Measuring the effect of using business intelligence techniques in enhancing profits of Small and Medium Enterprises

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Abstract

Small and Medium Enterprises (SMEs) closing is a big problem in Egypt. It is a complex process to keep Small and Medium Enterprises alive, especially with low profits. Small and Medium Enterprises play an important role in a country's economy, making a diversification in jobs, works and decreasing unemployment. This research attempts to solve this problem. The Factors that affect the profits of Small and Medium Enterprises collected and analyzed. The previous research indicates that Business intelligence tools help decision-makers to keep their companies survive and showed a necessary insight into all operations of their companies. The analysis results show that entrepreneur characteristics, External Factors, resources and funds, management and skills experience have a direct effect on Small and Medium Enterprises' profits. The result of this research can be used to enhance, develop, increase the number of small and medium enterprises and profits of these projects and provide them with the best advice to keep them alive.

Keywords: Small and Medium Enterprises' survival; business intelligence tools (BI tools); Factors affecting profits.

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قياس أثر استخدام تقنيات ذكاء الأعمال في تعزيز أرباح المؤسسات الصغيرة والمتوسطة

الملخص

يعد إغلاق الشركات الصغيرة والمتوسطة مشكلة كبيرة في مصر. إنها عملية معقدة لإبقاء الشركات الصغيرة والمتوسطة على قيد الحياة، خاصة مع انخفاض الأرباح. تلعب الشركات الصغيرة والمتوسطة دورًا مهمًا في اقتصاد البلد، حيث تعمل على تنويع الوظائف والأعمال وتقليل البطالة. يحاول هذا البحث حل هذه المشكلة. العوامل التي تؤثر على أرباح الشركات الصغيرة والمتوسطة تم جمعها وتحليلها. يشير البحث السابق إلى أن أدوات ذكاء الأعمال تساعد صناع القرار في الحفاظ على بقاء شركاتهم وأظهرت نظرة ثاقبة ضرورية لجميع عمليات شركاتهم. تظهر نتائج التحليل أن خصائص رواد الأعمال والعوامل الخارجية والموارد والأموال والخبرة الإدارية والمهارات لها تأثير مباشر على أرباح الشركات الصغيرة والمتوسطة.

الكلمات المفتاحية: بقاء الشركات الصغيرة والمتوسطة؛ أدوات ذكاء الأعمال (أدوات ذكاء الأعمال)؛ العوامل المؤثرة على الربح .

I. INTRODUCTION

Egypt's main economic pillar is small businesses, crucial for growth, unemployment reduction, and sustainable development [1]. Egypt's 365.3 million small and medium-sized businesses make up 80% of the economy, promoting innovation, competitiveness, and exports [2]. Egypt Vision 2030 focuses on a dynamic community, booming economy and aspirational nation. To improve investment, productivity, competitiveness, and transition from consumption to production, the economy must become affluent and appealing. This requires boosting small and medium-sized businesses, fostering innovation, and focusing on industrial and technology sectors. SMEs face challenges, insolvency and global competition due to technological advancements [3]. SMEs face challenges in alignment due to insufficient strategic decision-making [4], which involves choosing actions and approaches to adapt to the changing of environments [5]. Companies utilize BI systems to improve profits, customer satisfaction, and competitive positioning by adding tangible and intangible features, technology, and analysis to enhance decision-making and productivity [9][10][11]. Poor financial and asset management related to project failures [6]. Consequently, the sufficiency and correctness of the information supply chain are more important to enterprises [7]. The study highlights the importance of information management, which increasingly uses technologies to enhance resilience and market response during crises. Integrating organizational aspects including strategy, structure, management procedures, person roles, and skills with technology can boost company value [8].

II. LITERATURE REVIEW

Both [10][11] agreed upon that Business intelligence (BI) improves profits and customer satisfaction by mixture of

product, technology and methods. Organizations have begun to use BI systems to enhance profits, customer satisfaction and competitive positioning by adding tangible and intangible features to the product. Nowadays, organizations justify their business and requirements by using BI to the performance and flexibility of actions. [12] indicate that BI tools perform all the tasks as well as numerous collections that address complex issues and increase the cost-effectiveness of extracting value from data. BI aids in the timeliness and quality of data during the decision-making process. [13] mentioned that BI system measures goals, analyzes data, and obtains common formats from various sources. Organizations utilize BI tools to enhance tactical and operational processes, enabling faster and more informed responses from line managers [14]. SMEs require crucial organizational elements for BI deployment [15]. SMEs are crucial for entrepreneurship, innovation and employment globally. A strong network of partners opens doors to credit, input, technology, and market opportunities. The business environment, including internal and External Factors, impacts SMEs' growth. SMEs often face unique challenges compared to larger corporations.

1. Long, W., and Ombongi, P., N., 2018. **This study** analyzes Kenyan SMEs' financial performance, focusing on Factors like bank credit, operational costs, economic environment, and expansion levels, to aid in achieving the Millennium Development Goals. **The results** show that Factors like bank credit, technological costs, and SMEs' numbers positively impact financial performance in Kenya, while employee costs have an inverse relationship. **This** has limitations in causality, descriptive research and regression analysis, indicating the need for further study to confirm its findings.

