

T.C.
REPUBLIC OF TURKEY
FIRAT UNIVERSITY
THE INSTITUTE OF SOCIAL SCIENCES
THE DEPARTMENT OF MANAGEMENT



**STRATEGIC MANAGEMENT OF UNIVERSITIES
FOR RESEARCH AND INNOVATION EFFICIENCY;
CASE STUDY DUHOK POLYTECHNIC**

MASTER'S THESIS

SUPERVISOR	PREPARED
Prof.Dr. Kenan PEKER	VADR SALIM MUSTAFA XAGEWAYCI

ELAŽIČ – 2019

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Jürimiz,/...../2019 tarihinde yapılan tez savunma sınavı sonunda bu Yüksek lisans tezini oy birliği ile başarılı saymıştır.

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Prof. Dr. Ömer Osman UMAR
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ABSTRACT**Master's Thesis****Strategic Management of Universities for Research and Innovation Efficiency;
Case Study of Duhok Polytechnic****VADR SALIM MUSTAFA XAGEWAYCI****Fırat University****Institute of Social Sciences****The department of management****Elazığ, 2019; Page: X+88**

The research deals with the problems of strategic management in university system for mainly research & innovation efficiency. Basically there are education, research & innovation, and extension duties of universities. The main objective of this study is to identify and discuss some of the basic principles of strategy making in a modern university in the context of customer-driven research & innovation in order to stimulate further discussion on this topic. Universities should be the main elements of the innovative development of infrastructure in their countries, and contribute to the formation of human capital. The study aims to provide an in-depth analysis of internal factors, which constitute a complex learning environment for a university. It is said that in their work to develop and implement a number of strategies, education managers should distinguish between strategic objectives at the corporate level and the functional strategic objectives of the region that are related to the areas of strategic development and research of the university.

The environment of university for research & innovation efficiency is constantly changing and that the promotion of the process needs to be smart guide, appropriate and very sophisticated, ambitious, purposeful and thus contribute to strengthening and capabilities. The requirements for filling the vacuum system of Duhok Polytechnic University and develop an appropriate strategy for the development of science. The data obtained from the survey are going to be analyzed by computer software to get results exploitation the links between search variables and multivariate analysis to know the way to appraise the resource desires of the university for research and innovation efficiency. The research can result in variety of conclusions explaining the matter and also the objectives of the study. The search also will give a variety of suggestions supported your search results. From our analysis purpose of reading, this study will contribute to the event of Dohuk government activities and can bring valuable advantages from the conclusion of the analysis and suggestions.

Keywords: Strategy, management, research, innovation

ÖZET**Yüksek Lisans Tezi****Üniversitelerin Araştırma ve İnovasyon Etkinliğinin Stratejik Yönetimi; Duhok
Polytechic Üniversitesi Örneği****VADR SALIM MUSTAFA XAGEWAYCI****Fırat Üniversitesi****Sosyal Bilimler Enstitüsü****İşletme Anabilim Dalı****Elazığ, 2019; Sayfa: X+88**

Araştırma üniversite sistemindeki stratejik yönetim sorunları ile araştırma ve inovasyonun etkinliğini arttırmakla ilgilidir. Üniversitelerin esasta eğitim, araştırma ve yayım şeklinde görevleri vardır. Çalışmanın temel amacı, modern bir üniversitede, müşteri odaklı eğitim bağlamında, strateji oluşturma temel ilkelerinin bazılarını tanımlamak, tartışmak ve araştırma etkinliği için bu konuda daha fazla tartışmayı teşvik etmektir. Üniversiteler ülkelerindeki yenilikçi araştırma altyapılarının geliştirmenin ana unsurları olmalı ve insan sermayesinin oluşumuna katkıda bulunmalıdır. Çalışma, bir üniversite için karmaşık bir öğrenme ortamı oluşturan iç faktörlerin derinlemesine bir analizini sağlamayı amaçlamaktadır. Bir dizi strateji geliştirme ve uygulama çalışmalarında, eğitim yöneticilerinin üniversite düzeyindeki stratejik hedefler ile bölgenin stratejik gelişim ve üniversitenin araştırma alanlarıyla ilgili fonksiyonel stratejik hedefleri arasında ayırım yapmaları gerektiğini savunmaktadır.

Araştırma ve inovasyon faaliyetlerinin öğrenme sürecinin karmaşık olması ve araştırma için üniversitenin ortamının sürekli değişmesi ve sürecin tanıtımının akıllı bir rehber olması, uygun ve çok karmaşık, hırslı, amaçlı olması ve bu nedenle güçlenmesine ve yeteneklerine katkıda bulunması gerekmektedir. Duhok Politeknik Üniversitesi'nin vakum sistemini doldurmak için gerekenler ve araştırmanın gelişimi için uygun bir strateji geliştirmesi önerilmiştir.

Anketten elde edilen veriler, üniversitenin kaynak ihtiyacının nasıl değerlendirileceğini anlamak için değişkenleri ve regresyon analizi ile etkileri arasındaki bağlantıları kullanarak sonuç elde etmek için bilgisayar paket programı kullanılarak analiz edilmiştir. Çalışmanın amaçlarını açıklayan bir takım kantitatif sonuçlara ulaşılmıştır. Ayrıca, analiz sonuçlarına göre araştırma ve yayım faaliyetlerinin etkinliği için bir dizi öneride bulunmuştur. Sonuçlara özelde Dohuk Devlet Üniversitesi'nin ve genelde üniversitelerin araştırma ve inovasyon faaliyetlerinin gelişimine katkıda bulunacak bulgular ve öneriler açısından değerli faydalar sağlayacaktır.

Anahtar Kelimeler: Strateji, yönetim, araştırma, yenilik

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DECLARATION

I hereby declare that I am the solely author of this Master's Thesis and it is necessary to declare that all data and information in this document have been obtained and submitted in conformity with ethical demeanor and academic rules. I also mentioned that I did not submit this Thesis to any other institution to obtain a degree.

VADR SALIM MUSTAFA XAGEWAYCI**Elazığ, 2019**

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VADR SALIM MUSTAFA XAGEWAYCI

CHAPTER ONE

1. STRATEGIC MANAGEMENT

1.1. Introduction

This research explores the possibilities of achieving a strategic management of Duhok Politecnic University for efficiency of research & innovation. Contribution from this chapter is a pragmatic approach, focusing on the main trends in discuss organizational learning and take account of interests' primary readers of research (deans, senior officials and heads of departments). The chapter seeks to review for key strategies of the strategy organizational learning, demonstrating their assumptions, strengths and weaknesses in the preparation of higher education for research & innovation. This review begins with more regulation focused and managerial approaches. The controversy over professionalism determines the need for greater organizational focus in many strategy. Towards the end, it addresses itself to those strategy practitioners and others who may feel uncomfortable with this argument, considering possible positive roles and ethical stances. There is a perception of a tendency to repeat exactly the same mistakes that have made strategy marginal to the management of universities. Imbued with an evangelical desire to convert others, they seem to have no concept of acting strategically (i.e. to maximize their own university's effectiveness for research & innovation) at all (Ramsden, 2003, p3).

Current changes in the higher education system not only affect the information educational components, but also the scientific and technological components of education as some strategic concepts that developed by national universities. The problem of strategic management in the higher education system is not new in this day, but should become a priority in scientific understanding. Although quite a few papers on this problem – so far there is no single framework methodology. In the the context of the university's strategic management, the state has great importance – because in this level. There is an understanding of the higher education strategy because the role of the state no doubt, because the main customer and subject matter, the formation of the curriculum, programs, types of work and rules of assessment of educational activity (Efimov and Latava, 2012, p.2).

1.1.1. Important of Study

The importance of the study and its value show the role played by the university in achieving the great mission through the processes of innovation in all administrative, research, economic, technical, social and legal fields according to new working methods, which is a continuous dynamic process related to decisions that last for a long time, indicating the importance of strategic management in the university as an element that encourages or impedes innovation. The importance of the university strategic management for research&innovation is highlighted in the following points:

- 1-Addressed the issue of research & innovation in the management of strategic management.
- 2- The study can help activate the role of strategic management for research & innovation efficiency at Dohuk Polytechnic University.
- 3- The study draw the attention of officials and decision makers for research & innovation efficiency at Dohuk Polytechnic University or ministries of education superior to the need to employ strategic management.
- 4- This study may be useful to research & innovation when determining the reality of management strategy at Dohuk Polytechnic University and work on its development.

1.1.2. Objectives and Principles

The objective of the study: This study aims at the following:

1. Determine the management strategy for research & innovation efficiency at the university level.
2. Identify the extent of the university's attention to research & innovation.
3. The connection between the management strategy and research & innovation efficiency.

Principles It is a set of rules and laws key that explain how the behaviors of public and private events, showing their origins and anchors as highlighted in the following points:

1. Implementation of the holistic approach to strategic planning for research & innovation: The establishment of upper research & innovation as one entity with integrated and reticulate subsystems in a very completely different manner, and also the tutorial strengths of the university in a very wide selection

2. Distinguish between the subsequent target areas such as research & innovation: Strategic objectives at the university level: a purposeful strategy for the region.
3. Establish areas of university priority objectives to enhance tutorial excellence and structure performance.
4. Support every target area such as education, research & innovation, and outreach that point through a spread of acceptable strategic initiatives and connected quality assurance procedures. Its objective is to push instructional excellence and competitive advantage.

1.1.3. Research Problem and Design

The research problem is poor interaction between strategic management and research & innovation at universities. Higher education institutions around the world have always faced environmental changes such as external and internal environment. However, in the past decade, social expectations have changed, new public policies and technological innovations have created an unprecedented set of university challenges. Based on the above, the study problem can be determined as poor coordination between management strategy and effective research & innovation at the university causes poor research development.

Environment management includes strategic analysis of internal and external environment in order to figure out good way of reaching better situation. In conducting strategic analysis, managers make different decisions at different levels. Decision-makers should take into account external and internal factors that influence the process of identifying and evaluating possible techniques and methods aimed at achieving their goals such as education, research & innovation, and outreach. From a holistic perspective, university management needs multiple perspectives to be taken into account in the context of providing continuous improvement to higher schools (Stukalina, 2013, p. 2). This application is important for a relatively new field such a field, filled with difficulties due to lack of clarity and ambiguity, in addition to its selective and interdisciplinary nature and thus putting information technology in constant adjustment (Tatnall, Okamoto, and Visscher, 2007, p. 2). The study problem can be summarized as follows:

1. What is knowledge and perception level of the university for strategic management?

2. What is the level of awareness of the teaching staff for research & innovation?
3. What is the nature of the relationship between strategic management and research performance?

Research design is a useful tool for the researchers in planning and implementing their research, and helping them in obtaining the results and findings. Questionnaire was used to collect the data from the respondents in lecture from Duhok Politechic University. The research design is extremely important for research & innovation efficiency via strategic management because it determines the success or failure of the study. Determining research design may provide researchers a detailed plan which was be used to guide their research & innovation.

This part of the study primarily gives the researcher a heading as to the direction and how the research would be executed. Research could be conducted either through qualitative or quantitative methods. A proper understanding was help the researcher to differentiate the two methodologies and lead the researcher in the correct direction. As both methodologies have its own merits and setbacks the selection of an ideal methodology is crucial to the success of the research. Quantitative research is a methodology that involves deductive approach and gathering and analyzing numerical data. The data gathered from questionnaire was be analyzed by suitable software package available to survey authoring, data mining, text analytics, statistical analysis, and collaboration and deployment. The following statistical methods were used:

1. Cranach's alpha used to measure the reliability and credibility of the research variables.
2. Descriptive statistics involve means, standard deviation, and differences coefficient.
3. The multi correlation analysis used for examine the relationship between the research variables and their dimensions.
4. Linear regression analysis in stepwise method used to analysis the expected effect of the independent variable on dependent variable in our research.

1.1.4. Research Framework

The research framework in the present study include only two variables in their dimensions:

1. Independent variable in this study is strategic management.

2. The dependent variable was research & innovation at the university.

Strategic management is important management tool that shows however important it's to assist corporations maintain their success; improve their adaptation and manage internal and external work environments. Strategic management has thus become one of the most important thinking patterns. It develops all short, medium and long term plans of university development. Large university, public institutions and educational institutions have implemented a policy to forecast strategic plans to address future risks and challenges. Rather than being affected by economic, financial and administrative changes, becoming influential through this future strategy that help the future of institutions and universities in several ways. Strategy springs from the Greek word strategies, which implies the art of driving or the art of moving troops and instrumentation to and from the field so as to realize a competitive advantage to win enemies. The various uses of the strategy even enclosed several sciences and fields and are not any longer restricted to military operations, however, we discover it unfolds to all or any social sciences like politics, economics, society, and administration. The strategy is something that develops over time (Sadler, 2003, p.1).

Thomson et al. (2008) has observed that the institution strategy is that the management action arranges for business management and operations. Represent a drawing strategy a body commitment to follow up a selected set of actions in business development. Attract and satisfy customers with success, and conduct operations improving the monetary and supply performance of the university. Therefore, the university's strategy regarding the management intends to develop business, and the way the skilled can build customers out of the competitor (Ndirangu, 2013, p.13). Strategic management is the direct structure application of business strategy ideas developed within the academic fields. This implies that strategic management needs an analysis of the interior and external environments of the corporate. Maximize the utilization of resources with regard to objectives. This statement is thought of as a holistic definition of the conception of strategic management (Bracker, 1980, p.221). The management of the strategy is that the art and science of formulating, implementing and evaluating multifunctional decisions that permit the university to attain its objectives. This definition additionally means strategic management focuses on the combination of management, marketing, finance, accounting, production, operations and data systems to attain structure success. The term strategic management during this text is employed as

a equivalent word for the term strategic designing. The term strategic management is typically wont to confer with the formulation, implementation and analysis of the strategy, with relevance strategic coming up with just for the formulation of the strategy (David, and David, 2016, p.33).

1.1.5. Study Hypothesis and Study Limits

The study hypothesis Ho; Strategic management increase research & innovation efficiency of universities. Some questions about study hypothesis can be explained as follows;

1. Is there a positive statistical correlation between strategic management and research & innovation?
2. Is there a statistically significant correlation between strategic management and every dimension of research & innovation?
3. Is there a significant correlation between strategic management and research & innovation creativity?
4. Is there a significant impact between strategic management and each dimension of research & innovation?

The limits of the study stipulated as university limitations This study is limited to institutes and colleges at Dohuk Polytechnic University. Time limits is during the academic year 2019-2020. Human boundaries are represented by deans and heads of scientific departments and leaders in Dohuk Polytechnic University.

1.2. Literature Reviews

The strategy is outlined by the choices created by the organization. Or disclose your objectives, functions or objectives; Plans to realize your goals; determine a bunch of university or the services of the organization; The human organization is or pretends to be, the determination of natural economic and non-economic contributions to be created. Shareholders, employees, workers, and customers the communities (Courtney, 2002, p.7). "Art of war ", particularly the design of movements of troops, ships, etc., In favorable positions; Associate in Nursing action set up or policy at work or policy, and so on. (Ritson, 2013,p.9). Alfred Chandler delineated the strategy as "establishing the foundation's long-run goals and objectives, adopting workflows and allocating resources

to implement these goals. (subba rao, 2010, p.21). Glueck has defined Strategic management is a "set of decisions and actions that result in the event of an efficient strategy or methods to assist succeed in the organization's objectives (Jeyarathnam, 2008, p.4).

Strategic management can be a way to manage the university leadership activities to renew the structure, growth, and transformation. Strategic management It also consists of the analysis decision and the action taken by the university to create and maintain competitive advantages (Dess, McNamara, Eisner and Lee,2004, p.5). A review of the academic literature on strategic management shows that the institution of an efficient strategy orienting to structure development is one among the most tasks of up to date managers. The strategy deals with the formulation and implementation of methods to push "superior alignment between the university and its environment" and to realize strategic objectives (Stukalina, 2014, p.80).

