionnaires were distributed among them. Data analysis shows that the status of Nowshahr Export Bank business intelligence system is at a reasonable level. And its validity was confirmed.

Karimian and Bahrami (2015), a study entitled The effect of business intelligence on the marketing performance of the companies studied: Pharmaceutical companies conducted a statistical population of pharmaceutical companies that have implemented a business intelligence system. To examine these companies, a questionnaire containing 53 questions will be prepared and distributed among the senior managers of these companies. SPSS and LISREL software are used for analysis. The results show that companies that have used the business intelligence system to receive, analyze and use data to make

decisions for their managers have succeeded in a highly competitive environment and achieved a difference in competitive advantage.

Mubaraki (2014), in his master's thesis entitled "Study of the relationship between business intelligence and competitive advantage (Case study: Future Bank of the West)) concluded that there is a significant relationship between business intelligence and its dimensions with the bank's competitive advantage. The study shows that the knowledge management component is more important in the bank's business intelligence. The regression analysis results showed that the members of business intelligence are good predictors of competitive advantage in the bank.

Rahnamae Rudposhti et al. (2013) in a study entitled "Measuring the impact of management accounting information system based on decision support and business intelligence on the financial performance of economic units". Management accounting information was used to measure the pattern, and then, to measure the impact of this system on the financial performance of economic units listed on the Tehran Stock Exchange was proportionally sampled. Then using the hierarchical analysis process model to the components of the pattern, Decision and business intelligence support was weighted by distributing a written questionnaire and interviewing the level of a business decision. Intelligence support in the management accounting information system of each sample economic unit was measured. The stocks were estimated. The results show a significant relationship between management accounting information support and business intelligence at different levels with performance variables. Based on decision support and business intelligence, strong, medium and weak were classified and using the correlation test, each of the management accounting variables had a significant relationship with the financial performance criteria, return on investment and return on equity.

2-5-2- Background of foreign research

Tulay et al. (2018), in an article entitled "Assessing the Vision of Business Intelligence in the Success of Brand Management in Organizations", concluded that the use of business intelligence system in an organization to quickly analyze and predict large volumes of information and Turning them into knowledge allows brand managers to achieve organizational goals such as having a competitive advantage, maintaining a positive and consistent performance, and making timely and correct decisions. Making the right and timely decisions in the organization can ensure its success in competition. By guaranteeing the survival and preserving the value of the organization and its brand, brand management goals are achieved.

Popovich et al. (2017), in a study entitled "Benefits of implementing business intelligence system", examines the role of business intelligence systems in providing quality information and how much detailed analysis on the implementation of these systems and solving significant problems in The information quality helps. Experimental data were collected through a survey of medium and large organizations in Slovenia. Quantitative analysis was performed on 181 organizations. However, detailed analysis showed that access is more information. In contrast, the quality of information content is more important for better business decision making and offers the higher value of business intelligence systems.

Diolin (2016), in a study aimed at measuring the effects of business intelligence systems: the relationship between business process performance and organizational performance, found that business intelligence has a positive and significant relationship with business process and organizational performance and concluded that business intelligence allows the organization Gives to consider the needs of all system stakeholders by gaining insight and understanding.

Shapiro (2016), in an article entitled "The effect of business intelligence on salespeople performance", concluded that there is a positive and direct relationship between business intelligence

and sales staff performance. There is also a positive and significant relationship between business intelligence components and employee performance.

Haribar (2015), in a study on the effect of business intelligence on performance, concluded that establishing effective and positive communication with the organization's customers and increasing coordination and responding to them, focusing on their needs and improving the number of services and facilities and benefits to increase Their level of satisfaction as well as increasing the efficiency of employees, management and capital in the organization can improve the performance of the business process of the organization and ultimately increase the level of implementation of the organization.

The theoretical framework of research

A theoretical framework is a specific theory that results from the research of others. Therefore, in the theoretical framework, the problem variables should be named, and it should be possible to express the relationship between dependent and independent variables. In connection with the subject of the present study, it should be said that the use of business intelligence in financial services can lead to value creation. Gartner's research at the banking level has shown that more than 95% of respondents in the banking system agree with business intelligence. The winner of the strategic initiative is with the top management, and more than ninety per cent agree that they have received their expected value from investing in business intelligence. According to Gartner, business intelligence systems enable banks to influence financial and commercial performance very well. In the present study, the dimensions of business intelligence are quality of information content, quality of access to information, use of information in the business process, analytical decision-making culture, which is taken from the research.