2. Fatoki, O., 2018. **Said** that SMEs are crucial for sustainable development, but its failure rate and weak performance raise doubts about its ability to create sustainable employment and reduce poverty. **This** research explores the link between entrepreneurial resilience and SME success in South Africa, revealing that enhancing SMEs' performance positively impacts on sustainable development. **However, this** research has some drawbacks, such as a low response rate and focusing on a specific region.

3. Windapo, A., 2018. **Explores** the success of a South African construction company, highlighting the founder's innate characteristics, business strategy, and international construction work opportunities. **This** research confirms previous findings on entrepreneurship traits and company success, highlighting South Africa's significant economic role and potentials for entrepreneurship. **This** research highlights the challenges faced by SMEs, including limited resources, financial constraints, regulatory burdens, competition, and failure risk, due to inadequate management and market research.

4. Degefu, D., G., 2018. **Explores** the growth of micro and small enterprises in Hawassa City, Ethiopia; emphasizing their vital role in promoting economic growth and reducing poverty in developing nations. **This** research highlights the importance of capital change, finance access, and business training in boosting the growth of micro and small-scale enterprises in Hawassa City. **This** research lacks explicit mention of the challenges faced by micro and small-scale enterprises, such as limited access to finance, lack of business training, and resource limitations.

5. Pérez-Gómez, P., et al 2018. **Assesses** profit efficiency in Spanish SMEs in the food industry, focusing on revenue management, labor productivity, export activity, and public aid

as key Factors for improvement. **This** research reveals that in 2015, SMEs achieved an average profit efficiency of 49.37%, with Factors like labor productivity and export activity influencing efficiency. **This** research has limited scope of performance measurement through profit efficiency.

6. Raza, A., et al 2018. **Explores** the impact of formal institutions on entrepreneurial readiness and behavior across different countries, highlighting the Factors contributing to entrepreneurial behavior. **This** research reveals a strong correlation between entrepreneurial readiness and its behavior, emphasizing the role of formal institutions in shaping behavior and enhancing its quality. **This** research acknowledges the limitations of the sample size and calls for further research on this area.

7. Sarwoko, E., and Nurfarida, I., N., 2018. **Examines** the impact of entrepreneurial competence and orientation on the performance of SMEs, examining both direct and indirect effects. **This** research reveals a significant correlation between entrepreneurial competence and SME performance, with higher entrepreneur competence leading to better performance, with entrepreneurial orientation mediating this relationship.

8. Yusoff, T., et al 2018. **Explores** sustainable growth for SMEs in Malaysia. An emerging economy, and develops a comprehensive model to guide policy makers, agencies, advisors, entrepreneurs, and academicians. **This** research highlights challenges faced by SMEs in achieving sustainable growth, including limited financing, skilled labor shortages, and inadequate infrastructure, while emphasizing the importance of internal intangible Factors like innovation, human capital, and social responsibility.

9. Diabate, A., et al 2019. **Explores** the correlation between firm, entrepreneur characteristics and SME growth in Côte

d'Ivoire, identifying key Factors influencing SME growth and their relationship. **This** research reveals that business size, sector, and funding are key determinants of SME growth in Côte d'Ivoire, while age, experience and education are less influential. **This** research includes focusing solely on the characteristics of entrepreneurs and SMEs in Côte d'Ivoire and limiting its generalizability to other contexts.

10. Gogokhia, T., and Berulava, G., 2020. **Explores** the link between business environment reforms and firm performance in transition economies, revealing that tax policy, regulation simplifying and financial access enhance innovative and productive performance. **This** research reveals that business environment reforms positively impact on performance of transition economies, enhancing innovative behavior and labor productivity. **This** research lies in its use of subjective perceptions of business obstacles as a proxy for reforms, suggesting the need for objective business environment indicators.

11. Qalati, S., A., et al 2020. **Investigates** the correlation between social media adoption and SME performance, revealing a positive impact mediated by organizational and environmental Factors**. This** research indicates that social media adoption significantly influences SME performance. With organizational and environmental Factors mediating the relationship, including top management support, entrepreneurial orientation and organizational capacity. **This** research generalizability may be limited due to its sample size of Sri Lankan SMEs and the use of self-reported data, potentially resulting in bias.

12. Wales, W., J., et al 2020. **Investigates** entrepreneurial orientation (EO) in organizations, examining its manifestations through top management style, organizational configuration and

new entry initiative-based phenomena at various analysis levels. **This** research offers a comprehensive framework for understanding entrepreneurial orientation, addressing theoretical plurality in EO literature and providing a broader conceptualization based on real-world business elements.

III. THE FACTORS AFFECT SMES PROFITABILITY

Through this literature review, the Factors that affecting the profitability of SMES are:

- Age

Entrepreneurs aged 25-44 are most active, with maturity and risk-taking being key Factors. Younger owners/managers have motivation, commitment, and energy, making them more successful in business performance [16],[19], [26], [30], [31], [32].