Management aspects as is well known, business enterprises comprise three administrative departments known as the administrative pyramid, which are as follows:

1. Senior Management level: includes the board of directors, the general manager and the senior staff working at the senior levels of the institution. These are called strategic managers.
2. Middle management level: which includes basic departments in institutions, such as finance and marketing.
3. Minimum management level: which consists of administrative units directly related to dealing with the means of production, such as workers, technicians and equipment (Al-Rashoud, 2017, p,160).

1.2.1. The strategic management method

1. External analysis: analysis of opportunities, threats or limitations within the external setting of the corporate, as well as a business and forces within the external setting.
2. Internal analysis: analysis of the strengths and weaknesses of the Organization in its internal setting. Think about the context of management ethics and Corporate social responsibility.

3. Formulation of the strategy: Formulate methods that generate and maintain a competitive advantage by orienting the strengths and weaknesses of the organization with environmental opportunities and threats.
4. Implementation of the strategy: implementation of developed methods.
5. Strategic control: live success and build corrections once methods don't accomplish the required results (Parnell, 2013, p.2).

1.2.2. Three phases of strategic management

1.2.2.1. Formulation of the strategy

Formulation of the strategy and strategic analysis. The formulation of the strategy involves developing a vision and mission, characteristic opportunities and external threats to the organization, distinguishing internal strengths and weaknesses, establishing long goals, developing different methods and choosing specific strategies for the observance. The issues of formulating the strategy embrace the identification of latest actions to be undertaken and what actions ought to be abandoned, either to expand operations or diversify, to enter international markets, to merge or kind venture, and the way to avoid the hostile acquisition (David, 2017, p33).

1.2.2.2. Strategy implementation

According to Hakeem (2018) for a life stuffed with choices and strategy. The implementation of the strategy needs several choices and strategic options. A decent leader is aware of the way to take the university within the right direction by selecting the proper ways. May be not a simple method and also the choices can be tough to try to do. Sometimes, the strategy is purposeful; however, the implementation method doesn't work. The explanations for this are totally different, however, one amongst them is that the worth is submerged within the interpretation. This includes the provision of resources, communication failure, inadequate work set up and unclear responsibilities (Olkkonen, 2018, p.14).

1.2.2.3. Strategy Evaluation

The strategic analysis isn't any less important than the formulation of the strategy as a result of it highlights the efficiency and effectiveness of the excellent plans to attain the required results. Managers may also assess the quality of the strategy in today's

dynamic world with social, economic, political and technological innovations. The strategic analysis is that the finish of strategic management. The importance of evaluating the strategy lies in its ability to coordinate the task performed by managers, groups, departments, etc., by dominant performance. Strategic analysis is very important given the assorted factors, like the event of inputs for the new strategic coming up with, the necessity for feedback, analysis, and reward, the event of the strategic management method, the judgment on the validity of strategic choice, etc (<https://www.managementstudyguide.com/strategyevaluation.htm>).



Figure 1. Stages of strategic management (13/5/2019)

1.2.3. Strategic Management Levels

Multiple and different levels of strategic management are related to the nature of products and services submitted by the organization. If the organization provides a single good or service, that organization exists to have one strategic level by which you can do all the work to accomplish the product or service. However, business organizations have recently witnessed the emergence of organizations characterized by a variety of goods and services, which necessitated the emergence of different levels of strategic management commensurate with the diversity and diversity of activities by the organization. Three levels of strategic management will be distinguished;

1.2.3.1. Strategy at the organizational level

An organization that has more than one production line and one activity need more to the Organization's strategic management practices, to define its mission in the

community, and to establish characteristics or characteristics that distinguish them from other organizations. And setting goals the organization's strategies, decision-making on the organization's products, and identification of the resources needed to accomplish the activities of the organization, the determination of its market share and its role in determining its competitive position, Its role in creating and enhancing the integration of various business activities in the organization (www.pdfactory.com).

1.2.3.2. Business Unit Level Strategy

These strategies are used at the organizational or unit level for strategic actions, which can be defined as an organization that has its own composition to serve the market with a specific range of interrelated products. These strategies include most organizational strategies, as well as competition strategies (Selatin, 2006, p24).

1.2.3.3. Functional Level Strategy

The functional strategy, because the title suggests, is coupled to a purposeful method and connected activities. Choices at this level at intervals the organization is usually represented as ways. These choices are directed and restricted by some general strategic issues. The purposeful strategy deals with a comparatively restrictive set up that gives targets for a particular job and allocates resources between completely different processes during this functional space coordinated for optimum input to attain university goals. Underneath a career level strategy, there are also methods for the number of operations wherever every operates is divided into many sub-functions. For instance, a selling strategy, a purposeful strategy, is divided into promotion, sales, distribution or evaluation methods with every sub-branch work strategy conducive to a purposeful strategy (Mohammadian, 2017, pp.20-21).

Mastering Your Enterprise Strategy The Three Hierarchical Levels of Strategy



Figure 2. Strategic Management Levels (24/5/2019)

1.2.4. Previous Studies

Study (2003, BRENNAN) aimed to investigate the extent of effective marketing in the higher education sector in the university. Evaluate the degree of integration of strategic functions, particularly between marketing and power management strategy. In the study, the researcher used the case study method in a long way and used the interview as a tool the study applied to three colleges of higher education in the UK. The study included (1000) manager staff in the three universities. Strategic management practices in your housing industry. It has been investigated by many researchers to this point as Jeyarathnam, (2008). The main task and objectives of the organization are the beginning of the strategic management method. Innovation is a key driver of future growth at Bayer, playing a vital role in overcoming global challenge, such as (Plischke, Heubach and Maier, 2014). The study explained strategic management of the early innovation phase. Strategic management in universities as a factor of their global competitiveness) Russian education is being updated for the aim of its successintegration into the worldwide instructional setting. A proposed strategy to harmonize the outputs of higher education with the needs of the labor market in Palestine. The promotion of higher education requires us to reconsider the philosophy of higher education and its strategy and evaluation in light of the changes of the global and local environment, and the

construction of a new philosophy and methodologies that qualify him to enter the arena of global competition for opportunities in the labor market. This study may help to convince the responsible leadership that some of the graduates.

1.3. Materail and Methods

In this study, the researcher uses an analytical descriptive method that describes phenomena and events The subject of the study, as well as the use of the case study methodology and prepare this approach suitable for this research why it provides accurate and detailed data on the status of the study and its relevance to strategic studies, also uses the statistical analysis method, the program to analyze questions and test hypotheses.

1.3.1. Data Collection

Primary data can be collected by the researcher using various tools such as questionnaires, observations and interviews. These data are unique and tailor-made for a particular study. Some institutions require students to conduct preliminary research, while in some other cases it may not be necessary. "For this research, primary data will be collected through the questionnaire The researcher will meet all participants and tell them how to complete the questionnaire. A number of department heads, deans and university leaders.

For this study, secondary data were collected mostly from textbooks, journal articles, magazines, and Internet, which were presented in the literature review. Furthermore, findings from earlier research done in the same area have served as a valuable basis of supporting material.

1.3.2. Population and Sampling

The population of this study are the deans of institutes, colleges ,researchers and university leaders at duhok Polytechnic University. As noted earlier, this study is based on questionnaire, interview and data collection. A sample of these residents will be selected in Duhok Polytechnic University to participate in this study. A simple random sample design will be used to select a sample from this study, and this will mean an equal opportunity for each individual population to be part of the study sample. The researcher will distribute (110) copies of the questionnaire to individuals working at the Dohuk of Polytechnic University in order to collect data related to the field in the current study,

which will be based on the statistical analysis required and then reach and discuss the results.

1.3.3. Study Method

The research methodology describes the ways employed in conducting the research study. The research methodology includes the design of the research, the procedures for information assortment and therefore the analysis of combination data exploitation the available tools. In this study, the researcher uses an analytical descriptive method that describes phenomena and events The subject of the study, as well as the use of the case study methodology and prepare this approach suitable for this research why It provides accurate and detailed data on the status of the study and its relevance to strategic studies, as well as using the comparison method, also uses the statistical analysis method, the program to analyze questionnaires and test hypotheses.

1.4. Duhok Polytechnic University

The organizational structure of Duhok Technical University consists of three main administrative levels, the first level is the directorates of the university president (namely, the Office of the President of the University and the Director of International Relations and the Director of Information and Engineering Projects, Control and Financial Audit).

The second level of the structure includes these positions and departments (assistant to the President of the University for Student Affairs, Administrative Affairs and Scientific Affairs and the Center for Scientific Research and Colleges and Institutes affiliated to the University) It is (College of Engineering, Faculty of Medical Technology, Akri Technical College, Duhok Administrative College, Duhok Technical College, College of Technology Petroleum and Mineral Sciences). Shank Technical Institute Al, Technical Institute Amidi, Technical Institute Akri, Technical Institute Bardarsh, Technical Institute Zakho)

The third level of the organizational structure is the operational level of the university, which consists of all faculties and institutes affiliated to the university and in turn includes its administrative units and scientific departments. Establish formal organizational structures and connect individuals within the organization. Departments, committees, councils, teams and task forces establish temporary or permanent channels for individuals to meet and interact. Job and job descriptions typically describe reporting

or supervisory tasks, creating links between individuals. Basically, organizational structures then establish networks of relationships between members of the organization. Thomson is not a single level in the organization; Different positions within partner organizations (at different levels of the hierarchy) and responsibilities to form a coalition strategy and give responsibility for coalition management – in short, enable partners to manage their collaborative efforts. It is a thorough examination of the complex relationships between individual employees and managers of partner organizations (Albers, Wohlgezogen, and Zajac, 2016).

1.4.1. Structure of Duhok Polytechnic University

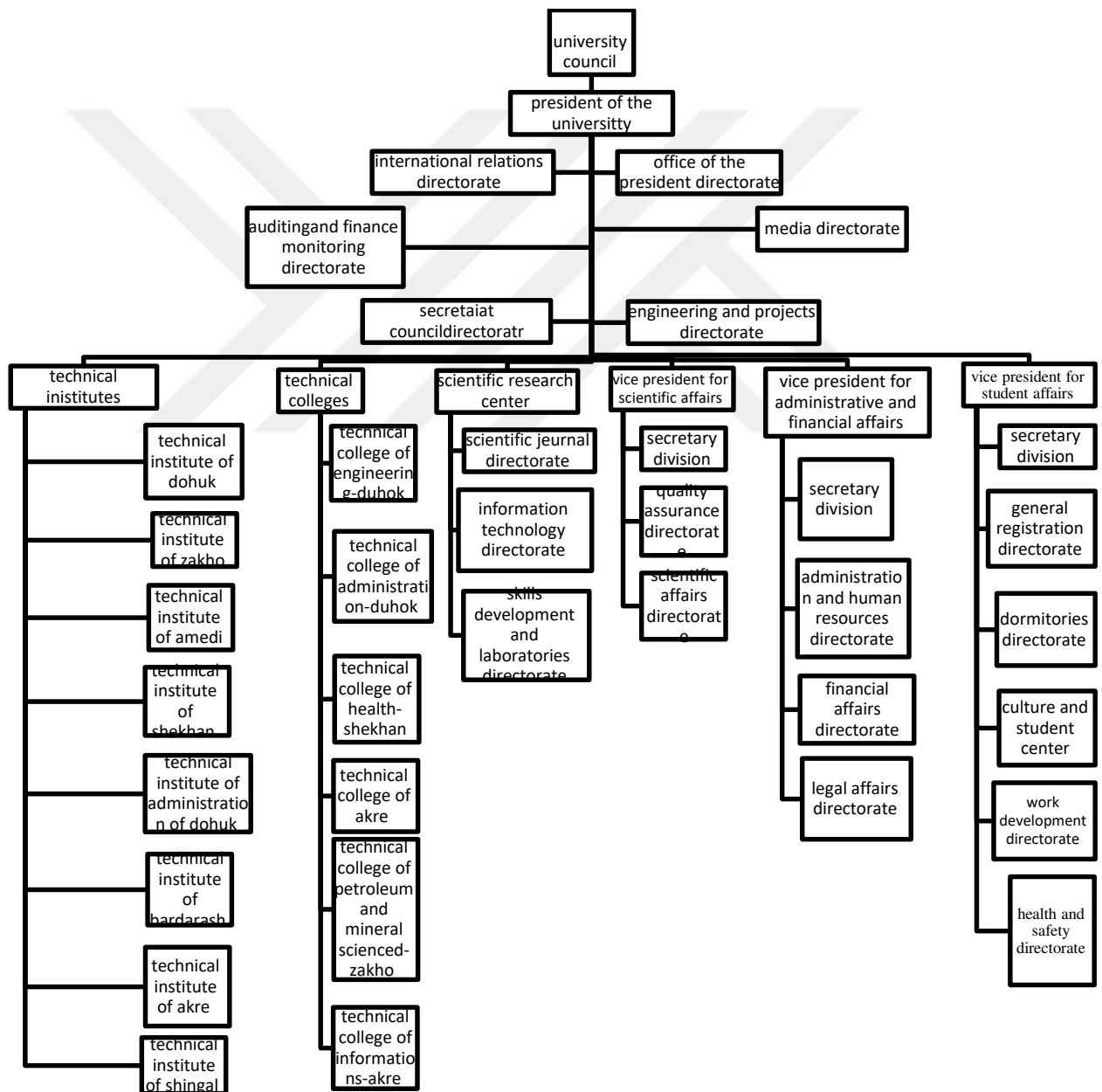


Figure 3. Structure of Duhok Polytechnic University

1.4.2. Information Resources Management of Duhok Polytechnic University

Recent developments in business and communications have raised the necessity for data on the various aspects of activities. The institution of a specialized system to produce such data will increase the efficiency effectiveness and performance of this operate in the other method. This has necessitated the Duhok Polytechnic University and application of data systems for data assortment and preparation in an exceedingly manner that allows the assembly of various styles of information that may be used each by people at intervals the organization and by individuals and entities outside the organization. Data systems are the important supply that gives important information in an exceedingly timely and acceptable manner to mirror the interaction that takes place within the organization's setting, between it and also the external setting, in order that the inner and external setting data will increase the management's ability to draw plans, correct policies, and success. The value of information is directly associated with however decision-makers are helped to realize the objectives of the organization. Distinguish knowledge from information and describe characteristics used to assess data quality.

For example, in 2012, the CIO Council developed a vision for Harvard IT that was specifically targeted to the IT community. Its main purpose was to inspire the IT community to get the 1,400 IT professionals working across the University “rowing” in the same direction. More importantly, the vision helped IT professionals understand the role they play at the University. The working group revisited the vision and revised it slightly. In considering modifications, we retained focus on access, innovation, and collaboration, but added a focus on administration as well (<https://www.harvard.edu/>).

Every organization that uses information systems needs the personnel to operate and manage this organization. Training and development are therefore very important to keep abreast of the modernization of management information systems and include the following: Human resources, Software, Data, Networks, Devices.

1.4.3. Scanning Strategic Environment of Duhok Polytechnic University

The evolution of what is happening in the external environment is no longer only a complex issue, it is also very complex. An organization no longer secures its work in such an environment. Therefore, the failure of the university in strategic analysis in a better way can expose it to problems. Forcing her out of the work environment. Therefore, most writers and researchers believe that institutions need to analyze the external

environment well. Analysis of the external environment is defined as the process by the strategists to follow factors: economic, governmental/legal, market/competitiveness, supplier/technology sector and political/geographic/ population / social issues to identify any opportunities or risks to the institution. Thus, the external environment can be divided into two sets of variables called the first name the external environment general environment the second is referred to as the external or direct external environment.