According to the above, the proposed framework of this study indicates the relationship between research processes that can express the impact of business intelligence on the performance of Parsian Bank branches in Mazandaran province, which ultimately leads to improved performance and efficiency of the organization. Therefore, according to studies and research conducted to determine the effect of business intelligence on the performance of Parsian Bank branches in Mazandaran province; The independent variable, including business intelligence and the dependent variable, were categorized as performance.



Figure model

Figure 1. Researcher Based on Dimensions of Business Intelligence Povich et al. (2012) and Banking Performance of Yavas et al. (2003)

Methodology

This research is applied in terms of purpose and causal in terms of descriptive method because it examines the effects between dimensions (quality of information content, quality of access to information, use of information in the business process, culture of analytical decision making) Deals with the conceptual model.

Statistical population and sampling method

The population of this study is 420 employees of Parsian Bank branches in Mazandaran province.

A simple random sampling method was used using the Morgan table to sample the study population. Two hundred one people were selected as the statistical sample, and a questionnaire was distributed among them.

Data collection tools

Various data collection tools can be used to collect and record research data. Among these, we can mention questionnaires, interviews, observation and review of documents (library studies). To obtain the necessary data in the research, the researcher must use appropriate tools and then analyze, process and convert them into information to test the hypotheses (Sarukhani, 2009). The collection tool in the present study is two questionnaires.

Povich et al. (2012) Business Intelligence Dimensions Questionnaire, which includes four dimensions, each dimension has a statement as follows.

No	Dimensions	Items
1	Quality of informational content	1-4
2	Quality of access to information	5-10
3	Using information in the business process	11-14
4	Analytical decision-making culture	15-18

Tahle1.	Question	naire	items
I able 1-	Question	nane	Items

Table 2 - The scores for the questionnaire based on the Likert scale

Option	Very low	Low	Medium	High	Very high
Score	1	2	3	4	5

Validity of research measurement tools

In this study, a questionnaire was used to collect data. Therefore, first, the face validity and content of the questionnaires were approved by the supervisor. Then, from the confirmatory factor analysis, the content structure validated the general form of the research questionnaires. A standard factor load has been calculated for confirmatory factor analysis. In general, the following rule applies:

A weak relationship is considered and ignored if the factor load is less than 0.3. The factor load between 0.3 and 0.6 is acceptable, and if it is more significant than 0.6, it is very desirable (Klein, 1994).

Results of confirmatory factor analysis of Business Intelligence Questionnaire scale

Confirmatory factor analysis of the Business Intelligence Scale is presented in Figures 3-1 and 3-2. The standard factor load of confirmatory factor analysis for measuring the strength between each factor (hidden variable) with its observable variables (questionnaire items) was obtained in things (S21, S20,

S16, S12, S1) less than 0.3. Therefore, they are removed from the operating structure of the Business Intelligence Questionnaire.

Results of confirmatory factor analysis of performance scale

Standard factor load Confirmatory factor analysis to measure the strength of the relationship between each factor (hidden variable) and its visible variables (questionnaire items) in items (A39, A38, A34, A33, A32, A21, A20, A10, A7, A1) smaller Obtained from 0.3. Confirmatory factor analysis of the performance scale is presented in Figures 3-3 and 3-4. Therefore, they are removed from the operating structure of the performance questionnaire.

Reliability of the questionnaire

In this research, Cronbach's alpha method is used, which is the basis of reliability in most studies. In this method, test components or parts are used to measure the reliability of the test. When this coefficient is more significant than 0.7, the test has acceptable reliability.

Table 3-Cronbach's alpha Scales for measuring the reliability of questionnaires

Cronbach's alpha Scales for measuring the reliability of questionnaires	Alpha coefficient						
Quality of informational content0/710							
Quality of access to information0/725							
Using the information in the business process 0/716							
Analytical decision-making culture0/722							
Business intelligence 0/805							
Function	0/846						

Because the obtained coefficients are more than 0.7, the reliability of the questionnaire is confirmed.

Methods of data analysis

The statistical methods used in this study can be divided into two categories: descriptive statistical methods and inferential statistical methods. Descriptive statistical methods such as frequency and mean distribution tables have been used to examine and describe the general characteristics of the respondents. Then inferential statistics indicators are used. A structural equation test has been used to test the research hypotheses. Also, the obtained data were analyzed using AMOS statistical software.

Data Analysis

Demographic information

To describe the demographic characteristics of the study population, descriptive statistics were used to classify data related to gender, marital status, level of education and the number of bank visits.

Gender

Among the respondents, 42 were women, and 166 were men, with the highest percentage being men with more than 82%.