- Gender

Studies show that female-owned businesses fail more frequently than male-owned ones, and gender also impacts growth, with conflicts between home and family needs being particularly damaging [16], [19], [31].

- Education

Basic education enhances business owner/manager quality and positively impacts performance and growth. Highly educated entrepreneurs have a higher chance of success in their companies [16], [18], [19], [30], [32].

- Owner Experience

Entrepreneurship success relies on work experience, with seasoned owners being more likely to succeed than inexperienced ones. Previous experience in various fields impacts company performance, making experienced

entrepreneurs more effective in achieving business objectives [16], [17], [18], [19], [24], [26], [32], [33].

- Personal Qualities

Successful entrepreneurs thrive on self-confidence, uniqueness, optimism, and experience, while perseverance requires ambitious goals, comprehensive plans, and both positive and negative motivations like money generation and potential markets [16], [17], [18], [19], [30], [34], [35].

- Entrepreneur Orientation

Entrepreneurial mindset involves recognizing opportunities, recognizing their potential, fostering innovation and creativity, and being proactive in seeking and utilizing them for high-performance businesses [16], [36], [37].

- Entrepreneur Readiness

People's entrepreneurship readiness is influenced by cognitive competence, social capital, opportunity perception, risk aversion, and self-efficacy, indicating their willingness and ability to direct behavior in a business setting [16], [33], [37], [38].

- Entrepreneur Competency

Entrepreneurial competency encompasses various entrepreneurial traits like attitudes, beliefs, knowledge, skills, abilities, personality, capabilities, and behavioral patterns, crucial for a company's growth, rooted in both competency and entrepreneurship research [39], [40].

- Business Function

A business plan is crucial for any company, especially SMEs, as it outlines strategic direction and operational planning, which

directly impact market orientation, ensuring their success in operations [18], [20], [23], [27].

- Business Domain

The business sector classifies businesses based on their industry, which indirectly influences their capital structure through the composition and type of assets [26], [41], [42].

- Environment

Environmental Factors like market size, scope, and buoyancy significantly influence SME performance, affecting growth potential, resource costs, and vendor support [18], [20], [43], [44].

- Size

Business size is determined by the number of employees and capital investment, impacting a company's infrastructure and growth potential. Small businesses have fewer than 20 employees, while medium-sized businesses have 20-99 employees [16], [18], [22], [26], [41], [42].

- Operational Experience

Newer businesses face high transaction costs due to limited information requirements for lenders during credit approval. In competitive markets, efficient firms with long operating histories are more likely to be successful due to market inertia and learning curve [16], [18], [22], [41], [42].

- Ownership Type

The survey categorized firms into six types: sole proprietorships, partnerships, private-held limited companies, publicly listed companies, and cooperatives, emphasizing the importance of separate ownership and business matters [16], [41], [42].

- Productivity

Productivity in SME sectors significantly impacts profitability, with well-trained staff and innovative marketing tactics enhancing productivity. Enterprise competitiveness includes product, production, financial, and organizational effectiveness [18], [24], [42], [45].

- Technological Capabilities (F. Ch)

Technological Capabilities (F. Ch) are divided into industry and information technology. SMEs struggle to attract good IT personnel due to high costs. Low technology capabilities hinder their full potential, hindering their ability to compete and grow [25], [27], [29], [41], [43].

- Labor Productivity

Human resources are vital for large-scale IT projects and SMEs, enhancing labor productivity, efficiency, and employee dedication, leading to increased skills and long-term company success [18], [22], [23], [24], [27], [29].

- Fund Value

Funding sources include the owner’s savings, friends, family, banks, partners, and shareholders, resulting in a costly solution [16], [18], [23], [25], [26], [27].

- Competition

Businesses must adapt strategies and technologies to survive in dynamic competitive environments, focusing on survival and development in SMEs [23], [25], [45].

- Globalization

To succeed, businesses must embrace global expansion, even if they don't export, as it can help them expand their customer base and reach new markets [18], [25], [27].

- Legibility

The complex rules of business formation, often time-consuming and costly, necessitate compliance with regulatory authorities like tax authorities, standards-setting boards, and local authorities, while the business climate significantly impacts SMEs' growth [23], [25], [27].

- Macroeconomic

Inflation, interest rates, and unemployment hinder small businesses' success due to increased expenses, reducing profits and diverting investment, impacting both SMEs and customers by raising goods costs [25].

- Crime and Corruption

Corruption poses a threat to businesses, with high crime rates affecting all sectors [25].

IV. THE FACTORS CATEGORIZATION

To simplify the discussion and analysis of the relations among these Factors, it will be classified into groups. This groups defined in the following:

❖ Owner's Characteristics:

An entrepreneur is the owner of a business who takes the financial risk to ensure profits and do more expansion. This group consists of the individual characteristics related to the owner such as age, education, management and industry experience, and social skills. Most small business owners distinguished by their relationship to their businesses by attendance to make more control and oversight. [16, 17, 18].