1.4.3.1. Environmental Scanning

First: Analysis of the external environment

The external environment contains variables (opportunities and threats), which lie outside the boundaries of regulation and are not under the control and control of senior management in the short term, and the external environment contains two elements or two groups:

A-The general environment: The general environment includes all external forces that influence short and long organizational decisions, including economic, technological, cultural, social, and political and legislative forces.

B- The private environment or the work environment: All elements or groups that have a direct impact on basic regulatory processes and some of its components include shareholders, government, interest groups, trade unions.

Second: Analysis of the internal environment

The internal environment consists of variables (factors of strength and weakness) within the organization itself and is subject to the supervision of senior management in the short term. The internal environment includes:

A-Organizational structure: Includes communications, power, and chain of command, which is described in the organizational chart.

B-Culture: Includes beliefs, expectations and values shared among members of the organization.

C-Resources: Resources the university's assets include physical assets, skills, human capabilities, and managerial talents.

1.4.3.2. The External Environment

The evolution of what is happening in the external environment is no longer only a complex issue, it is also very complex. An organization no longer secures its work in

such an environment. Therefore, the failure of the Organization in strategic analysis in a better way can expose it to problems. Forcing her out of the work environment. Therefore, most writers and researchers believe that institutions need to analyze the external environment well. Analysis of the external environment is defined as the process by the strategists to follow the factors economic, governmental/legal, market/competitiveness, supplier/technology sector and political/geographic/ population / social issues to identify any opportunities or risks to the institution. Thus, the external environment can be divided into two sets of variables called the first name the external environment general environment the second is referred to as the external or direct external environment.

The external environment general environment

1. **Economic variables:** such as interest rate, national income and growth rates, national product growth rates, average per capita income and growth rates, unemployment rate, nature of economic activity predominant (agricultural, industrial, commercial, ...). The economy is that the best-documented a part of the overall environment. This is often true whether or not it focuses on the speculation of economic behavior or on the character of economic establishments. Economists assume that what drives the globe is the need to improve financial gain or earnings. In a very time of economy, everything has an economic rationalization, together with the motives of the bulk of call manufacturers, from delinquent to relations. The market is the most popular institutional body for the allocation of resources and therefore the distribution of financial gain. It's convincingly aforementioned that it is the foremost economical mechanism for this assignment (White, 2004, p.176).
2. **Technical/technological variables:** refers to the means and methods chosen for completion business or production whether tangible or intangible, new inventions and others as well as the impact of technological changes. Consider the number of changes driven by technology. Wherever can you're employed within the world? What is the institution? Everybody is aware of however technology has compact every establishment in the last ten years (see solely the speedy transition from "personal shopping" to "online shopping" or the impact of electronic books in physical stores or social networks in the commercialization). The future decade will bring changes of a similar size. You

must hunt for signs of a technological amendment that may be obtainable, and also the changes are binding for them (Lake, 2012, p.61).

3. **Social, demographic and cultural variables:** such as customs, traditions, social norms, language, illiteracy rate, population growth rates, population movement, population distribution structure, geographical location and the role of women in society. The social and cultural usually includes issues like ladies/minorities within the working class, the standard of operating life, environmental issues and skilled preferences. Strategic coming up with for project management (Kerzner, 2002, p.27).
4. **Political and legal variables:** such as the degree of political stability, and the degree of government intervention in the business field, parties government system in taxes, unions, trade unions, labor laws wages, the use of natural resources and others. Maintaining management over your government's policies and legislation on labor issues is important. Decisions taken at the higher, middle and lower levels will have a big impact on your business. For example, new taxes will really cut black margins, or reductions will improve them. Changes to labor laws will have an effect on however your staff is treated. Of course, threats or legislative opportunities will occur within the higher, middle and lower levels. As well as political management over taxes and health legislation (Olsen, 2011, p167).
5. **International variables (economic, political and cultural):** For example, the entry of the state in economic blocs international.

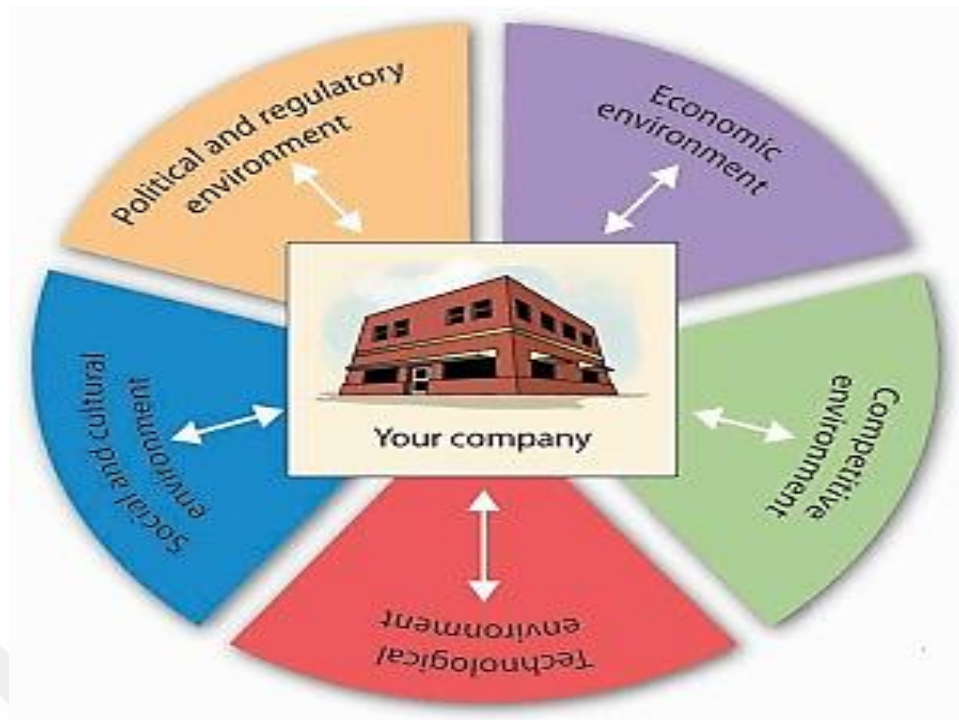


Figure 4. The external environment general environment

Porter's Five Forces analysis

1. **Intensity of competition in the industry:** The intensity of competition in the industry is the axis and the center of the forces that contribute to determining the attractiveness of the industry. Among the factors affecting the determination of the degree of competition are four main elements industry growth, the share of fixed cost to total value added of activity, depth, and product excellence, and finally concentration and balance between competitors.
2. **The threat of entering new competitors:** new entrants to the industry bring with them the energies and desire to own share in the organization, and most often huge resources. The seriousness of the threat to enter competitors depends primarily on the constraints in the environment, on the expectations of the new participant and on the responses do other competitors. Similarly, most institutions have competitors, individuals or teams doing the same factor within the same arena. Analysis indicated that public relations activities during an extremely competitive atmosphere usually use messages and communication techniques to be convincing, whereas high potency levels are often open for promotion and a lot of to create relationships. However, the organization's

atmosphere is often unequal and may be competitive with one audience whereas collaborating with the opposite (Smith, 2005, pp.32-33).

3. **The bargaining power of processors/suppliers:** Strategy makers are interested in analyzing the special variables the processing and, in particular, the cost and quality of the items, materials or products received and the change technological development of these materials in the near future at least. Suppliers will have a big impact on the chance of profit of industries. As an example, they'll expertise a rise in prices as costs increase or decrease their costs by reducing the standard of their product and services to their customers (Dess, and Miller, 1998, p.79)
4. **Buyer bargaining power:** The buyer's power increases to the maximum when the buyer's goods are intense represents an important share in the volume of business equipment as a whole. And when the buyer can actually rear integration and reduced buyer power when its manufacturing is competitive and the cost of switching to materials alternative, or when semi-manufactured materials, parts or products represent an item essentially is indispensable in the production process, or if the supplier can achieve frontal integration to support manufacturing. Buyers have an effect on the institution through their ability to lower costs, negotiate prime quality services or additional, and vie with each other. The bargaining power of provider suppliers will have an effect on the institution through its ability to extend costs or cut back the standard of products and services acquired (Hunger, and Wheelen, 2003, p.9).
5. **The presence of a strong competitor:** In every organizations there are dozens or hundreds university similar or alternative products. Of course, not all these competitors are equal in importance and in the magnitude of the impact where there is always a leading competitor who enjoys a leadership position in the university.

1.4.3.3. Synthesis of External Factors

External influences can affect the Duhok Polytechnic University. Different external factors can affect the ability of innovation, research or investment to achieve its strategic objectives and purpose. These external factors may include competition; social, legal, technological and economic and political changes. Our business suffers in these

years because of the following external factors: The country's financial conditions caused problems between the region and the center and the four-year war on terror, and the desire to study, research and innovation decreased. Each of these external factors, individually or collectively, can influence innovation and research in any institution or university. Changes in the external environment have a profound impact on staff. These changes include technological obsolescence, culture, social changes, and government policies. The external environment consists of factors that affect the outside of these factors as follows: (Technological Innovation, Economic Factors, Employees' Organization, Legal Factors)

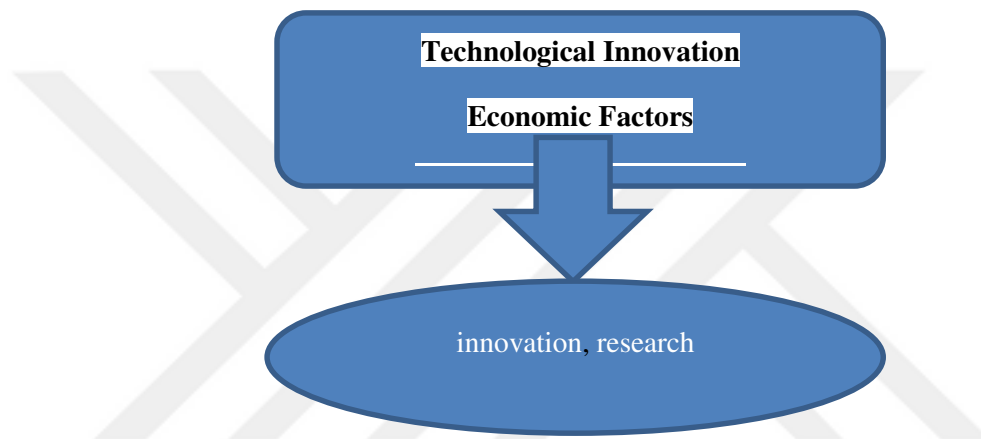


Figure 5. Synthesis of External Factors

One way to spot and analyze developments within the external environment is to use the matrix of priority problems (see figure 4) as follows:

1. determine a series of potential trends arising in a natural, social group and necessary environments. These are strategic environmental issues, those necessary trends that, if they occur, represent trade or the world within the close to future.
2. Assess the likelihood of those trends, from low to medium.
3. try and ensure the potential impact (at least to the top) of every one of those trends on the institution being examined.

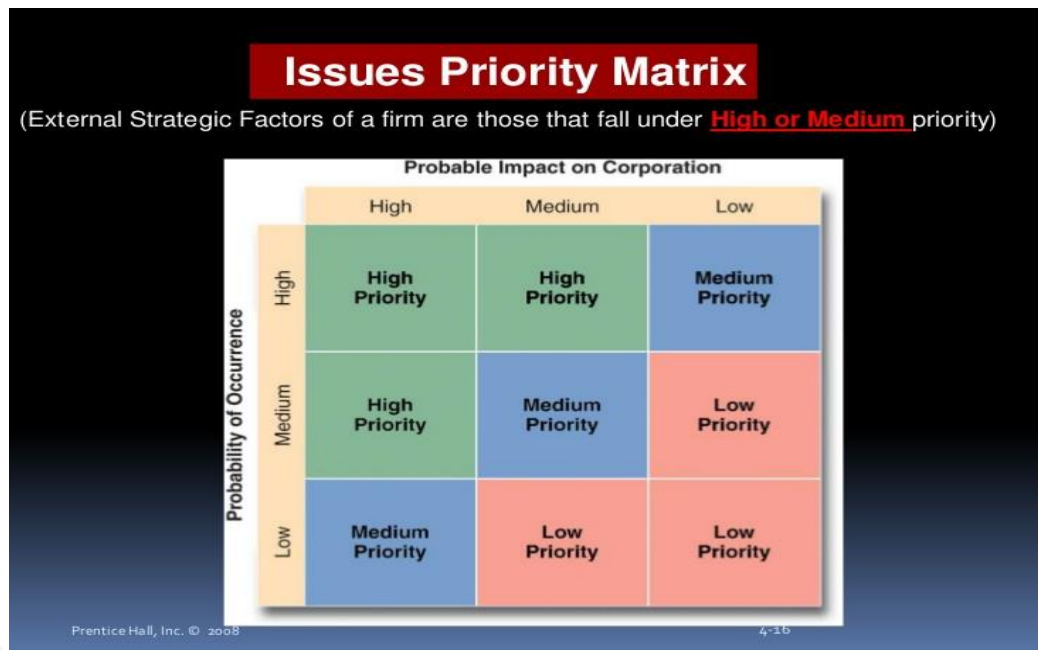


Figure 6. Issues Priority Matrix

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1.4.3.4. Internal Scanning

The internal environment is outlined as all factors and strengths at intervals the organization that have an on the spot impact on their performance and are mostly associated with their activities like structure parts (structure, objectives, policies, etc.), marketing parts (product, pricing, distribution, etc.) (Technology, research and development, warehouse management, etc.) and private individual parts (labor relations, training programs, performance appraisal, structure culture and human resources). The internal survey involves looking into the Duhok Polytechnic University and identifying strengths and weaknesses and evaluating the University's resources and management skills. It is part of the strategic management process. Strategy overview planning for the study is available and how to conduct an internal survey of the planning process. The Internal business survey consists of the following three categories:

1. Innovation and Research – What are the unique strengths and limitations of your job?
2. Individual Person – What are the unique skills and constraints of each person involved in management?

3. Individual Institutions – How will each institution compete in the market?

What are the determining factors determining the success or failure of each institution?

The internal scanning includes analysis of the Duhok Polytechnic University, identification of strengths and weaknesses, analysis of university resources and management skills. Identify and prioritize and manage resources (for example, people, systems, space, budgets, contracts) to improve productivity and provide solutions. Individuals are a very vital resource for innovation and competitive advantage. Notwithstanding they're not vital in some industries, they're necessary to develop and implement company ways. In fact, thanks to the importance of gifted workers, there's currently a world marketplace. As Richard Sunshine State argues, where talent, innovation, creative thinking, and economic process go, it'll without a doubt continue (Ireland, at all, 2007, p.74).

Resources

Assets that are the building blocks of an organization these include:

- Physical assets (plant , location ..)
- Human assets (employees and their skills)
- Organizational assets (structure, culture, reputation)

Capabilities

A institutions ability to exploit the above resources: these comprise business processes and routines that manage the interaction among resources to turn input into output.

1.4.3.5. Value Chain Analysis of University Business Model

According to Porter, the company's business is represented as a worth chain, with total revenues minus the entire costs of all the activities meted out to develop and organization the worth of the merchandise or service. All corporations in an exceedingly specific business have an identical value chain, which has activities like access to raw materials, product style, construction of producing facilities, development of collaboration agreements and delivery of client service. The corporate is profitable as long because the total financial gain exceeds the entire costs incurred to establish and deliver the merchandise or service. Corporations should attempt to know not only the processes of their value chain however also the worth chains of their competitors,

suppliers, and distributors (David, 2011, p.119). Value Chain Analysis refers to the method by that the combined costs are determined related to academic activities, innovation, and research from the procurement of materials needed to educate students and their development of high competencies. The Value Chain Analysis aims to work out wherever the benefits of low-priced or defects exist anyplace on the value chain of materials required to serve student activities. Value Chain Analysis will enable the Duhok Polytechnic University to raised determine its strengths and weaknesses, particularly when compared to worth chain analyzes for competitors and their own information that is checked late, before time runs out. A large judgment could also be needed within the Value Chain Analysis procedure as a result of completely different components on the worth chain might have an effect on different elements positively or negatively, thus there are complicated relationships.