Gender	Frequency	Percentage	Percentage of cumulative frequency
Men	166	82/5	82/5
Women	35	27.5	100
All	201	100	100

Table 4 - Frequency distribution of respondents by gender

Age

Among the total respondents, the highest frequency was related to people aged 35 to 40 years, which includes 80 people and constitute 38.2% of the sample size.

Age	Frequency	Percentage	Percentage Of Cumulative Frequency
25 To 30 Years	41	20/5	20/5
30 To 35 Years	60	30/2	57/7
35 To 40 Years	80	38/2	95/5
40 To 45	20	10/1	100
Total	201	100	

Table 5 - Frequency distribution of respondents by age

Education

Among the respondents, the highest frequency is related to people with a master's degree, which includes 35 people and constitutes 44.5% of the sample size. Twelve respondents have a doctorate, which is the lowest frequency of 15.1%.

Table 6 - Frequency distribution of respondents based on education
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Education	Frequency	Percentage	Percentage Of Cumulative Frequency
Associate Degree	30	15/1	15/1
Bachelor	88	44/5	59/6
Masters Degree And Higher	83	40/4	100
Total	201	100	

Test hypotheses

Kolmogorov-Smirnov test to check the normality of research variables

H0: The research variables follow the normal distribution.

H1: The research variables do not follow the normal distribution.

Table 7 Kolmogorov-Smirnov test table of research variables

Variables	The significance level	Z Kolmogorov Smirnov	Test result
Quality of informational content	0/127	1/174	Normal
Quality of access to information	0/139	1/154	Normal
Using the information in the business process	0/162	1/121	Normal
Analytical decision-making culture	0/206	1/066	Normal
Business intelligence	0/628	0/75	Normal
Function	0/278	0.993	Normal

According to the table above, the significance level of the variables is more significant than 0.05, which indicates the acceptance of the null hypothesis, i.e. the desired variables follow the normal distribution so that the parametric test can be used.

To fit the structural model of the central hypothesis of the research, several goodness-of-fit indicators have been used. Since most of the goodness-of-fit hands have been accepted in the range, the model has a good fit, shown in Table 8.

Fit indicators	X2/df	RMSEA	NFI	CFI	IFI	RFI	PRATIO	PNFI	PCFI
Acceptable rate	<2	<0/05	>0/9	>0/9	>0/9	>0/9	>0/50	>0/50	>0/50
Calculated values	1/84	0/047	0/95	0/95	0/95	0/87	0/88	0/79	0/84

Table 8 Final research model

The central research hypothesis:

Business intelligence affects the performance of Parsian Bank branches in Mazandaran province. Table 9 Estimates of the structural model of the central hypothesis

Standard coefficient	Significance level	Critical ratio	Standard error	Non- standard estimates		Direction	
0/997	***	4/789	0/28	1/342	Business Intelligence	>	Performance

Based on the results of Table 9, because the significance level (***) (0.0001) is less than (0.05), the development of the null hypothesis is rejected, and the research hypothesis is confirmed. Therefore, the final model of the research, i.e. the study's central thesis, is established. In other words; Business intelligence affects the performance of Parsian Bank branches in Mazandaran province.

The final model of the effect of business intelligence components on performance

To fit the structural model of the research sub-hypotheses, several good fit indicators have been used. Since most of the goodness-of-fit hands have been accepted in the range, the model has a good fit, shown in Table 10.

Fit indicators	X2/df	RMSEA	NFI	CFI	IFI	RFI	PRATIO	PNFI	PCFI
Acceptable rate	<2	<0/05	>0/9	>0/9	>0/9	>0/9	>0/50	>0/50	>0/50
Calculated values	1/90	<0/49	0/92	0/96	0/90	0/90	>0/71	>0/66	>0/68

Table 10 The final research model

Table 11 Structural model estimates

Standard coefficient	Significance level	Critical ratio	standard error	Non- standard estimates	Direction			Results
0/338	***	3/885	0/071	0/277	Quality of informational content	>	performance	approved

0/218	***	3/519	0/031	0/109	access to information	>	performance	approved
0/626	***	4/707	0/099	0/465	data usage	>	performance	approved
0/664	0/028	2/202	0/294	0/648	Analytical decision- making culture	>	performance	approved

Sub-hypothesis 1: The quality of information content affects the performance of Parsian Bank branches in Mazandaran province.