❖ Firm Characteristics:

SMEs are non-subsidiary independent businesses with fewer than a certain number of employees. Success of a MSME is

based on sales growth rate, profit margins, gross sales, and organizational scale. Each firm has its characteristics such as sector, age, legal status, location, strategy, environment, size, and productivity [19, 20, 21].

- **Labor Characteristics:**

Employee dedication is critical to a company's success and survival. Employee skills and business growth have a favorable relationship. The most important determinant of growth is human resources. It is crucial to study the relationship between labor productivity and efficiency [18, 22, 23, 24].

- **Resources and Fund:**

Lack of access to external financing is a key barrier to SMEs' growth, and it has contributed to high rates of failure among those businesses. Owners' savings, friends, family members, banks, partners, and shareholders are all sources of funding for SMEs [25, 26, 27].

- **External Factors:**

The external environment is made up of Factors such as economic variables and markets, crime and corruption, labor, competition, and regulations [25].

V. DATA COLLECTION

The study utilized a descriptive and analytical approach to examine the relationship between business intelligence and SME performance and profitability, focusing on the effect of independence on the subsidiary, using survey research. This method provides valuable data through careful design and execution of research components. The Questionnaire designed to collect data consists of (63) questions. The questionnaire is distributed manually and electronically. The questionnaire sentences arranged according to mentioned Factors in section

(3) and divided into five main groups according to literature review. 160 questionnaires were distributed, a total of (145) answered questionnaires were retrieved, of which (8) were invalid due to incomplete answers. (137) answered questionnaires were valid for study. The Statistical Package for Social Sciences (SPSS) software was used to analyze and test hypothesis.

Cronbach's alpha method: To verify the Reliability of used questionnaire, the Cronbach alpha coefficient will be calculated. Table (3) shows the calculated coefficient on the different axis of the research.

Table (1) Cronbach alpha (Reliability) coefficient

Axis	Axis Reliability	Number of ferries
Small & Medium Enterprises Profits	**0.763**	**32**
Business Intelligence	**0.980**	**24**
Overall Reliability	**0.896**	**56**

From Table (1), it is clear that this value of the questionnaire has good reliability. Consequently, it can be relied on the results of the study since the minimum accepted value of this coefficient is 0.70.

VI. RESULT ANALYSIS

The analyses and validation of results were divided into four steps:

- First: refine each group of Factors from redundancy and ensure that each element in each group was distinct.
- Second: investigate the dependency between hall groups to assure distinction of independent variables.

- ❖ Third: investigate the effect of the activity sector on the correlation among the groups. This study may help to recognize which Factors are more effective in each sector.
- ❖ Fourth: investigate the relationship between the independent variable (business intelligence) and the dependent variable (Small and Medium enterprises profits).

4.1 Correlation among elements in each group

- ➢ Owner's characteristics correlations (Entrepreneur Factors)

Table (2) Owner characteristics correlation

	Age	Gender	Edu. Levels	No. of year of operation	Motivation and drive	Tolerance to work hard	Persistence and courage to take responsibility for one's failure	Initiative to assess one's strengths and weaknes s	Entrepreneurship training	Information to exploit business opportunities
Age	1	-.053	.056	.290**	-.015	.325**	.275**	.274**	.191*	.252**
Gender	-.053	1	-.028	-.191*	.023	-.207*	-.284**	-.197*	-.195*	-.153
Edu. Level	.056	-.028	1	.101	-.169*	.139	.145	.021	.105	.037
No. of years of operation	.290**	-.191*	.101	1	.021	.190*	.278**	.191*	.217*	.293**

Motivation and drive	-.015	.023	-.169*	.021	1	.234**	.288**	.325**	.115	.176*
Tolerance to work hard	.325**	-.207*	.139	.190*	.234**	1	.843**	.735**	.512**	.502**
Persistence and courage to take responsibility for one's failure	.275**	-.284**	.145	.278**	.288**	.843**	1	.704**	.517**	.528**
Initiative to assess one's strengths and weakness	.274**	-.197*	.021	.191*	.325**	.735**	.704**	1	.569**	.687**
Entrepreneurship training	.191*	-.195*	.105	.217*	.115	.512**	.517**	.569**	1	.384**
Information to exploit business opportunities	.252**	-.153	.037	.293**	.176*	.502**	.528**	.687**	.384**	1