For example, special client service could also be particularly expensive nonetheless might cut back revenue prices and increase revenue. Price and value variations between competitive universities will have a plus within the activities they perform suppliers, distributors, creditors or maybe shareholders. Despite the complexness of Value Chain Analysis, The first step in implementing this procedure is to divide the University's processes into specific processes educational activities or processes. Then the computer program tries to connect a price to every separate activity, prices will be in terms of your time and cash.

1.5. Situation of Duhok Polytechnic University for Research& Development

Duhok Polytechnic University of Applied Arts (unofficial DPU) could be a university analysis university placed in northern Iraq. It's developed quickly and has seen a continuing change within the instructional wants of society. Enrollment rates and variety of establishments in instruction have multiplied considerably within the last decade. DPU, a multi-campus state university, has eight technical institutes and four technical faculties in seven districts inside the Duhok Polytechnic University, every with a singular community with native wants for economic, social, cultural and environmental development. Duhok Polytechnic University, based in 2012, is one of the three technical school universities in northern Iraq below the auspices of the ministry of upper education and research.

In order to enhance the educational direction of Duhok Polytechnic University, it needs an academic staff with modern scientific and practical skills. Among the many civic and government universities in Duhok Polytechnic University, always tries to focus on practical and training aspects, as well as theoretical and scientific aspects. The university consists of eight institutes and six colleges divided into seven branches in Akra, Amidi, Zakho, Shekhan, Bardarach, Shankal and the main building located in the center of Duhok province. Our colleges and institutes are located in the centers of the regions mentioned above, which have helped our university to train and graduate faculty members in many disciplines, including health, engineering and management, as well as computer science.

The University and its staff have contributed greatly to the development of the areas where they are located. Conducting a research project is one of the most necessary tasks every academicians should undertake. While not analysis, we are going to not love the web, mobile phones, electricity, cars, light-weight bulbs, telemedicine, robots, airplanes, and different necessary inventions that modification our mode. Additionally, we tend to recently participate in several sciences, technology, art so on. Many innovations and innovative concepts don't seem to be conferred within the fields. As an example, my analysis continues in network engineering, a revolution in wireless communications, the web of Things and AI algorithms. Analysis isn't restricted to educational establishments, wherever the biggest trade conducts analysis to seek out solutions to existing issues within the sector or to find higher future solutions.

1.5.1. SWOT Analyses of Duhok Polytechnic University

SWOT analysis has become a standard tool for strategic planning in education, however it's still the foremost effective way to determine the potential of an institution. SWOT will be divided into components: an indoor analysis that focuses on the performance of the organization itself and also the environmental analysis. The exercise of strength and weakness is basically an internal audit of the effectiveness of a corporation. The threat and chance aspect focuses on the external or environmental context during which the institution operates. The SWOT analysis aims to supply a small range of key areas below the headings: strengths, weaknesses, opportunities, and threats. The target of the exercise is to increase strengths, reduce weaknesses, cut back threats and seize opportunities. The SWOT activity can be improved by making certain that the

analysis focuses on each customer's requirements and also the competitive context during which the organization operates (Sallis, 2002, p.123).

SWOT Matrix is an important correspondence tool that helps managers develop four kinds of strategies: therefore (Strengths and Opportunities), WO strategies (Weaknesses and Opportunities), ST strategies (Strengths and Threats), WT strategies (Weaknesses and Threats). Three External and internal coincidence factors are the foremost tough half within the development of a SWOT matrix as a result of it needs common sense, and there's no set of the most effective, therefore, WO, ST and WT game strategies, respectively.

SO strategies use the company's internal strengths to require advantage of external opportunities.

WO strategies aim to enhance internal weaknesses by taking advantage of external opportunities. Generally there are nice external opportunities, however, the company has internal weaknesses that forestall it from exploiting those opportunities.

ST methods use the company's strengths to avoid or minimize the impact of external threats. This doesn't mean that a powerful organization should address threats within the external environment directly.

WT methods are defensive techniques geared toward reducing internal vulnerability and avoiding external threats. A university that faces several external threats associated with internal weakness is also in an unstable situation (David, and David, 2016, p.251-252).

SWOT analysis is the basis of the strategic management process. It's used to assess opportunities and threats within the environment. From the Institute of Higher Education: however, they can contend for resources and staff Students compared with different institutions? Is there any imminent sign? Danger ? Are there new opportunities and opportunities visible? Additionally, the strengths and weaknesses of the organization are noted and therefore the question will be answered regarding the efficiency/inefficiency of the institution to meet its structural, personal and financial needs. (Nickel, 2011, p.11).

A general description of the Institute's strategic planning and the way the interior survey fits into the look method is available. The internal survey of the University consists of the following categories:

Table 1. SWOT Analysis

	Strengths	Weaknesses
Opportunities	Achieve opportunities that are largely commensurate with the university's strengths.	Overcoming weaknesses to achieve opportunities
Threats	Use your strengths to minimize your university's exposure to threats.	Prevent weaknesses to prevent the institution from being more vulnerable to threats.

Source©Trieloff, W. D. (2010).

Strengths: Strength could be a property that adds value to something and makes it additional private than others. Strength implies that one thing is additional helpful than anything else. In this sense, force refers to a positive, favorable and creative property. Examples of strengths include excellent product quality, high service standards, the availableness of funds, extremely qualified employees and personal expertise (Trieloff, 2010, p.22). Research and innovation center with the ability to produce high quality research. A very rich base of traditional knowledge and sources for research formation. Experienced professors to develop and produce a range of research and innovation at the university and a distinguished university building. Land available for expansion also good relations between professors at the university. Growing growth and turnout in education and scientific research. Increase the order of a particular university /institute, moreover as produce recognition and a solid international reputation. Diversity of scientific research due to the diversity of specialties of faculty members. Modern research is characterized by the efforts of researchers in individual research. Invest some researchers for some scientific missions in different specialized fields and marked development of the titles of theses and doctoral and master's degrees. Evolution in the number of research carried out by members of the faculty.

Weaknesses: Weakness refers to the lack of kind and efficiency needed for something. Weakness means one thing isn't preferred compared to something else. In this sense, vulnerability may be a negative and unfavorable feature. Lack of clear organizational structure also lack of scientific laboratories and scientific tools. Lack of use of technology in many cases, such as medical materials. Weak development of

teachers' capacity for research and innovation through training and the opening of educational courses and weak budget for research and innovation and lack of individual research compared to joint research. While weakness are some things that the institution lacks or does do badly compared to others or is it the condition that place it in Disadvantage (Kazaz and Ulubeyli, 2009, p.192).

Opportunities: chance suggests that an appropriate situation or activity standing. Chance is an advantage and driving force of activity. For this reason, it's a positive and favorable advantage. Increase interest in research and innovation by opening centers. Increased attention in recent research and innovation in the university presidency and establishing of centers to support research and innovation development. Providing the university with many scientific missions, scholarships, and grants for the masters and doctorate abroad. Conditions are favorable and generally arise from the nature of changes within the external environment. The organization should be sensitive to resolution strategic issues and responding to changes, for example, in new markets, technological advances, up economic factors or competitors' failure. Opportunities provide the organization with the power to provide new product, facilities or services or to develop existing product or services (Gane, 2007, p.324).

Threats: A threat could be a situation or condition within which the activity is compromised. It points to a disadvantage. For this reason, your negative property should be avoided. Difficulty in international publishing and the difficulty of the conditions announced by the ministry of higher education and scientific research published in magazines with the influence factor. The threat of increasing harm in times of decline in data technology very little international attention to information technology as a functional possibility has the potential to cause unexpected damage to separate college information systems. A collection of data systems integrated into another faculty, such as commerce or accounting, is best able to absorb the shortage of demand, as employees will move a lot of simply in connected areas. Additionally, low financial gain is often quenched through information systems courses wherever information systems represent only a little a part of a bigger faculty. The impact of the recent decline in information technology is exacerbated by administrative isolation and specialization within the college of data Systems (Gable, Kwahk and Green, 2007, p.16).

1.5.2. Initiation of Duhok Polytechnic University; Education, Research, and Outreach

Talking about modern Education, Research, and Outreach Strategies do not mean dealing with old, traditional, or classical teaching strategies since many strategies are merely a quotation or development of existing and past strategies, and considering that old or traditional teaching strategies do not mean that they are strategic no longer usable. The start of the strategy supports the regional spread of universities and university columns in the context of decentralization, keeping pace with quantitative development in higher education and developing the number of students according to major disciplines in response to the need of the framework.

-Education: Developing framework through training in research and innovation. Appointment policy and support of internal universities. The development of university services, quality support, psychological coverage of students and the intensification and diversification of cultural and sports activities at the university.

-Research: All the steps taken by the researcher from the beginning of the study and after determining the objectives or the purpose of the study and until the completion to achieve all the objectives of the study, which may be testing a hypothesis or finding solutions to the problem.

-Outreach: To build a customer audience around your brand or deliver specific content to an existing audience of potential customers by using social media such as Facebook, Twitter, LinkedIn, Google Plus, and others. You aim to create awareness or raise awareness about the brand that it represents, after the target audience to interact with the content presented by the participation and dissemination of content and attractors for the university (interview with Dr.Shivan).

1.5.3. Generating Alternative Management Strategies (SWOT Matrix) for Research & Development at Duhok Polytechnic University

SWOT Matrix is a relatively simple tool for generating strategic options. By using it, you can look smartly at how you can take advantage of your opportunities, while minimizing the impact of vulnerabilities and protecting yourself from threats. Use after detailed analysis of your threats, opportunities, strengths and weaknesses, and help you think about how to use the external environment of your strategic advantage, and thus identify some of the strategic options available to you. The next analysis step, which is

usually associated with a SWOT matrix that focuses on the outside, helps you think about the options that you can follow. To do this, match external opportunities and threats with your internal strengths and weaknesses, as shown in the SWOT matrix below.

Table 2. SWOT Matrix

Internal External	Strengths: List 5 – 10 <i>internal</i> strengths here	Weaknesses: List 5 – 10 <i>internal</i> weaknesses here
	SO Strategies Generate strategies here Who use force to take the opportunities	WO Strategies Generate strategies here that take advantage of opportunities by overcoming weaknesses
Opportunities: List 5 – 10 external opportunities here	ST Strategies Generate strategies here that use strengths to avoid threats	WT Strategies Generate strategies here that minimize weaknesses and avoid threats
Threats: List 5 – 10 external threats here		

Source: Reprinted from Long-Range Planning, Vol. 15, No. 2, 1982, Weihrich "The SWOT Matrix—A Tool For Situational Analysis," p. 60. Copyright © 1982 with permission of Elsevier.

Generate a series of potential strategies for a university or business unit in mind based on specific teams of 4 working groups:

1. **SO Strategies** Operating system strategies are created with business methods or university units in mind. Your strength can be used to seize opportunities.
2. **ST strategies** are the strengths of an organization or unit as a means of avoiding threats.
3. **WO Strategies** tries to seize opportunities by overcoming weaknesses.
4. **WT strategies** are primarily defensive and work primarily to reduce weaknesses avoid threats (Wheelen and Hunger, p.183).

Strengths and Opportunities (SO). In general, successful universities rely on their strengths to take advantage of opportunities. The University is no exception to its strengths and opportunities has enabled the University's strengths to offer a new opening business development and planning section. In the end, the university has been empowered by the same strengths of investment and the provision of many jobs through the opening of the new departments, colleges and institutes in another tactical move, is expected to increase and interest in research and innovation through the use of expertise in these areas and the opening of research centers and Innovation and also develop

relations with other universities at home and abroad to gain more experience for research and innovation development (Aslan, Çınar and Kumpikaitè, 2012, p.102).

Strengths and Threats (ST). This strategy builds on the strengths of a university which will address threats to the environment. The goal is to maximize the primary whereas minimizing the latter. This, however, does not mean that a strong institute will face threats within the external environment directly. The lesson to be learned is that strengths ought to be used a lot of usually with restraint and discretion (Weihrich, 1993, p.7). Also once governments use internal strengths as a tool to scale back external factors that threaten their performance or competitiveness (Alaaraj, and Hassan, 2014, p.7).

Weaknesses and Opportunities (WO). Indicates that you will find options that overcome weaknesses and then seize opportunities. Do, you can mitigate weaknesses, seize opportunities. The combination of matching weaknesses in business organization with external opportunities is included in WO strategies. When an organization tries to overcome internal weakness with the help of external opportunity, the WO strategy becomes useful. For example, when a university faces a severe financial crisis, it becomes a weakness that is commensurate with the external opportunity to merge with another university.

Weaknesses and Threats (WT). Reduce internal vulnerabilities to avoid external threats (defensive strategy solely, worst case scenario). Different strategies were developed after exchanging ideas and commercialism with them. Department heads and college members.for every strategy developed, SWOT mixtures are enclosed to make an evident logical result (for example, S2, O1 means that power number three and opportunity no 1 are primarily considered). To more alter the analysis, only the primary The strategies of every strategy block are known and displayed within the SWOT matrix (Agarwal, Kothari, Bhat, Chaudhari, Gupta, Bendale and Luftman, 2012, p89).

1.5.4. Research&innovation efficiency and quality improvement at Duhok Polytechnic University

The conduct of scientific research is one of the most important tasks that every faculty member must perform. This is reflected directly in the relationship between publication and the number of faculty members, which has a significant impact on the university's classification. Without research, we will not benefit from the Internet, mobile phones, electricity, cars, light bulbs, telemedicine, robots, planes and many other

important inventions that have changed our way of life. In addition, many inventions and innovative ideas are yet to be presented in the near future in various fields of science, technology, the arts, and so on. For example, in my field of research in network engineering, a revolution in wireless communications, the Internet of Things and artificial intelligence algorithms is already underway. Research is not limited to academic institutions: the larger industry is also conducting research to find solutions to their current problems in the sector or to find better solutions for the future.

The research has a significant impact on the University's rating and reputation. In addition, it solves critical issues that can improve our lives in many areas medicine, engineering, pure science, arts, agriculture, veterinary medicine, etc. This important role of scientific research in the development of our country led to the idea of creating a deanship of research in our university. The DPU Research Center was established in 2017 to serve as a point of contact between the Duhok Polytechnic University and governmental and non-governmental organizations that reach DPU for cooperation, advice or project funding.

The DPU University Science Research Center has started to establish research centers at colleges / institutes and research groups to stimulate interdisciplinary research activities, as well as to support governmental and non-governmental organizations through consultations. Academic, training and implementation of project services. The research centers and colleges of the DPU work under the umbrella of its university research center. The DPU Research Center is aware of all of the University's research activities in order to direct a specific project fund to the research group or research center of the faculty concerned. It is necessary to have a central knowledge of all of the University's research activities in one entity in order to be able to coordinate between research groups and to activate interdisciplinary research activities. (<https://www.dpu.edu.krd/web/page/en/242/>)

We have developed numerous regulations that encourage our DPU researchers to submit their articles in prestigious journals and at a reputable international scientific conference. Even with our doctoral students, we provide them with all the necessary facilities to publish high quality publications. Our goal is to ensure that all our employees contribute to the process of publishing high-quality papers and opening up modern laboratories that can help our researchers as well as our doctoral students. Quality improvement has become an important element of higher education. Not keep avid

volunteers, however a part of the everyday life of all participants in coaching, education, and analysis, and has become a legal obligation in several countries. There are several reasons why it's necessary to boost the quality of education, together with enhancing the responsibility of faculty and managers, resource efficiency and identification. Reduce learning mistakes whereas increasing the employment of effective care, developing learning, rising results, and adapting what users need and wish. Quality will be improved while not being measured – as an example, through specialized education programs like a vocational education program for internal and referral of future care through guidance. Additionally, there are ways in which to assess quality while not resorting to tough quantitative measures like quality indicators (Campbell, Braspenning, Hutchinson and Marshall, 2002, p.358). The required quality consists of components and quality characteristics; research & innovation workers can complete the standard planning (planned quality determination of the required qualities) and quality style (style objectives for quality characteristics) within the job. Dissemination of systems to research however final product quality characteristics are achieved: research & innovation workers can define the ultimate product style specifications because the target, and define the expected style specifications for the system characteristics. Deployment of system parts and their relevance Subsystems: research & innovation workers will determine the elements and characteristics of key materials and propose a accomplishment system as well as quality assurance needs for Subsystems sellers (Shiu, Jiang, at all, 2013, p.92).