According to the results of Table 11, the mean level value (***) was 0.0001 and less than 0.05. Since the coefficient of this effect was estimated (0.338) and the coefficient sign is also positive, the result is direct. Therefore, it can be said that the null hypothesis and the research hypothesis based on the impact of information content quality on the performance of Parsian Bank branches in Mazandaran province are confirmed.

Second sub-hypothesis: access to information affects the performance of Parsian Bank branches in Mazandaran province.

According to the results of Table 11, the mean level value (***) was 0.0001 and less than 0.05. Since the coefficient of this effect was estimated (0.218) and the coefficient sign is also positive, the result is direct. Therefore, it can be said that the null hypothesis and the research hypothesis on the effect of access to information on the performance of Parsian Bank in Mazandaran branches are confirmed.

Third sub-hypothesis: The use of information in the business process affects the performance of Parsian Bank branches in Mazandaran province.

According to the results of Table 11, the mean level value (***) was 0.0001 and less than 0.05. Since the coefficient of this effect was estimated (0.626) and the coefficient sign is also positive, the result is direct. Therefore, it can be said that the null hypothesis and the research hypothesis on the effect of using the information in the business process on the performance of Parsian Bank branches in Mazandaran province are confirmed.

Fourth sub-hypothesis: Analytical decision-making culture affects the performance of Parsian Bank branches in Mazandaran province.

According to the results of Table 11, the value of significant level (0.028) and less than 0.05 was obtained. Since the coefficient of this effect was estimated (0.664) and the coefficient sign is also positive, the impact is direct. Therefore, it can be said that the null hypothesis and the research hypothesis based on the effects of analytical decision-making culture on the performance of Parsian Bank branches in Mazandaran province are confirmed.

Summaries, Conclusions And Suggestions

Research Findings

Descriptive findings related to demographic characteristics

In the present study, among 201 respondents in terms of gender, the highest frequency was men, with more than 82%. In terms of age, the highest frequency with more than 38% belonged to 35 to 40 years. In terms of education, the highest frequency, with more than 44%, was related to those with a bachelor's degree.

Examining the results of hypotheses and statistical tests

This study aimed to investigate the effect of business intelligence on the performance of banking services in the employees of Parsian Bank branches in Mazandaran province. A conceptual model was designed according to the thematic literature and necessary and sufficient research. Based on this model, several factors were tested, which were:

Quality of information content, access to information, use of information in the business process, the culture of analytical decision making. Accordingly, four sub-hypotheses and one central hypothesis were expressed in this study. A questionnaire was distributed among the employees of Parsian Bank branches in Mazandaran province to examine each theory.

1- The central hypothesis:

The first primary hypothesis of the present study was that business intelligence affects the performance of Parsian Bank branches in Mazandaran province. This hypothesis was tested, and the findings showed that business intelligence has a positive effect on the performance of Parsian Bank. In other words, with increasing business intelligence in Parsian Bank, Mazandaran branches, employee performance also increases.

Present results with research; Rabiee Mandjin et al. (2015), Sabeti and Mollai (2015), Hemmati et al. (2015), Zare Ameli and Bagheri (2015) and Shapiro (2016) are consistent.

Therefore, in explaining the above hypothesis, we can say: In Parsian Bank, Mazandaran branches, if factors such as quality of information content, access to information, use of information in the business process and analytical decision-making culture are at a high level, then the necessary conditions for Increased staff performance will be provided.

2- The first sub-hypothesis:

The first sub-hypothesis of the present study was that the quality of information content affects the performance of Parsian Bank branches in Mazandaran province. This hypothesis was tested, and the findings showed that the quality of information content has a positive effect on the performance of Parsian Bank. In other words, with increasing the quality of information contained in Parsian Bank, Mazandaran branches, staff performance also increases.

The present study results are consistent with the results of Hemmati et al. (2016) and Zare Ameli and Bagheri (2015).

Therefore, in explaining the above hypothesis, we can say: In Parsian Bank, Mazandaran branches, if factors such as information by the needs and habits of users and processing and delivery of data without delay are at a high level, then the necessary conditions will increase staff performance. Took.

3- Second sub-hypothesis:

The second sub-hypothesis of the present study was that access to information affects the performance of Parsian Bank branches in Mazandaran province. This hypothesis was tested, and the findings showed that access to information has a positive effect on the performance of Parsian Bank. In other words, with increasing access to information in Parsian Bank, Mazandaran branches, staff performance also increases.

The present study results are consistent with the results of the research of Rabi'i Mandjin et al. (1397) and Sabeti and Mollai (1397).