Table (2) show the result of the correlation analysis values clarified that Factors age with education level, number of years of operation, tolerance to work hard, persistence and courage to take responsibility one's failure, initiative to asses one's strengths and weakness, entrepreneurship training, information to exploit business opportunities and Factors gender with motivation and drive and Factors education levels with number of years of operations, tolerance to work hard, persistence and courage to take responsibilities one's failure, initiative to asses one's strengths and weakness, entrepreneurship training, information to exploit business opportunities and Factors number of years of operation with motivation and drive, tolerance to work hard, persistence and courage to take responsibility one's failure, initiative to assess

one's strengths and weakness, entrepreneurship training, information to exploit business opportunities and Factors motivation and drive with tolerance to work hard, persistence and courage to take responsibility one's failure, initiative to assess one's strengths and weakness, entrepreneurship training, information to exploit business opportunities. These correlations are distinct because the interrelationship according to the results which R lies between $0 \leq R < 0.4$. There are some kind of relationships between the Tolerance to work hard and Persistence and courage to take responsibility for one's failure, Initiative to assess one's strengths and weakness, Entrepreneurship training, Information to exploit business opportunities and there are exist of relationships between Persistence and courage to take responsibility for one's failure and Initiative to assess one's strengths and weakness, Entrepreneurship training, Information to exploit business opportunities and there are exist of relationships between Initiative to assess one's strengths and weakness and Entrepreneurship training, Information to exploit business opportunities. The justification of these relationships is:

a) Tolerance to work hard according to the results correlated with Persistence and courage to take responsibility for one's failure, Initiative to assess one's strengths and weakness, Entrepreneurship training, Information to exploit business opportunities by 84.3%, 73.5%, 51.2% and 50.2% respectively. These results are logical because every factor characterized by the owner affect each other according to the corresponding ratios.

b) Persistence and courage to take responsibility for one's failure according to the results correlated with Initiative to assess one's strengths and weakness, Entrepreneurship training, Information to exploit business opportunities by 70.4%, 51.7% and 52.8% respectively. These results are

logical because every factor characterized by the owner affect each other according to the corresponding ratios.

c) Initiative to assess one's strengths and weakness according to the results correlated with Entrepreneurship training, Information to exploit business opportunities by 56.9% and 68.7% respectively. These results are logical because every factor characterized by the owner affect each other according to the corresponding ratios.

- Correlations of Firm characteristics (Technological Capabilities)

Table (3) Firm Characteristics Correlations

	Indicate the number of employees working in your business	Describe The type of ownership of this business?	Appropriate machinery and equipment	Skills to handle new technology	Money to acquire new technology	Select proper technology
Indicate the number of employees working in your business	1	.049	-.153	.028	.080	.051
Describe The type of ownership of this business?	.049	1	.116	.195*	.082	-.101
Appropriate machinery and equipment	-.153	.116	1	.033	.094	-.214*
Skills to handle new technology	.028	.195*	.033	1	.158	-.127

Money to acquire new technology	.080	.082	.094	.158	1	.082
Select proper technology	.051	-.101	-.214*	-.127	.082	1

Table (3) show the result of the correlations analysis values clarified that Factors indicate the number of employees in your business with describe the type of ownership of this business, skills to handle new technology, money to acquire new technology, select proper technology and Factors describe the type of ownership of this business with appropriate machinery and equipment, skills to handle new technology, money to acquire new technology and Factors appropriate machinery and equipment with skills to handle new technology, money to acquire new technology and Factors skills to handle new technology with money to acquire new technology and Factors money to acquire new technology with select proper technology. These correlations are distinct because the interrelationship according to the results which R lies between $0 \leq R < 0.4$.

- Correlations Resources and Fund

Table (4) Resources and Fund correlation

	Inadequacy of credit institutions	Lack of cash management skills	Shortage of working capital	High collateral requirement from banks and other lending institutions	High interest rate charged by banks and other lending institutions	Loan application procedures of banks and other lending institutions are too complicated
Inadequacy of credit institutions	1	.533**	-.080	-.143	-.223**	-.059

Lack of cash management skills	.533**	1	.001	-.177*	-.085	-.196*
Shortage of working capital	-.080	.001	1	.551**	.504**	.308**
High collateral requirement from banks and other lending institutions	-.143	-.177*	.551**	1	.718**	.524**
High interest rate charged by banks and other lending institutions	-.223**	-.085	.504**	.718**	1	.541**
Loan application procedures of banks and other lending institutions are too complicated	-.059	-.196*	.308**	.524**	.541**	1

Table (4) show the result of the correlation analysis values clarified that Factors lack of cash management skills with shortage of working capital and Factors shortage of working capital with loan application procedures of banks and other lending institutions are too complicated. These correlations are distinct because the interrelationship according to the results which R lies between $0 \leq R < 0.4$. There is some kind of relationship between Lack of cash management skills and Inadequacy of credit institutions, there are exist of relationships between Shortage of working capital and High collateral requirement from banks and other lending institutions, High interest rate charged by banks and other lending institutions, there are exist of relationships between High collateral requirement from banks and other lending institutions and High interest rate charged by banks and other lending institutions, Loan application procedures of banks and other lending institutions are too complicated, there is exist of relationship between High interest rate charged by banks and other lending institutions and Loan application procedures of banks and other lending institutions are too complicated. The justification of these relationships is:

a) Lack of cash management skills according to the results correlated with Inadequacy of credit institutions by 53.3%. This result is logical every factor of the previous factors affecting the Resources and Fund of the firm.

b) Shortage of working capital according to the results correlated with High collateral requirement from banks and other lending institutions, High interest rate charged by banks and other lending institutions by 55.1% and 50.4% respectively. These results are logical every factor of the previous factors affecting the Resources and Fund of the firm.

c) High collateral requirement from banks and other lending institutions according to results correlated with High

interest rate charged by banks and other lending institutions, Loan application procedures of banks and other lending institutions are too complicated by 71.8% and 52.4% respectively. These results are logical every factor of the previous factors affecting the Resources and Fund of the firm.

d) High interest rate charged by banks and other lending institutions according to the results correlated with Loan application procedures of banks and other lending institutions are too complicated by 54.1%. This result is logical every factor of the previous factors affecting the Resources and Fund of the firm.