1.5.5. Strategic Variables at Duhok Polytechnic University

The Duhok Polytechnic University (informally DPU) offers a wide range of curricula leading to diplomas (degrees) and bachelor's degrees in science. The curriculum is developed under the supervision of quality assurance. New programs are put in place when staff, space, facilities and equipment are purchased. The programs are designed to meet government strategy and market needs. DPU is currently developing a strategic plan in response to the National Authority for International Academic Assessment and Accreditation. Therefore, they are committed to academic improvement, and establish relationships with international universities through memorandums of understanding have already been some of them effectively signed. We have already drawn our attention to the present problem. They explained why body decisions aren't random, however rather native in relevance expected effects on performance. It's necessary to notice that Hamilton

and Nickerson (2003) indicate that, despite the central focus of internal decisions in our literature, some articles printed within the Journal of Strategic Management are corrected for endogeneity. For our field, it's essential to manage this failure and therefore have confidence all the acceptable ways to regulate a possible threat that conjointly represents a contribution to the combination technique aimed toward treating a sort of blending. This technique is understood because the "two-step Hickman procedure" or "Hickman correction" that has deeply altered applied analysis within the social and activity sciences (Bascle, 2008, p.286).

1.5.6. Research & Innovation Efficiency at Duhok Polytechnic University

Innovation and creativity in research is one of the basic necessities in business administration and institutions, especially in educational institutions because time is on the rise, needs and aspirations in ways – on different types and types – the other to grow and expand, not enough to continue or growth is not enough; About the accelerated knees forward. To ensure that they remain strong and effective, successful institutions must not stand in the way of efficiency, in the sense that they must be convinced to perform their functions properly or to fulfill their duties placed on them honestly and faithfully. In other words, in order to be a creative and creative institution, innovation, creativity and innovation have become the hallmarks of its performance and the development of research and overcome obstacles, and aspirations to the highest levels and aspirations to the highest level to be ideas, performance, services and goals. We may define creativity as new, useful and relevant ideas for an ideal solution to specific problems, developing methods or goals, deepening the vision, or aggregating or reconstructing known patterns in management behaviors into distinct and sophisticated forms that only push innovation forward. It is not materialized in action, so it can be said that true creativity is in creative work, not in thinking, although creative work is preceded by creative thinking. the means it are often created to look if you have the need to try and do it, and if you've got the “design specification.” For its major element is that the organizational capability to introduce, to solve issues, to have great ideas, to develop new ways that of doing things – even though there isn't a particular “problem to solve. If innovation will become your organization's “core ability,” then this actually confers the final word competitive advantage (Sherwood, 2002, p.3).

Ability to develop new innovative and viable products or services. Who solves a problem or addresses a desire, and will therefore profitably, Requires: teamwork, embracing the structure culture contradiction in terms, extraordinary driving mentality (Edmondson, 2013, p.3). According to Freeman's innovations, in different words, it consists of a collection of technical, industrial and business processes. Therefore, it simply cannot be defined as easy linear forms. Before the Nineteen Eighties models introduced within the innovation method, it absolutely was based on a simple linear thinking process that began with basic research, that ultimately led to the creation of ideas and also the production of a brand new product or method, however it absolutely was given to a wider investigation and additional thorough investigations on the important behavior method. As a result, different complications cannot be summed up in a very linear method, therefore, non-linear processes were evaluated and lots of researchers tried to identify innovation processes (Tohidi and Jabbari, 2012, p.1).

According to Howard and Guile (1992), innovation is defined as: "The method that begins with an invention continues to develop the invention and ends up in the introduction of a brand new product, method or service within the organization (Mujumdar, 2007, p.6). The innovation model often dominated thinking about building innovation in public policies, academic institutions, industrial enterprises, and companies. In this model, it supposed to contribute to scientific research and technological development in commercial activities and push industrial development and growth results (Orstavik, Dainty and Abbott, 2015, p.2).

The innovation that have a magical impact on the self make it attract attention and what it holds Innovations, creativity , change and problem solving are unusual. The word in all areas of life to indicate excellence in work in general. Innovation is these days a dominant issue each in academic literature and in political debates. It plays a key role in university strategies. It's a necessary part of growth and competitiveness policies. It's essential for several university programs. Innovation has become a vital space of study in social science and management studies, sociology, science and technology, and history. Cases, empirical models, estimated analyzes and formal theories abound. In economics, totally different ways have been developed to examine innovation, starting from the neoclassic model to organic process theory, from a lot of institutional approaches to the opinions of the innovation system (Malerba and Brusoni, 2007, p.1).

There is no doubt that the twentieth century will be credited with a century of innovation. The building may not have seen Roman pyramids, canals, or the birth of the Italian Renaissance, but there were great achievements that made a big difference in the way communities lived and communicated with them. If all innovations help society achieve an improved lifestyle, it will remain stable (Gaynor, 2002, p.1).

Make sure that a number of people ask about innovation, including theorists for innovation, many studies on innovation are published every year; however, there's no serious study on the concept of innovation. For many people, Innovation is usually smart. Critical appraisal is rare. Don't be the innovator deserves the same condemnation as a religious person. I've done it within the past. Rephrase in imagination and innovation these days "Popularly considered an excellent gift. People, even institutions, they are criticized for not being innovative enough (Godin, 2015, p.2).

The concept of innovation systems as we tend to currently are aware of it was developed by several researchers within the late eighties and in the early Nineties. Originally developed as a concept to grasp and explain the differences in economic growth between countries quickly adopted an innovation policy. Within this political arena was the concept of innovation systems it is in the main used in program development or as a policy implementation tool. Excellent action for innovation systems. As a political tool, it had been a part of the discourse on growth policy, a method that began within the late Nineties, and work on OECD national innovation systems within the Nineties was vital to simply accept the innovation perspective (Danilda, and Granat, 2011, p.26). The fifth dimension of the apple of education represents explicit variations within the distinction between innovations supported recent research:

1. The amount of address
2. Focus on the idea versus the activities
3. Individual versus community approach
- 4 .The extent to that the concept is treated in design mode versus belief mode.
5. Extend the scope of residence to incorporate external restrictions like official and market necessities and common instructional beliefs (Bereiter, Carl, and Scardamalia, 2008, p.67).

Several innovation studies have revealed repeated patterns in how new technologies emerge, evolve, adopt and replace with other technologies. We begin by examining the technological curves (Schilling, 2010, p.51). In fact, several institutions

are distinguishing new strategies to take advantage of the principles of open innovation, exploring ways that within which external technologies will fill gaps in their current business and take into account however their internal technologies can sow the seeds of new institutions outside the institution. Current . In doing thus, several institutions have focused their activities on one in all the 3 main areas: financing, generation or exploitation of innovation (Davenport, Leibold and Voelpel, 2007, p.139).

1.5.7. Quality improvement at Duhok Polytechnic University

Extremely long, about them expressed the actual fact that we have a tendency to feel a deeper relationship with them than cost or productivity. Thus, higher quality is simpler compassionate and accept, and difficult to reject from the call to reduce cost or increase productivity. Though we have a tendency to could emphasize "quality first" and emphasize the importance of making a "quality culture", for example, we have a tendency to don't normally use the terms "cost culture" or "culture of productivity". "Quality, therefore, is that the center of integrated management quality. Ideas were developed for a protracted time, not till the Nineteen Thirties wherever Dr. Walter. Shew hart discovered the importance of quality in modern trade and its management ways from a wholly new perspective. Within the Nineteen Fifties, Dr. Schwart applied philosophies and internal control techniques to assist postwar Japan gain quality leadership within the world market. Spread apace throughout the world and evolved rapidly (Shiu, Jiang and Tu, 2013, pp.1-2).

Everyone can help create communities higher places to live and work. The method of improvement needs proactive participation by all members of society creative associations, neighborhood associations, government bodies, spiritual organizations, and academic establishments like coaching, teaching and efficiency research and innovation, corporations and businesses (Bauer, Duffy and Westcott, 2006 ,p.19).

To stimulate innovation, new approaches are needed to give the private initiative more space, more incentives and less reliance on direct financial support from the government. The stagnation of research spending may have implications for long-term innovative capacity in some economies. Governments must respond by avoiding underinvestment in research and innovation. Some governments have increased public investment in research and development (Finland, Japan); others have increased the efficiency of public support by emphasizing use and linkages rather than specific

programs. At the same time, these responses should not be reciprocal: increasing public investment can be combined with efforts to increase subsidy efficiency. Innovative market-driven processes must be based on a strong knowledge base, which is found primarily in the "scientific system": scientific research carried out in academic and public research institutions with significant government support. Public science contributes to health, the environment, and national security, as well as general advances in knowledge and quality of life. Scientific progress is also a source of technical innovation. The industry uses university and government research to a large extent, either directly through joint research or obtaining patents and licenses, or indirectly through public research results. Companies also rely on the scientific base of trained personnel and access to methods and techniques.

An increasing number of industrial patents refer to basic scientific literature as a source of knowledge. In some areas, such as biotechnology, scientific research is the main source of innovation, so there is a distinction between science and technology. In all sectors, the innovative process is increasingly characterized by reactions between the scientific base and the various stages of technology development and commercialization (OECD, 1999, pp66-67).

1.5.8. Innovation and the field of activity at Duhok Polytechnic University

Another distinction is created to the term innovation consistent with its field of activity.

1-Product innovations: developments related to providing in quantity, quality, time and earth science. The goal of product innovation is to take advantage of and attain within the market.

2-Innovation method: Developments in worth Creation Process. The goal of the innovation method is to extend unskillfulness. The most famous example is the production of belts and rules additional trendy and timely.

3-Social innovation: developments within the human context, particularly within the administrative and structure systems of the Organization. Social innovations brought the correct to vote for all, human rights and, on the opposite hand, communication demand work, self-service retailing and changing operating hours.

4- Management innovations are ways, departments, profit center, matrix, changed production, total quality management, reengineering, etc.

5-Personal innovation: learning, the new orientation of the individual. This happens chiefly when an amount of failure or depression and at some stages of personal maturity. Within the case of innovation, the individual renews his definition of his values.

6-Value Innovation: a new kind of marketing and business strategy to discover a new space within the market. The tactics to present known things from a replacement perspective, especially to the end-user. From there, a vision was developed to enhance the product/service, etc., that was then created to become a replacement product offered on the market (Berndt, 2013, pp.9-10).

Scientific research is a stone on which the developed and developing countries of the world are based it is relationship with scientific research, and the consequences of this in the development of scientific and improve its quality and the introduction of modern methods and techniques in the research and administrative activities of the university, has a major role in the development of this development and increase its contribution to the enhancement of knowledge in society. Intensifying research and investment in innovation and scientific research has become an urgent necessity and one of the cornerstones of development and progress.

Investigate a methodology with a view to ascertaining the validity of facts, or establishing new facts, provided that scientific methods and methods are followed during the conduct of scientific research and the preparation of reports and results. Types of scientific research: A) Theory ethical research B) Applied Research. In addition to the education features that have an effect on research, there are they are additional aspects of education research as a field that helps clarify the nature of scientific research in education. The attitude of academic analysis as an institution refers to a number of the infrastructure support that supports it, a problem that we tend to take into account within the federal role in supporting academic analysis. Three of those educational analysis characteristics are noteworthy during this regard: their knowledge domain nature, moral concerns, and their dependence on relationships with education practitioners (Towne, Lisa and Shavelson, 2002, p.91).

1.5.9. Skills for innovation at Duhok Polytechnic University

Educational policies to foster innovation targeted on increasing participation within the disciplines of science, technology, engineering, and mathematics. A lot of

recently, an additional comprehensive vision of innovation has emerged that acknowledges the contribution of a wider range of skills and disciplines. While specialists in science, technology, engineering, and mathematics are beyond any doubt vital sure as shooting styles of innovation, specifically, technological innovation, government policy should extensively analyze the abilities utilized in the innovation method. Worker surveys with third-grade studies show that innovation needs a large range of skills. There flex International Survey, that interviews graduates 5 years once graduation, shows that innovative staff (known as those operating in an organization that innovates and co-sponsors these innovations) report the employment of all types of skills in their jobs rather than his works. Non-innovative counterparts Among the self-reported use of skills that distinguish over non-innovative employees they're "bringing new ideas and solutions" (creativity), "willingness to brainstorm" (critical thinking) and "the ability to gift new ideas or product to the general public (López, 2016, p.22).

Current issues facing the research function and its surroundings include equity, quality, relevance, possession and international networks. A growing number of nations of various sizes. They have currently prioritized the development of their knowledge base through teaching, research and innovation, and also the allocation of resources to achieve this goal. Success stories became More common altogether regions, and presents specific indicators:

1. Innovative policies in teaching, scientific research, science, technology and innovation.
2. Temperament to enhance the mandatory infrastructure and profile, including universities.
3. Efforts to coach retain and attract extremely qualified human capital.
4. Increase investment levels in research and better education (Meek, Teichler, and Kearney, 2009, p.12).

O'Neil & Schechter (1997) found that propose a problem-solving model, which has these four basic elements: "Understand the content, problem-solving methods, metacognition, and motivation", understand the content and therefore the drawback resolution strategies are domain-specific; whereas behind motivation and motivation there are independent domain structures (Aljaberi, Nahil, and Gheith, 2015, p.123). Both are necessary parts in problem-solving, particularly in solving everyday problems which will not have clear solutions and require thought of other solution methods and

competitive objectives. In such cases, problem-solving is also additional probably to resolve the matter if they're conscious of them and might use this awareness to manage and regulate the problem-solving process (Lee, Teo and Bergin, 2009, p.91).

1.5.10. Research and Innovation Systems at Duhok Polytechnic University

Innovation systems will have a diverse range (international, regional, national or local) and probablyIt has totally different structure and institutional components:

-**university** are formal structures that are consciously created with a clear objective,

Therefore, they're the most actors concerned.

-**institutions** will be defined as frameworks for standards, norms, legislation and routines.

Invent the principles of the sport a total of crucial activities that take place in these systems were identified through the Forum discussions:

1. Financing innovative processes to facilitate knowledge.
2. Capability development to create a extremely qualified workforce to be used in research and development.
3. Establishment of recent product markets.
4. Quality assurance mechanisms.
5. Promote creative organizations that promote entrepreneurship and improve infrastructure to market innovation.
6. Communicate through markets and mechanisms with interactive learning between the establishments concerned.
7. Institution of enabling establishments that facilitate innovation tax and rights laws, investment in analysis and development, sound safety and environmental standards (Meek, at all, 2009, p.14).

1.5.11. Community development at Duhok Polytechnic University

Community development as a process of building a strong and distinguished society in many different areas and diverse, and that is by strengthening and empowering members of the community by providing them with the things that these individuals need so that they can accomplish the skills, science, knowledge, life and scientific and practical experiences in addition to money and possibly head Money able to achieve and build

special projects for each member of the community with great abilities and possibilities and creative and productive ideas. In building communities from the within out, Kretzman and McKnight (1993) describe an alternate approach, that acknowledges that it's the capacities of native folks and their associations that build strong societies. The popularity of those capacities begins with the development of a brand new lens through that communities will "begin to cluster strengths into new teams, new chance structures, new sources of financial gain and management, and new production possibilities (Mathie, Alison and Cunningham, 2003, p5).