Therefore, in explaining the above hypothesis, we can say: In Parsian Bank, branches of Mazandaran province, if factors such as providing information following the needs and habits of the user and processing and delivering data quickly and without delay are at a high level, then the necessary conditions for Increased staff performance will be provided.

4- Third sub-hypothesis:

The third sub-hypothesis of the present study was that the use of information in the business process affects the performance of Parsian Bank branches in Mazandaran province. This hypothesis was tested, and the findings showed that the use of information in the business process has a positive effect on the performance of Parsian Bank. Will find.

The results of the present study are consistent with the results of the research of Rabiee Mandjin et al. (2015), Shapiro (2016), (2016) and Sabeti and Mollai (2015).

Therefore, in explaining the above hypothesis, we can say: In Parsian Bank, Mazandaran branches, if factors such as highlighting the problematic aspects of the current business process, creating creativity in domestic business processes and providing foreign services and reducing uncertainty in the Decision ¬ Recruitment is at a high level, then the necessary conditions and requirements to increase employee performance will be provided.

The fourth sub-hypothesis:

The fourth sub-hypothesis of the present study was that the culture of analytical decision-making affects the performance of Parsian Bank branches in Mazandaran province. This hypothesis was tested, and the findings showed that the culture of analytical decision making has a positive effect on the performance of Parsian Bank. In other words, with the increase of analytical Decision-making culture in Parsian Bank, Mazandaran branches, the performance of employees also increases.

The results of the present study are consistent with the results of fixed and mullah research (1397), Hemmati et al. (1395) and Shapiro (2016).

Therefore, in explaining the above hypothesis, we can say: In Parsian Bank, branches of Mazandaran province, if factors such as introducing the decision-making process for shareholders and including available information in the decision-making process are at a high level, then the necessary conditions to increase employee performance Will be provided.

Research suggestions

Primary Hypothesis: Business intelligence affects the performance of Parsian Bank branches in Mazandaran province.

According to the research results and the positive effect of business intelligence on the performance of Parsian Bank branches in Mazandaran province, it is suggested:

Holding in-service training classes for employees and introducing them to business intelligence agents

Use of incentive tools (salary increase, leave, commendation plaque, etc.) for employees to use factors such as the use of information in the business process and the culture of analytical decision making

Sub-hypothesis 1: The quality of information content affects the performance of Parsian Bank branches in Mazandaran province.

According to the research results and the positive effect of information content quality on the performance of Parsian Bank, Mazandaran branches are suggested.

There is an acceptable range of information in bank branches, and the target group can easily understand it. Information is up to date in bank branches.

Employees receive extensive training in providing better customer service before communicating with customers.

Second sub-hypothesis: access to information affects the performance of Parsian Bank branches in Mazandaran province.

According to the research results and the positive effect of access to information on the performance of Parsian Bank, Mazandaran branches are recommended

In bank branches, providing information should be following the needs and habits of users so that there is no delay in doing things and in this way the performance of employees is improved.

In bank branches, information should be processed and delivered quickly and without delay to accelerate work and improve performance.

Third sub-hypothesis: The use of information in the business process affects the performance of Parsian Bank branches in Mazandaran province.

According to the research results and the positive effect of using the information in the business process on the performance of Parsian Bank, Mazandaran branches are recommended.

The problematic aspects of the current business process are revealed through information management in the bank branches, and the shareholders are informed about their existence.

Bank branches use the information provided to change strategies and plans, modify existing key performance indicators, and analyze more recent key performance indicators.

Fourth sub-hypothesis: Analytical decision-making culture affects the performance of Parsian Bank branches in Mazandaran province.

According to the research results and the positive effect of analytical decision-making culture on the performance of Parsian Bank, Mazandaran branches are suggested.

The decision-making process should be well established in the bank branches and introduced to the shareholders.

The inclusion of available information in bank branches in any decision-making process should be part of the organization's policy.

Researcher restrictions

The primary limitations that have been very tangible for the researcher in this research can be summarized as follows:

Spatially: the limited statistical population in the researcher's hands, which only covered Parsian Bank branches in Mazandaran province, because to expand it to all organizations, some consideration must be given.

In terms of time: Limited research time, given that the present study could have a wide range of topics depending on the subject, so the distribution and collection of questionnaires and preliminary studies and review of other research to conduct this research is inevitable, which requires time. Unfortunately, many are considered one of the main limitations for the researcher due to the definite length of study days.

In addition to the limitations imposed by the researcher, such as the community and the statistical sample, the central limit of this research is related to the data collection tool, namely the questionnaire, which is an inherent limitation of all study that uses the questionnaire.

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