- Correlations of Management and expertise skills (labor characteristics)

Table (5) Management and expertise skills (L. Ch.) correlations

	Presence of clear division of duties and responsibility among employees	Organization and effective communication	Well-trained and experienced employees	Low-cost and accessible training facilities	Presence of strategic business planning
Presence of clear division of duties and responsibility among employees	1	.576**	.671**	.290**	.628**
Organization and effective communication	.576**	1	.613**	.471**	.517**
Well-trained and experienced employees	.671**	.613**	1	.314**	.406**

Low-cost and accessible training facilities	.290**	.471**	.314**	1	.249**
Presence of strategic business planning	.628**	.517**	.406**	.249**	1

Table (5) show the result of the correlation analysis values clarified that Factors presence of clear division of duties and responsibilities among employees with low-cost and accessible training facilities and Factors well-trained and experienced employees with low-cost and accessible training facilities and Factors low-cost and accessible training facilities with presence of strategic business planning. These correlations are distinct because the interrelationship according to the results which R lies between $0 \leq R < 0.4$. There are some kind of relationships between Presence of clear division of duties and responsibility among employees and Organization and effective communication, Well-trained and experienced employees, Presence of strategic business planning and there are exist of relationships between Organization and effective communication and Well-trained and experienced employees, Presence of strategic business planning. The justification of this relationship:

a) Presence of clear division of duties and responsibility among employees according to the results correlated with Organization and effective communication, Well-trained and experienced employees, Presence of strategic business planning by 57.6%, 67.1%, 62.8% respectively. This result is logical every factor of the previous factors affecting the Management and expertise skills.

b) Organization and effective communication according to the results correlated with Well-trained and experienced employees, Presence of strategic business planning by

61.3%, 51.7% respectively. This result is logical every factor of the previous factors affecting the Management and expertise skills.

- Correlations of External Factors

Table (6) External Factors Correlations

	Bureaucracy in company Reg. and licensing	Lack of gov. support	Lack of accessible info. on gov. policy and regulations that are relevant to my bus.	Corruption as facilitator in bus.	Est. and Reg. a bus.	Obtain. Permit for a specific industry	Obtain. land/space for your bus.	Time of the Reg. process	Costs of Reg.	Complexity of the process
Bureaucracy in company Reg. and licensing	1	.283**	.220**	.287**	.071	.086	-.058	-.510**	-.255**	.298**
Lack of gov. support	.283**	1	.149	.108	.474**	.601**	.362**	.040	.122	-.212*

Lack of accessible info. on gov. policy and regulations that are relevant to my bus.	.220**	.149	1	.002	-.160	.581**	.428**	-.011	-.375**	.020
Corruption is as facilitator in bus.	.287**	.108	.002	1	-.225**	-.124	-.256**	.112	-.273**	.256**
Est. and Reg. a bus.	.071	.474**	-.160	-.225**	1	.405**	.429**	-.209*	.406**	-.278**
Obtain. a permit for a specific industry	.086	.601**	.581**	-.124	.405**	1	.862**	.223**	.128	-.286**
Obtain. land/space for your bus.	-.058	.362**	.428**	-.256**	.429**	.862**	1	.278**	.211**	-.199*
Time of the Reg. process	-.510**	.040	-.011	.112	-.209*	.223**	.278**	1	.138	-.311**
Cost of Reg.	-.255**	.122	-.375**	-.273**	.406**	.128	.211*	.138	1	-.489**
Complexity of the process	.298**	-.212*	.020	.256**	-.278**	-.286**	-.199*	-.311**	-.489**	1

Table (6) show the result of the correlation analysis values clarified that Factors bureaucracy in company registration and licensing with lack of government support, lack of accessible information on government policy and regulations that are relevant to my

business, corruption is as facilitator, establishing and registering business, obtaining a permit for a specific industry, complexity of the process and Factors lack of government support with lack of accessible information on government policy and regulations that are relevant to my business, corruption is as facilitator in business, obtaining land/space for your business, time of the registration process, costs of the registering and Factors lack of accessible information on government policy and regulations thar are relevant to my business with corruption is as facilitator in business, complexity of the process and Factors corruption is as facilitator in business with time of the registration process, complexity of the process and Factors obtaining a permit for a specific industry with time of the registration process, cost of registering and Factors obtaining land/space for your business with time of the registration process, costs of registering and Factors time of registration process with costs of registering. These correlations are distinct because the interrelationship according to the results which R lies between $0 \leq R < 0.4$. There are some kind of relationships between Bureaucracy in company Reg. and licensing and Time of the Reg. process and there is exist relationship between Lack of accessible info. on gov. policy and regulations that are relevant to my business and Obtaining a permit for a specific industry and there is exist relationship between Obtaining a permit for a specific industry and Obtaining land/space for your business and there is exist of relationship between Costs of Reg. and Complexity of the process. The justification of these relationships is:

a) Obtaining a permit for a specific industry according to the results correlated with Lack of gov. support, Lack of accessible info. on gov. policy and regulations that are relevant to my business, Obtaining land/space for your business by 60.1%, 58.1%, 86.2% respectively. This result is logical because the previous factors are external

factors which affect the establishment and performance of the firm.