The contribution of dialogue, defined as collective thinking, is to assist institutions to produce associate degree environment contributory to bigger cooperation, liquidity, and sustainability. It helps to promote structure learning. Because he fears to not reduce differences, however, work creatively with the chance that diversity should question the established order and develop new ways that of thinking and doing (Kirk, Philip and Shutte, 2004, p.239).

Then, "asset-based community development" deserves more definition. This process can be defined by three Simple by interrelated characteristics:

1. it's clear that the primary principle that defines this method is that it is "asset-based". This implies that this society exists in society, the capacities of its inhabitants and staff, and also the institutional and institutional base of the region, not with what's absent, with what's problematic or with what society wants.

2. as a result of this community development method depends on the assets, it's essentially "internally centered." In different words, the event strategy focuses initially on building the agenda and problem-solving capabilities of native folks, local associations, and native establishments. Again, this intense and aware internal focus isn't meant to diminish the role via by external forces to assist produce desperate conditions for low-income neighborhoods, or the requirement to draw in extra resources to those communities. Rather, this sturdy internal focus aims to stress the priority of native definition, investment, creativity, hope, and management.

3. If community development is predicated on assets and is concentrated internally, it'll be vital "relationship-driven". Therefore, one amongst the most challenges for developers gathered in assets is to create and make the relationships between native folks, local associations, and native establishments (Kretzmann, John and McKnight, 1996, p.27).

A/Implementation discussion Improving structure effectiveness will improve performance and increase the worth of an organization. The organization implements an associate degree e-learning system that supported the knowledge society to improve information accumulation, interactive participation, skills learning, and operations management, with the expectation that it'll improve learning and overall performance among the corporate. This case study examines a company that manages and uses the data community to work out if the e-learning system is actually rising the productivity of the corporate.

B/ Critical success factors analysis Critical success factors are often considered some variables. It's additionally thought of as some key areas of business operations. The decisions and efforts of the ceo to deal with these important factors can have an effect on the performance of business operations and their property competitive benefits. To constructal a booming information society inside the corporate, you need to take into account the spread of things. Most of those factors involve the organization and management of staff, others check with the system getting to benefit from an operating information society (ChenRuey and Hsiang, 2007, p.582).

Research Design – General overview

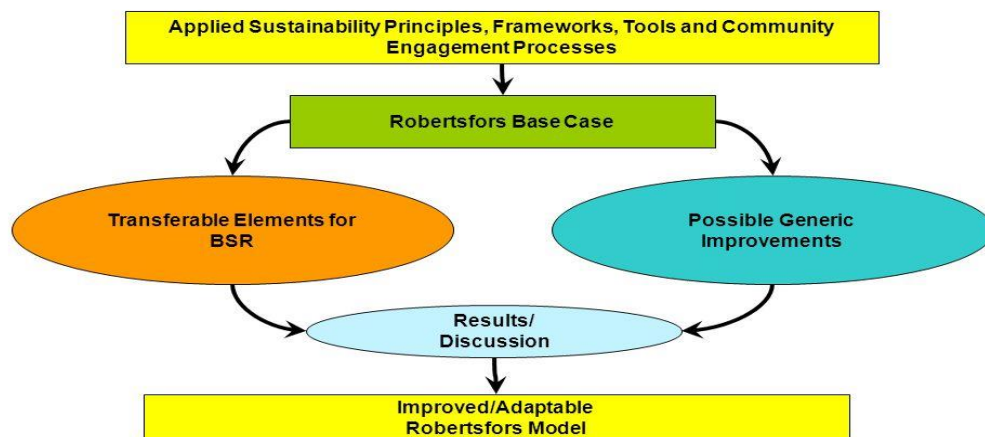


Figure 7. <https://www.google.com/url?sa=i&source=images/> Success Factors for Sustainable Community Development (2/10/2019).

1.5.12. Communication between Stakeholders for Research & Innovation at Duhok Polytechnic University

As we learned when operating with people in real business, the concepts required for social amendment comeback from human communication. As way as we all know, the concepts that are adopted within the market never originated in one person's mind: communication and compatibility are as necessary because of the ideas of the individual. Visions of this, market players are encouraged to communicate to create concepts they sell and customize them externally. We have additionally learned the importance of role-playing: the communication during which participants, including people that invent and deliver products/services, who consume them and who invest in them, play they are completely different roles within the market. The use of role-playing in an innovative market game permits players to have interaction in communications that diverge and specialize in concepts. The roles correspond to the various actors concerned within the method leading to innovation. Some stakeholders specialize in thinking about new ideas, while others focus on them.

Networking between role-playing among stakeholders is like exchanging roles between inventors and entrepreneurs in the geographical region within the late Nineties, and these inventors were young students who learned cutting techniques at top universities. That they had nice motivation and that they had time to think. It works and doesn't have a lot of cash. These young students usually visited wealthy investors, called Angels, to playgrounds to explain their business plans backed by new technologies and new concepts. Most investors in those days set up their corporations once interacting with and learning from the increasing market. They hoped to create more money by investing in new corporations that were a part of the expanding market. They explored the inventors' plans thoroughly, control discussions, generally offered recommendations, and infrequently invested with cash in promising inventors. The role-playing culture ("inventors" and "investors" during this case) has unfolded to different countries (Ohsawa and Nishihara, 2012, pp.97-98).

It can mean a cost per transaction for the government, a cost per citizen, or reduce operation and maintenance costs. Cost reduction refers to measures implemented by the institution to reduce its expenses and improve the situation. Cost reduction measures may include layoffs, pay cuts, closure of facilities, streamlining the supply chain, downsizing to a smaller office, moving to a less expensive building or area, or reducing or eliminating

external professional services such as advertising agencies, contractors and other things. Focusing on the lot level, maintaining the merchandise and maintaining the facilities costs, give a higher level of knowledge on cost programs compared to ancient volume-based cost systems that generally only provide cost-related cost programs (Drake, Andrea and Ravenscroft, 1999, p.325). "Innovation in cost" could seem sort of a variation: most people within the business world are accustomed to linking innovation with business to make additional jobs and development. However the actual fact that it breaks typical knowledge is exactly why it's the power to rewrite the present rules of worldwide competition. The value of innovation has three faces:

First, competitors began to produce customers with high technology at low cost. For instance, the Chinese industry company first light has placed mainframe computer technology on low-cost servers that function daily platforms for the world's IT networks. This new strategy breaks the traditional belief that advanced technology ought to be restricted to classy products and sectors.

Second, these new international competitors from rising economies provide customers a variety at an occasional price, allowing for associate all-time selection of products in what has been thought of uniform.

Third, rising competitors are moving specialized products to the mass market, challenging the traditional knowledge of concentration ways. Using its low costs to reduce break-even points, They can provide pecialized product at drastically low costs, attempting to open latent demand and convert previous specialized markets into large-scale businesses. If successful, the principles of competition can amendment towards size and price. Trying to open latent demand and convert previous specialized markets into large-scale businesses. If successful, the rules of competition will change towards size and cost (Williamson and Peter, 2010, pp.344-345).

Apparently, policymakers will create firm choices to impose demanding environmental demands as needed from an environmental quality perspective. However, in fact, these decisions might not distort economic structures or financial gain growth. Therefore, policymakers tend to avoid the risk of applications going beyond the environmental technologies of the past within the business branch. This is often as a result of they expect this to guide to excessive prices. Policies create emission reduction requests supported that ought to not exceed the common value of this business branch. The matter is the way to evaluate that stricter applications will not cause a significant

value burden, as a result of at the time of policy preparation, there was no expertise with as technology advances. Sensible expertise isn't offered as a result of firms are not inquisitive about investment within the environment. Technologies mechanically throughout policy development, study prices the consequences of advanced technologies will only be generated through the applying of some demonstration comes to emission sources. For a reliable demonstration project, a technique is required to point the source that represents several different species and also the size of the emission sources in terms of emission reduction prices (Krozer, 2008, p.150).



CHAPTER TWO

2. RESEARCH AND INNOVATION EFFICIENCY

The word innovation is one of the words that have a magical impact on the self make it attract attention and what it holds Innovations, creativity, change and problem solving are unusual. The word in all areas of life to indicate excellence in work in general. Innovation is these days a dominant issue each in academic literature and in political debates. It plays a key role in university strategies. It's a necessary part of growth and competitiveness policies. It's essential for several university programs. Innovation has become a vital space of study in social science and management studies, sociology, science and technology, and history. Cases, empirical models, estimated analyzes and formal theories abound. In economics, totally different ways have been developed to examine innovation, starting from the neoclassic model to organic process theory, from a lot of institutional approaches to the opinions of the innovation system (Malerba and Brusoni, 2007 p.1).

Ability to develop new innovative and viable products or services. Who solves a problem or addresses a desire, and will therefore profitably, requires teamwork, embracing the structure culture contradiction in terms, extraordinary driving mentality (Edmondson, 2013, p.3). According to freeman's innovations, in different words, it consists of a collection of technical, industrial and business processes. Therefore, it simply cannot be defined as easy linear forms. Before the Nineteen Eighties models introduced within the innovation method, it absolutely was based on a simple linear thinking process that began with basic research, that ultimately led to the creation of ideas and also the production of a brand new product or method, however it absolutely was given to a wider investigation and additional thorough investigations on the important behavior method. As a result, different complications cannot be summed up in a very linear method, therefore, non-linear processes were evaluated and lots of researchers tried to identify innovation processes (Tohidi and Jabbari, 2012, p.1).

According to Howard and Guile (1992), innovation is defined as: "The method that begins with an invention continues to develop the invention and ends up in the introduction of a brand new product, method or service within the university (Mujumdar, 2007, p.6). The innovation model often dominated thinking about building

innovation in public policies, academic institutions, industrial enterprises, and companies. In this model, it supposed to contribute to scientific research and technological development in commercial activities and push industrial development and growth results (Orstavik, Dainty and Abbott, 2015, p.2).

2.1. Concept of Research & Innovation Efficiency

Innovation and creativity in research is one of the basic necessities in business administration and institutions, especially in educational institutions because time is on the rise, needs and aspirations in ways – on different types and types – the other to grow and expand, not enough to continue or growth is not enough about the accelerated knees forward. To ensure that they remain strong and effective, successful institutions must not stand in the way of efficiency, in the sense that they must be convinced to perform their functions properly or to fulfill their duties placed on them honestly and faithfully. In other words, in order to be a creative and creative institution, innovation, creativity and innovation have become the hallmarks of its performance and the development of research and overcome obstacles, and aspirations to the highest levels and aspirations to the highest level to be ideas, performance, services and goals. We may define creativity as new, useful and relevant ideas for an ideal solution to specific problems, developing methods or goals, deepening the vision, or aggregating or reconstructing known patterns in management behaviors into distinct and sophisticated forms that only push innovation forward. It is not materialized in action, so it can be said that true creativity is in creative work, not in thinking, although creative work is preceded by creative thinking. the means it are often created to look if you have the need to try and do it, and if you've got the “design specification.” For its major element is that the organizational capability to introduce, to solve issues, to have great ideas, to develop new ways that of doing things – even though there isn't a particular “problem to solve. If innovation will become your organization's “core ability” then this actually confers the final word competitive advantage (Sherwood, 2002, p.3).

There is no doubt that the twentieth century will be credited with a century of innovation. The building may not have seen Roman pyramids, canals, or the birth of the Italian and Renaissance, but there were great achievements that made a big difference in the way communities lived and communicated with them. If all innovations help society achieve an improved lifestyle, it will remain stable (Gaynor, 2002, p.1).

Make sure that a number of people ask about innovation, including theorists for innovation, many studies on innovation are published every year; however, there's no serious study on the concept of innovation. For many people, innovation is usually smart. Critical appraisal is rare. Don't be the innovator deserves the same condemnation as a religious person. I've done it within the past. Rephrase in imagination and innovation these days "Popularly considered an excellent gift. People, even institutions, they are criticized for not being innovative enough (Godin, 2015, p.2).

The concept of innovation systems as we tend to currently are aware of it was developed by several researchers within the late eighties and in the early Nineties. Originally developed as a concept to grasp and explain the differences in economic growth between countries quickly adopted an innovation policy. Within this political arena was the concept of innovation systems it is in the main used in program development or as a policy implementation tool. Excellent action for innovation systems. As a political tool, it had been a part of the discourse on growth policy, a method that began within the late Nineties, and work on OECD national innovation systems within the Nineties was vital to simply accept the innovation perspective (Danilda, and Granat , 2011, p.26).

2.2. Dimensions of difference between innovations

The fifth dimension of the apple of education represents explicit variations within the distinction between innovations supported recent research:

1. The amount of address
2. Focus on the idea versus the activities
3. Individual versus community approach
4. The extent to that the concept is treated in design mode versus belief mode.
5. Extend the scope of residence to incorporate external restrictions like official and market necessities and common instructional beliefs (Bereiter, Carl and Scardamalia, 2008, p.67).

Several innovation studies have revealed repeated patterns in how new technologies emerge, evolve, adopt and replace with other technologies. We begin by examining the technological curves (Schilling, 2010, p.51).

In fact, several institutions are distinguishing new strategies to take advantage of the principles of open innovation, exploring ways that within which external technologies

fill gaps in their current business and take into account however their internal technologies can sow the seeds of new institutions outside the institution. Current. in doing thus, several institutions have focused their activities on one in all the 3 main areas: financing, generation or exploitation of innovation (Davenport, Leibold, and Voelpel, 2007, p.139)

2.3. Quality improvement

Though we have a tendency to could emphasize "quality first" and emphasize the importance of making a "quality culture", for example, we have a tendency to don't normally use the terms "cost culture" or "culture of productivity". "Quality, therefore, is that the center of integrated management quality. Ideas were developed for a protracted time, wherever Dr. Walter A. Shew hart discovered the importance of quality in modern trade and its management ways from a wholly new perspective. Within the Nineteen Fifties, Dr. Schwart applied philosophies and internal control techniques to assist postwar Japan gain quality leadership within the world market. Spread apace throughout the world and evolved rapidly(Shiu, Jiang and Tu, 2013, pp.1-2).



Figure 8. Quality improvement data analysis and quality improvement (3/10/2019).

Everyone can help create communities higher places to live and work. The method of improvement needs proactive participation by all members of society creative associations, neighborhood associations, government bodies, spiritual organizations, and academic establishments like coaching, teaching and efficiency research and innovation, corporations and businesses (Bauer, Duffy and Westcott, 2006, p.19) .

2.4. Leveraging research & development

To stimulate innovation, new approaches are needed to give the private initiative more space, more incentives and less reliance on direct financial support from the government. The stagnation of research spending may have implications for long-term innovative capacity in some economies. Governments must respond by avoiding underinvestment in research and innovation. Some governments have increased public investment in research and development (Finland, Japan); others have increased the efficiency of public support by emphasizing use and linkages rather than specific programs. At the same time, these responses should not be reciprocal: increasing public investment can be combined with efforts to increase subsidy efficiency. Innovative market-driven processes must be based on a strong knowledge base, which is found primarily in the "scientific system": scientific research carried out in academic and public research institutions with significant government support. Public science contributes to health, the environment, and national security, as well as general advances in knowledge and quality of life. Scientific progress is also a source of technical innovation. The industry uses university and government research to a large extent, either directly through joint research or obtaining patents and licenses, or indirectly through public research results. Companies also rely on the scientific base of trained personnel and access to methods and techniques.

An increasing number of industrial patents refer to basic scientific literature as a source of knowledge. In some areas, such as biotechnology, scientific research is the main source of innovation, so there is a distinction between science and technology. In all sectors, the innovative process is increasingly characterized by reactions between the scientific base and the various stages of technology development and commercialization (OECD, 1999, pp66-67).

2.5. Innovation and the field of activity

Another distinction is created to the term innovation consistent with its field of activity.

1. Product innovations: developments related to providing in quantity, time and earth science. The goal of product innovation is to take advantage of and attain within the market.

2. Innovation method: Developments in worth Creation Process. The goal of the innovation method is to extend unskillfulness. The most famous example is the production of belts and rules additional trendy and timely.
3. Social innovation: developments within the human context, particularly within the administrative and structure systems of the Organization. Social innovations brought the correct to vote for all, human rights and, on the opposite hand, communication demand work, self-service retailing and changing operating hours.
4. Management innovations are ways, departments, profit center, matrix, changed production, total quality management, reengineering, etc.
 - A. Personal innovation: learning, the new orientation of the individual. This happens chiefly when an amount of failure or depression and at some stages of personal maturity. Within the case of innovation, the individual renews his definition of his values.
 - B. Value Innovation: a new kind of marketing and business strategy to discover a new space within the market. The tactics to present known things from a replacement perspective, especially to the end-user. From there, a vision was developed to enhance the product/service, etc., that was then created to become a replacement product offered on the organization (Berndt, 2013, pp.9-10).

2.6. Increase scientific research

Scientific research is a stone on which the developed and developing countries of the world are based it is relationship with scientific research, and the consequences of this in the development of scientific and improve its quality and the introduction of modern methods and techniques in the research and administrative activities of the university, has a major role in the development of this development and increase its contribution to the enhancement of knowledge in society. Intensifying research and investment in innovation and scientific research has become an urgent necessity and one of the cornerstones of development and progress.

Investigate a methodology with a view to ascertaining the validity of facts, or establishing new facts, provided that scientific methods and methods are followed during the conduct of scientific research and the preparation of reports and results. Types of

scientific research: A) Theory ethical research B) Applied Research. In addition to the education features that have an effect on research, there are they are additional aspects of education research as a field that helps clarify the nature of scientific research in education. The attitude of academic analysis as an institution refers to a number of the infrastructure support that supports it, a problem that we tend to take into account within the federal role in supporting academic analysis. Three of those educational analysis characteristics are noteworthy during this regard: their knowledge domain nature, moral concerns, and their dependence on relationships with education practitioners (Towne, Lisa and Shavelson, 2002, p.91).

2.7. Skills for innovation

Educational policies to foster innovation targeted on increasing participation within the disciplines of science, technology, engineering, and mathematics. A lot of recently, an additional comprehensive vision of innovation has emerged that acknowledges the contribution of a wider range of skills and disciplines. While specialists in science, technology, engineering, and mathematics are beyond any doubt vital sure as shooting styles of innovation, specifically, technological innovation, government policy should extensively analyze the abilities utilized in the innovation method. Worker surveys with third-grade studies show that innovation needs a large range of skills. There flex international survey, that interviews graduates years once graduation, shows that innovative staff (known as those operating in an organization that innovates and co-sponsors these innovations) report the employment of all types of skills in their jobs rather than his works. Non-innovative counterparts Among the self-reported use of skills that distinguish over non-innovative employees they're "bringing new ideas and solutions" (creativity), "willingness to brainstorm" (critical thinking) and "the ability to gift new ideas or product to the general public (López, 2016, p.22).

2.8. Major Challenges for Research

Current issues facing the research function and its surroundings include equity, quality, relevance, possession and international networks. A growing number of nations of various sizes. They have currently prioritized the development of their knowledge base through teaching, research and innovation, and also the allocation of resources to achieve this goal. Success stories became more common altogether regions, and presents specific indicators:

1. Innovative policies in teaching, scientific research, science, technology and innovation.
2. Temperament to enhance the mandatory infrastructure and profile, including universities.
3. Efforts to coach retain and attract extremely qualified human capital.
4. Increase investment levels in research and better education (Meek, Teichler and Kearney, 2009, p.12).

2.9. Research and Innovation Systems

The Research, Innovation and Systems Division develops the transportation system, develops comprehensive transportation solutions, and creates and distributes knowledge and information. We are constantly transforming innovative ideas into sustainable solutions that address a wide range of challenges. The Research and innovation systems department offers a wide range of technologies together with the science departments. It includes agricultural engineering, biotechnology, natural resource management, smart climate agriculture, computer science, biometrics and knowledge management systems. With a wide range of service, development and research functions, the department provides collaborative and support functions for a wide range of technologies in areas such as genome, physiology and remote sensing, and the organization and funding of most basic research through a private institution, other than the entities of the higher education sector - the dual higher education sector that produces a kind at least one of the higher technical experts unknown elsewhere, and the group of specialized engineers of technical experts are managers, is a generalized component of state participation in production, not only general scientific and technical knowledge, but often technology itself. In the form of patented products and / or production or immediate

use. Progress in improving the concept was uneven and difficult to assess, given that "the definition has not yet been imposed on research (Edquist and Hommen, 2009, p1).

2.10. Communication between Stakeholders for Innovation

As we learned when operating with people in real business, the concepts required for social amendment comeback from human communication. As way as we all know, the concepts that are adopted within the market never originated in one person's mind: communication and compatibility are as necessary because of the ideas of the individual. Visions of this, market players are encouraged to communicate to create concepts they sell and customize them externally. We have additionally learned the importance of role-playing: the communication during which participants, including people that invent and deliver products/services, who consume them and who invest in them, play they are completely different roles within the market. The use of role-playing in an innovative market game permits players to have interaction in communications that diverge and specialize in concepts. The roles correspond to the various actors concerned within the method leading to innovation. Some stakeholders specialize in thinking about new ideas, while others focus on them.

Networking between role-playing among stakeholders is like exchanging roles between inventors and entrepreneurs in the geographical region within the late Nineties, and these inventors were young students who learned cutting techniques at top universities. That they had nice motivation and that they had time to think. It works and doesn't have a lot of cash. These young students usually visited wealthy investors, called Angels, to playgrounds to explain their business plans backed by new technologies and new concepts. Most investors in those days set up their corporations once interacting with and learning from the increasing market. They hoped to create more money by investing in new corporations that were a part of the expanding market. They explored the inventors' plans thoroughly, control discussions, generally offered recommendations, and infrequently invested with cash in promising inventors. The role-playing culture ("inventors" and "investors" during this case) has unfolded to different countries (Ohsawa, and Nishihara, 2012, pp.97-98).

2.11. Cut cost

It can mean a cost per transaction for the government, a cost per citizen, or reduce operation and maintenance costs. Cost reduction refers to measures implemented by the institution to reduce its expenses and improve the situation. Cost reduction measures may include layoffs, pay cuts, closure of facilities, streamlining the supply chain, downsizing to a smaller office, moving to a less expensive building or area, or reducing or eliminating external professional services such as advertising agencies, contractors and other things. Focusing on the lot level, maintaining the merchandise and maintaining the facilities costs, give a higher level of knowledge on cost programs compared to ancient volume-based cost systems that generally only provide cost-related cost programs (Drake, Andrea and Ravenscroft, 1999, p.325).

2.12. The Cost Innovation Challenge

"Innovation in cost" could seem sort of a variation: most people within the business world are accustomed to linking innovation with business to make additional jobs and development. However the actual fact that it breaks typical knowledge is exactly why it's the power to rewrite the present rules of worldwide competition. The value of innovation has three faces:

First, competitors began to produce customers with high technology at low cost. For instance, the Chinese industry company first light has placed mainframe computer technology on low-cost servers that function daily platforms for the world's IT networks. This new strategy breaks the traditional belief that advanced technology ought to be restricted to classy products and sectors.

Second, these new international competitors from rising economies provide customers a variety at an occasional price, allowing for associate all-time selection of products in what has been thought of uniform.

Third, rising competitors are moving specialized products to the mass market, challenging the traditional knowledge of concentration ways. Using its low costs to reduce break-even points, They can provide 56pecialized product at drastically low costs, attempting to open latent demand and convert previous specialized markets into large-scale businesses. If successful, the rules of competition will change towards size and cost (Williamson, Peter, 2010, pp.344-345).

CHAPTER THREE

3. FIELD STUDY

3.1. Description of the study population and sample

The purpose of this chapter is to present and analyze the results achieved by the study sample answers by presenting the iterations, percentages, arithmetic media and standard deviations of the Polytechnic University and to verify the validity of the hypothetical model of the study. Therefore, this chapter was divided into the following sections:

Describe the study population and respondents and their sample. This paper will be used to describe the sample of the study and the rationale for its selection, the limits of the study and the description of the respondents.

Description of the study sample and the rationale for its selection In order to achieve the objectives of the study and prove its hypotheses, the university corps (Polytechnic University) was chosen.

- The education sector occupies a privileged position in the process of construction and development that we are witnessing at present.
- The great responsibility of universities is to prepare qualified human cadres to work in various fields of knowledge and fields of work, and then their great role in determining the fate and future of the people and their hopes, as it depends on its renaissance and progress, so its professors were selected in their categories (professor, assistant professor, teacher) Assistant teacher) as a sample of study.
- The intellectual output and outputs of the educational process in the most influential universities for creativity in the organizations because of the high proportion of creative work in the university.

The research sample was selected according to the random stratified method, the questionnaire forms referred to in Annex (1) were distributed among the faculty members of the university and included scientific titles (professor, assistant professor, teacher, assistant teacher), and in accordance with the directions The researcher distributed the questionnaire to the respondents of the teaching staff. The number of forms distributed

(110) forms, were distributed to the University of Duhok Technical, of which (92) forms valid for analysis, as shown in table (1).

Table 3. Distribution of questionnaire forms to respondents at Duhok Polutechnic University

Percentage of total valid forms		
Distributed	Received and valid	percentage
110	94	92%

In order to describe the population of the study, the data obtained by the researcher from the identifying part of the questionnaire were downloaded as shown in Table (3).

Table 4. Frequency Distribution and Percentages of Characteristics of Individuals

Gender										
Female				Male						University
%		S		%				S		
28.3		26		71.7				66		Dohuk
Age										
MOR-51		50-41				40-31				University
%	S	%	S	%		S				
13	12	16	15	60	56	Dohuk				
Social status										
Unmarried					Married					University
%			S		%		S			
13			12		86		80		Dohuk	
Qualification										
diploma		BA		MBA		DR		University		
%	S	%	S	%	S	%	S			
18.4	17	41.3	38	33.6	31	6.5	6	Dohuk		
Length of service										
MOR-22		21-16 Y				15-5Y				University
%	S	%	S		%		S			
40.2	37	27.1	25	32.6	30	Dohuk				
Without a nickname										
Without a nickname		assistant teacher		Teacher		Assistant Professor		professor		University
%	S	%	S	%	S	%	S			
58.6	54	2.5	23	13.4	12	2.17	2	1.08	1	Dohuk

Table (2) indicates the frequency and percentages of the characteristics of the study sample individuals as follows:

1. Gender: The percentage of males constituted 71% of the individuals surveyed at the university level and 28.3% of females. This indicates that the majority of teaching staff are males.
2. Age: The most visible age group is the age group (40-31) years, which reached (60), followed by the confined category (50-41) years by (16).
3. Social Status: It was found that the majority of the sample of the study was married (86%), while the percentage of unmarried (13%) and this is a sign of social communication.
4. Educational Qualification: It is clear that the majority of respondents are holders of a bachelor's degree (41%), while the proportion of holders of a doctorate degree (6.5%) This confirms that the two universities provide opportunities for young teaching staff.
5. Years of service: It is clear that (50%) of the respondents have a total service ranging between 22 and more years, which indicates the accumulation of knowledge.

3.2. Description the variables of the study

Description of study variables and diagnosis of Duhok Polutechnic University
This research includes the description of the study variables and diagnosis through the analysis of data related to it, which is used the frequency distributions, percentages, arithmetic and standard deviations, and each of the variables of the study, and to achieve this has been divided into three sections according to the study variables, as follows:

Describe and diagnose strategic management variables

This section describes the description of strategic planning (SWAT analysis, strategic selection, strategic decisions, strategic control, strategic implementation) at the overall level of the study sample as indicated in Table (3).

Table 5. Frequency distributions and standard deviations Strategic management

Variables	The main factors	Symbol	Response scale										mean	standard deviation	
			Strongly agreed		Agreed		Neutral		I do not agree		I do not agree strongly				
			S	%	S	%	S	%	S	%	s	%			
Strategic management	SWAT analysis	X1	6	6.5	43	46.7	19	20.7	21	22.8	3	3.3	3.304	1.0026	
		X2	7	7.6	52	56.5	15	16.3	17	18.5	1	1.1	3.510	0.9198	
		X3	13	14.1	38	41.3	22	23.9	19	20.7	-	-	3.489	0.9771	
		X4	8	8.7	41	44.6	22	23.9	19	20.7	2	2.2	3.369	0.9802	
		X5	10	10.9	46	50.0	17	18.5	18	19.6	1	1.1	3.500	0.966	
		X6	12	13.0	49	53.3	14	15.2	17	18.5	-	-	3.608	0.93710	
	Average		9.333		44.83		18.166		18.5		1.16		3.4633	0.9638	
	total		54.16				18.166		19.66				3.4633	0.9638	
	Strategic choice	X7	6	6.5	46	50.0	21	22.8	17	18.5	2	2.2	3.402	0.9383	
		X8	7	7.6	49	53.3	25	27.2	9	9.8	2	2.2	3.543	0.856	
		X9	6	6.5	43	46.7	26	28.3	17	18.5	-	-	3.413	0.866	
		X10	5	5.4	43	46.7	28	30.4	15	16.3	1	1.1	3.391	0.863	
		X11	11	12.0	37	40.2	29	31.5	13	14.1	2	2.2	3.456	0.954	
		X12	7	7.6	41	44.6	24	26.1	19	20.7	1	1.1	3.369	0.9343	
	X13	8	8.7	49	53.3	21	22.8	13	14	1	1.1	3.543	0.882		
	Average		7.142		44		24.85		14.71		1.28		3.445	0.899	
	total		51.14				24.85		15.99				3.445	0.899	
	Strategic decisions	X14	13	14.1	54	58.7	10	10.9	14	15.2	1	1.1	3.695	0.9345	
		X15	14	15.2	41	44.6	21	22.8	12	13.0	4	4.3	3.532	1.0425	
		X16	12	13.0	34	37.0	23	25.0	19	20.7	4	4.3	3.337	1.0820	
		X17	12	13.0	41	44.6	16	17.4	20	21.7	3	3.3	3.423	1.071	
		X18	9	9.8	49	53.3	18	19.6	14	15.2	2	2.2	3.532	0.9428	
		X19	11	12.0	49	53.3	14	15.2	15	16.3	3	3.3	3.543	1.009	
	Average		11.83		44.66		17		15.66		2.833		3.5103	1.013	
	total		56.49				17		18.493				3.5103	31.013	
		Strategic Control	X20	12	13.0	40	43.5	12	13.0	24	26.1	4	4.3	3.342	1.133
			X21	8	8.7	38	41.3	27	29.3	15	16.3	4	4.3	3.337	0.997
			X22	10	10.9	41	44.6	22	23.9	17	18.5	2	2.2	3.434	0.986
			X23	10	10.9	42	45.7	22	23.9	16	17.4	2	2.2	3.456	0.976

		X2 4	8	8.7	40	43. 5	28	30. 4	15	16. 3	1	1. 1	3.423	0.904
		X2 5	6	6.5	42	45. 7	26	28. 3	15	16. 3	3	3. 3	3.358	0.9441
		X2 6	6	6.5	47	51. 1	21	22. 8	16	17. 4	2	2. 2	3.423	0.9285
	Average		8.57		41.4 2		22.57		16.8		2.57		3.396	0.981
	total		49.99				22.57		19.37				3.396	0.981
	Strategic implementation	X2 7	3	3.3	56	60. 9	22	23. 9	11	12. 0	-	-	3.554	0.7466
		X2 8	4	4.3	57	62. 0	17	18. 5	13	14. 1	1	1. 1	3.543	0.83.9
		X2 9	6	6.5	47	51. 1	20	21. 7	18	19. 6	1	1. 1	3.423	0.9166
		X3 0	8	8.7	48	52. 2	19	20. 7	17	18. 5	-	-	3.510	0.8955
		X3 1	4	4.3	43	46. 7	20	21. 7	20	21. 7	5	5. 4	3.228	1.0174
		X3 2	8	8.7	42	45. 7	23	25. 0	17	18. 5	2	2. 2	3.402 2	0.961
		Average	5.5		48.8 3		20.16		16		1.5		3.443	0.756
	total		54.33				20.16		17.5				3.443	0.756

1. SWOT analysis: The results indicate that the responses of the respondents and the general level of the study sample about this determinant through its indicators (X1-X6) tend towards agreement and (54.16%) of those answers with a mean of 3.4633 and a standard deviation of 0.9638), While the disagreement on the indicators of this dimension (19.66%) This indicates the availability of many indicators towards innovation in the focus on quadrilateral analysis.
2. Selection strategies: The data of the frequency distribution, arithmetic media and the standard deviations of the responses of the study sample towards the paragraphs (X7-X13) related to it, indicating that (51.14%) of the respondents agree on these terms compared to (15.99%) do not agree with the terms of this. Dimension and (24.85%) are neutral, and this was an arithmetic mean of (3.445) and standard deviation (0.899), and following the contribution of each statement in this dimension shows that the teaching at the university is characterized by a focus on selection in the exercise of their daily activities, and strategy.
3. Strategic decisions: The results indicated that the respondents' responses and the overall index of the decisions dimension through the indicators (X14-X19) tend towards the agreement by (56.49%) with a mean (3.510) and a standard deviation (1.013) while the rate of non-agreement (18.49%) This indicates that

the administrative leaders in the university depend on the strategy in their decisions.