b) Costs of Reg. according to the results correlated with Complexity of the process by -48.9%. this result is logical because the cost of the registration decreases by decreasing the process complexity.

4.2 Correlations between groups:

In this step the dependency among the groups will be investigated.

Table (7) Correlation coefficient values among groups

	Resources and Fund	Technological Capabilities (F. Ch.)	External Factors	Entrepreneur Factors (O's Ch.)	Management and expertise skills (L. Ch.)
Resources and Fund	1	.482**	.637**	-.072	-.076
Technological Capabilities (F. Ch)	.482**	1	.345**	.415**	.445**
External Factors	.637**	.345**	1	.021	.059
Entrepreneur Factors (O's Ch.)	-.072	.415**	.021	1	.841**
Management and expertise skills (L. Ch.)	-.076	.445**	.059	.841**	1

Table (7) results show that there are some kinds of relationship between External Factors and Resources and Fund also, there is exist of relationship between Management and expertise skills (L. Ch.) on Entrepreneur Factors (O's Ch.). The justification of these relationships is:

a) External Factors according to the results correlated with the Resources and Fund by 63.7%. This result is logical because the fund of enterprises is sure from the external. So, it will be affected by these factors.

b) Management and expertise skills (L. Ch.) according to results correlated with the Entrepreneur Factors (O's Ch.) by 84.1%. This result is logical because the experience of the owner will affect the skills and expertise of the labor.

4.3 Conditional correlation in the project sectors

Investigate the effect of the activity sector on the correlation among the groups. This study may help to recognize which Factors are more effective in each sector.

a) Hall groups with each sector

i. Service Sector

Table (8) Service Sector Correlation

	Resources and Fund	Technological Capabilities (F. Ch.)	External Factors	Entrepreneur Factors (O's Ch.)	Management and expertise skills (L. Ch.)
Resources and Fund	1	.552**	.686**	.093	.128
Technological Capabilities (F. Ch)	.552**	1	.352**	.444**	.436**
External Factors	.686**	.352**	1	-.122	-.002
Entrepreneur Factors (O's Ch.)	.093	.444**	-.122	1	.823**
Management and expertise skills (L. Ch.)	.128	.436**	-.002	.823**	1

Table (8) show the result in the service sector that, there are some kinds of relationship between Resources and Fund with Technological Capabilities (F. Ch) and External Factors also, there is exist relationship between Management and expertise skills (L. Ch.) and Entrepreneur Factors (O's Ch.). The justification of these relationships is:

a) According to the results Resources and Fund correlated with Technological Capabilities (F. Ch) and External Factors by 55.2%, 68.6% respectively. The result is logical because fund is important to import technological capabilities and this fund from external sources.

b) According to the results Management and expertise skills (L. Ch.) correlated with Entrepreneur Factors (O's Ch.) by 82.3%. This result is logical because labor skills and expertise are affected by entrepreneur experience.

ii. Industry Sector

Table (9) Correlation in Industry sector

	Resources and Fund	Technological Capabilities (F. Ch)	External Factors	Entrepreneur Factors (O's Ch.)	Management and expertise skills (L. Ch.)
Resources and Fund	1	.532**	.710**	-.141	-.229
Technological Capabilities (F. Ch)	.532**	1	.393**	.302*	.359**
External Factors	.710**	.393**	1	.153	-.022
Entrepreneur Factors (O's Ch.)	-.141	.302*	.153	1	.878**
Management and expertise skills (L. Ch.)	-.229	.359**	-.022	.878**	1

Table (9) show the result in industry sector that there is some kind of relationship between Resources and Fund with Technological Capabilities (F. Ch) and External Factors also, there is exist of relationship between Management and expertise skills (L. Ch.) and Entrepreneur Factors (O's Ch.). The justification of these relationships is:

a) Resources and Fund correlated with Technological Capabilities and External Factors by 53.2% and 71% respectively according to the results. This result is logical because fund sure from external while technological capabilities more of them imported by the fund.

b) Entrepreneur Factors (O's Ch.) correlated with Management and expertise skills (L. Ch.) by 87.8%. This result is logical because entrepreneur experience affects labor skills and expertise.

iii. Commercial Sector

Table (10) Correlations in commercial sector

	Resources and Fund	Technological Capabilities (F. Ch)	External Factors	Entrepreneur Factors (O's Ch.)	Management and expertise skills (L. Ch.)
Resources and Fund	1	.118	.277	-.552*	-.254
Technological Capabilities (F. Ch)	.118	1	.612**	.425	.617**
External Factors	.277	.612**	1	.245	.428

Entrepreneur Factors (O's Ch.)	-.552*	.425	.245	1	.816**
Management and expertise skills (L. Ch.)	-.254	.617**	.428	.816**	1

Table (10) the result in commercial sector show that there is some kind of relationship between Entrepreneur Factors (O's Ch.) and Resources and Fund also, there is exist of relationship between Technological Capabilities (F. Ch) and External Factors, Management and expertise skills (L. Ch.) also, there is exist between Management and expertise skills (L. Ch.) and Entrepreneur Factors (O's Ch.). The justification of these relationships is:

a) According to the results Resources and Fund correlated with Entrepreneur Factors by -55.2%. This result is logical because entrepreneur factors are not affected by resources and fund.

b) According to the results Technological Capabilities (F. Ch) correlated with External Factors, Management and expertise skills (L. Ch.) by 61.2% and 61.7% respectively. This relationship is logical technological capabilities affected by external factors because the fund was from external sources, while labor skill and expertise affected by technological capabilities.

c) Management and expertise skills (L. Ch.) correlated with Entrepreneur Factors (O's Ch.) by 81.6%. This relationship is logical because entrepreneur experience will benefit labor skills and expertise.

iv. Agriculture Sector

Table (11) Correlation in agriculture sector

	Resources and Fund	Technological Capabilities (F. Ch)	External Factors	Entrepreneur Factors (O's Ch.)	Management and expertise skills (L. Ch.)
Resources and Fund	1	.491	.767*	-.029	.288
Technological Capabilities (F. Ch)	.491	1	.063	.702	.708
External Factors	.767*	.063	1	-.273	.188
Entrepreneur Factors (O's Ch.)	-.029	.702	-.273	1	.574
Management and expertise skills (L. Ch.)	.288	.708	.188	.574	1

Table (11) the result in agriculture sector show that there is some kind of relationship between External Factors and Resources and Fund also, there is exist of relationship between Technological Capabilities (F. Ch) and Entrepreneur Factors (O's Ch.) and Management and expertise skills (L. Ch.) also, there is exist between Management and expertise skills (L. Ch.) and Entrepreneur Factors (O's Ch.). The justification of these relationships is:

a) According to the results Resources and Fund correlated with External Factors by 76.7%. This result is logical because resources and fund sure from external so affected by external factors.

b) Technological Capabilities (F. Ch) correlated with Entrepreneur Factors (O's Ch.) and Management and expertise skills (L. Ch.) by 70.2%,70.8% respectively according to the results. This result is logical because

technological capabilities increased by entrepreneur experience while increasing labor skills and expertise.

c) Management and expertise skills (L. Ch.) correlated with Entrepreneur Factors (O's Ch.) by 57.4%. This relationship is logical because labor skills and expertise increased by entrepreneur experience.

4.4 Study the effect of elements on the profit of the projects.

investigate the relationship between the independent variable (business intelligence) and the dependent variable (Small and Medium enterprises profits).

Correlation coefficients between each paragraph of the axis (Profits of SMEs)

Table (12) Correlation between independent variable and SMEs profits

	SMEs Profits
Resources & Fund	.510**
Technological Capabilities	.808**
External Factors	.536**
Entrepreneur Factors	.726**
Management and Expertise skills	.744**

Table (14) the result show that there are some kind of relationships between profits of SMEs and Resources & Fund, Technological Capabilities, External Factors, Entrepreneur Factors and Management and Expertise skills. The justification of these relationships is:

a) SMEs correlated according to results with Resources & Fund, Technological Capabilities, External Factors, Entrepreneur Factors and Management and Expertise skills by 51%, 80.8%,53.6%, 72.6%,74.4% respectively.

RESULT DISCUSSION

The conclusion from the researcher perspective in the entrepreneurship in each sector is that:

a) In the Service sector: the most effective factors in this sector are Technological Capabilities, External Factors that correlated with Resources & Fund and Management and Expertise skills that correlated with Entrepreneur Factors. The effectiveness of these factors goes back to the nature of the activity sector and presenting the best service with high quality.

b) In the Industry sector: this sector is affected by the correlation of Resources & Fund with Technological Capabilities, External Factors and Management and Expertise skills with Entrepreneur Factors which the nature of the activity sector required these kinds of factors to make the best performance, productivity, Optimum use of resources and reduce costs.

c) In the Commercial sector: the factors that affect the performance, intensity and strength this activity sector is the correlation of Entrepreneur Factors with Resources & Fund, Management and Expertise skills and correlation of Technological Capabilities with External Factors, Management and Expertise skills.

d) In Agriculture sector: in this activity sector the most effective factors in this sector are the correlation of Resources & Fund with External Factors and Technological Capabilities with Entrepreneur Factors, Management and Expertise skills and Management and Expertise skills with Entrepreneur Factors. These factors help this sector to make the highest crops productivity and optimal use of water and agricultural land.

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