4. Strategic Control: The data indicated that there is an agreement between the majority of the sample of the study (49.99%) on the specialization in the control mechanisms and that they are available to them whether according to the nature of work or not, and that (19.37%) of the respondents do not give any importance. Of the control through the phrases (X20-X26) with an arithmetic mean of (3.396) and a standard deviation of (0.981), while the proportion of neutrality amounted to (22.57%) of the study sample,
5. Strategic implementation: The results of the frequency distributions, arithmetic media and the standard deviations of this dimension represented by the variables (X27-X32), where the results indicate that (54.33%) of the respondents agree on these terms compared to (17.5%) were not in agreement with the mean arithmetic ability (And a standard deviation of 0.756 on the extent to which the terms of this dimension contribute to the studied case.

Description and diagnose research innovation variables

This paragraph describes the research innovation indicators indicated by the theoretical and adopted aspect of the study model. Table (4) shows the frequency distributions, percentages and standard deviations at the total level of the study sample universities.

Table 6. Frequency distributions and standard deviations research& innovation

Variables	The main Features	Symbol	Response scale										mean	standard deviation
			Strongly agreed		Agreed		Neutral		I do not agree		I do not agree strongly			
			S	%	S	%	S	%	S	%	s	%		
Improved quality	X3 3	13	14. 1	51	55. 4	15	16. 3	12	13	1	1. 1	3.684	0.913 0	
	X3 4	8	8.7	47	51. 1	16	17. 4	21	22. 8	-	-	3.456	0.942 4	
	X3 5	8	8.7	54	58. 7	17	18. 5	13	14. 1	-	-	3.619	0.836 5	
	X3 6	11	12	53	57. 6	17	18. 5	10	10. 9	1	1. 1	3.684	0.863 5	
	X3 7	5	5.4	53	57. 6	23	25	11	12	-	-	3.565	0.774 6	
	Average	9		51.6		17.6		13.4		0.4		3.601	0.866	
	Total	60.6				17.6		13.8				3.601	0.866	
	Research	X3 8	10	10. 9	43	46. 7	18	19. 6	19	20. 7	2	2. 2	3.434	1.008
		X3 9	12	13	39	42. 4	20	21. 7	19	20. 7	2	2. 2	3.434	1.030
		X4 0	6	6.5	49	53. 3	21	22. 8	14	15. 2	2	2. 2	3.467	0.907
		X4 1	6	6.5	46	50	26	28. 3	12	13. 0	2	2. 2	3.456	0.882
		X4 2	9	9.8	39	42. 4	19	20	22	23. 9	3	3. 3	3.315	1.047
		Average	8.6		43.2		20.8		17.2		2.2		3.421	0.974
	Total	51.8				20.8		19.4				3.421	0.974	
	solving problems	X4 3	9	9.8	42	45. 7	19	20. 7	17	18. 5	5	5. 4	3.358	1.064
		X4 4	7	7.6	50	54. 3	19	20. 7	14	15. 2	2	2. 2	3.500	0.919
		X4 5	6	6.5	61	66. 3	14	15. 2	10	10. 9	1	1. 1	3.663	0.802
		X4 6	10	10. 9	51	55. 4	22	23. 9	9	9.8	-	-	3.673	0.799
		X4 7	10	10. 9	47	51. 1	19	20. 7	16	17. 4	-	-	3.554	0.906
		X4 8	9	9.8	48	52. 2	20	21. 7	13	14. 1	2	2. 2	3.532	0.931
	Average	8.5		49.8 3		18.8 3		13.16 6		1.66 6		3.546 6	0.903	
Total	58.33				18.83		14.76				3.546 6	0.903		
Cut costs	X4 9	7	7.6	54	58. 7	24	26. 1	7	7.6	-	-	3.663	0.730	
	X5 0	5	5.4	58	63	21	22. 8	8	8.7	-	-	3.652	0.717	
	X5 1	12	13	46	50	25	27. 2	9	9.8	-	-	3.663	0.829	
	X5 2	14	15. 2	47	51. 1	20	21. 7	11	12	-	-	3.695	0.873	
	X5 3	7	7.6	54	58. 7	19	20. 7	12	13	-	-	3.608	0.811 4	
	X5 4	7	7.6	45	48. 9	26	28. 3	13	14. 1	1	1. 1	3.478	0.870 5	
Average	8.66		50.6 6		22.5		10		0.16 6		3.62	0.805		
Total	59.32				22.5		10.166				3.62	0.805		
Com	X5 5	7	7.6	45	48. 9	26	28. 3	13	14. 1	1	1. 1	3.478	0.870 5	

	X5 6	11	12	39	42. 4	22	23. 9	16	17. 4	4	4. 3	3.402 2	1.048
	X5 7	8	8.7	46	50	17	18. 5	19	20. 7	2	2. 2	3.423	0.985
	X5 8	9	9.8	38	41. 3	20	21. 7	22	23. 9	3	3. 3	3.304	1.045
	X5 9	7	7.6	41	44. 6	20	21. 7	21	22. 8	3	3. 3	3.304	1.013 5
	X6 0	4	4.3	45	48. 9	19	20. 7	20	21. 7	4	4. 3	3.271	0.995
	Average	7.66 6		42.3		20.6		18.5		2.83		3.363	0.992
	Total	49.96				20.6		21.33				3.363	0.992

1. Quality improvement: The results indicate that the answers of the respondents at the universities of the study sample about this dimension through its indicators (X33-X37) were inclined towards agreement by (60.6%) with an arithmetic mean of (3.601) and standard deviation of (0.866), in When the percentage of disagreement within this index reached (13.8%).
2. Scientific research: The data indicate that a large percentage of the sample of the study (51.8%) were in agreement with this dimension, while the rate of disagreement reached (19.4%) and of which (20.8%) were neutral for the indicators of that dimension (X38- X42) This was with an arithmetic mean (3.421) and a standard deviation of (0.974).
3. Problem Solving: The results of the respondents' answers and the overall level of the indicators of this dimension (X43-X48) were towards the agreement at a rate of (58.33%) with an arithmetic mean (3.5466) and a standard deviation (0.9.3), while the rate of disagreement (14.76%). This was a high indication of the sample agreement towards the possibility of problem solving and innovation.
4. Cost Reduction: The data indicate that the frequency distribution, percentages, arithmetic media and standard deviations of responses to the terms (X49-X54) related to the extent of the approval rate of this dimension (59.32%), and that the mean of the calculation (3.62) and standard deviation (0.805 While 22.5% of the sample were neutral.
5. Community Development: The results of the respondents' answers and the overall level of the indicators of this dimension (X55-X60) were towards the agreement rate (49.96%) with an arithmetic mean (3.363) and standard deviation (0.992), while the rate of disagreement (21.3%) was This is a high

indication of the agreement of the sample towards the possibility of developing society through scientific research.

Analysis of correlation relationships

A-Analysis of correlations between study variables

Complementing the descriptions and diagnostics based on the descriptive analysis data, the correlation between the variables of the study was determined, in particular about the existence of a significant correlation between strategic planning and research innovation through the use of the spearman and at a significant level ($P \leq 0.05$) as follows:

1. Analyze the correlations between strategic planning and research innovation

this axis focuses on the test of the link hypothesis, which stipulated a significant correlation between strategic planning and research innovation in the study sample at Duhok Technical University at the macro and micro levels to exclude the study.

Table (7) shows that there is a positive statistically significant correlation between the variable (strategic planning) and the variable (efficiency of research innovation), where the correlation coefficient of the total index (0.825 **) which is a significant value at the level of significance (0.01), Thus accepting the third hypothesis at the macro level of the study sample.

3.3. The relationship between innovative marketing and each dimension of innovative value at the micro level

The table (7) shows that there is a significant correlation between strategic management and each dimension of the efficiency of research innovation, and that the strongest correlation was significant between strategic management (strategic decisions) and research innovation (qualitative improvement), The correlation coefficient was (69%), while the weakest correlation between (strategic choice) and (scientific research), the degree of correlation (49%), and thus the correlation hypothesis was fully achieved at the level of the overall index. The level of sub-dimensions was partially achieved. Through the association analysis that the relationship between the two changes was good and strong in most of the dimensions. This is an indication that the chosen dimensions represented the sample well at the macro and micro level of the study sample.

Table 7. The relationship between the dimensions of strategic management and the dimensions of research&innovation at the micro level

Strategic management Research Innovation	SWAT analysis	Strategic choice	Strategic decisions	Strategic Control	Strategic implementation	Overall index
Improved quality	0.688**	0.654**	0.697**	0.666**	0.555**	0.758**
Research	0.522**	0.491**	0.446**	0.55**	0.601**	0.560**
solving problems	0.594**	0.694**	0.670**	0.678**	0.658**	0.736**
Cut costs	0.569**	0.609**	0.697**	0.590**	0.653**	0.693**
Community Development	0.611**	0.550**	0.657**	0.666**	0.670**	0.698**
Overall index	0.717**	0.715**	0.756**	0.758**	0.702**	0.825**

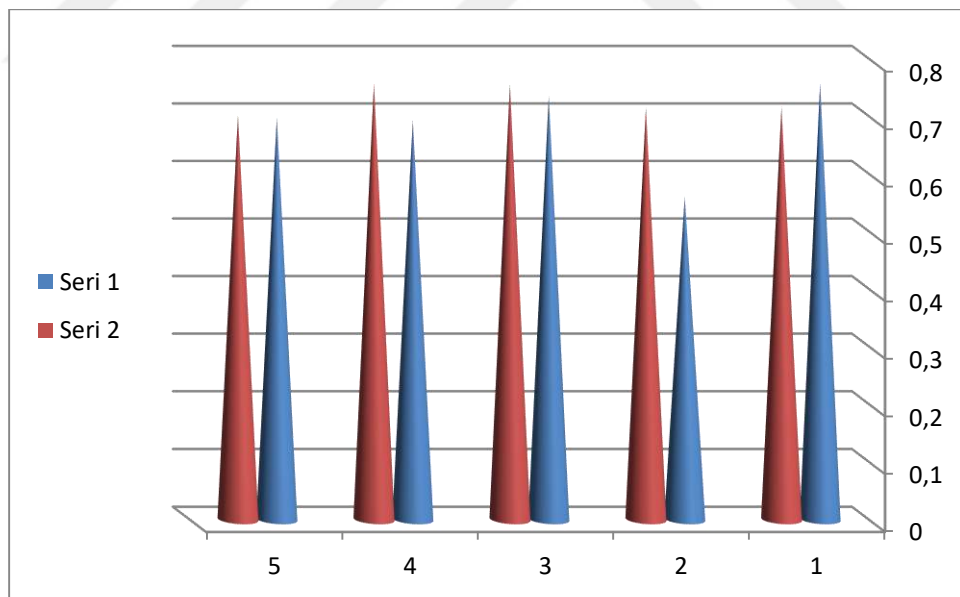


Figure 9. Above shows the correlation relationships and their differences between the macro-level of the study variables and their dimensions.

3.4. The impact of strategic management for research & innovation

Table (8) shows the significant impact of strategic management on research innovation, supported by the calculated value of (F) of (192.181), which is greater than the table value of (3.84) At a significant level (0.05) and a degree of freedom (90, 1), which shows that the regression curve is good in explaining the relationship between strategic management and research innovation and at the macro level, the determination coefficient of R^2 reached (0.681), which indicates the capacity of the variable The independent analysis of the impact on research innovation by (68%), and this reinforces the value of the regression coefficient (β_1) by (0.907), and this indicates the achievement of the hypothesis.

Table 8. The impact of strategic management in research innovation on the overall level of the study sample

Independent Certified	Strategic management		R^2	Values (F)	
	β_0	β_1		Calculated	Tabulated
Innovative research	0.825	0.907 (13.863)	0.681	192.181	0.000

Table prepared by the researcher in the light of the results of the electronic calculator

$P \geq 0.05$, $N = 92$

Analysis of impact relationships between study variables

In order to know the existence of a significant effect of the variables of the study, the study model requires determining the levels of influence in the study sample in whole and in part. The following is an analysis of the impact of study variables and interpretation of statistical significance, as follows.

3.5. Analyze the impact of strategic management for research & innovation efficiency

This axis includes the impact hypothesis test, which provides a significant impact of strategic management in the efficiency of research innovation in the study sample at the University of Dohuk Technical, and test the hypotheses emanating from it, which provides a significant impact of strategic management each dimension of the efficiency of research innovation, as follows:

3.5.1. The impact of strategic management in each dimension of the of research & innovation efficiency performance

Table (7) shows that there is a significant effect of strategic management in each dimension of research performance efficiency. This confirms the realization of the sub-hypotheses emanating from the hypothesis. The value of (β_1) was (0.698), which is a significant value in terms of the calculated (t) value of (10.319) and the value of (F) calculated (106.474), which is greater than its tabular value of (3.84). While the least significant effect of the strategic management was in the dimension of the increase of scientific research, where the coefficient of determination (R^2) value (31%).

Table 9. The effect between each dimension of the innovative value dimensions and the proactive marketing at the macro level

Innovative research	Strategic management		R^2	F	
	β_0	β_1		Calculated	Tabulated
Improved quality	0.758	0.693 (11.037)**	0.575	121.806	3.84
Research	0.560	0.476 (6.410)**	0.313	41.094	
solving problems	0.736	0.698 (10.319)**	0.542	106.474	
Cut costs	0.693	0.771 (9.120)**	0.480	83.182	
Community Development	0.698	0.561 (9.238)**	0.487	85.349	

Table prepared by the researcher in the light of the results of the electronic calculator

$P \geq 0.05$, $N = 94$, $DF = 1,90$

Analysis of variance

This axis is concerned with the selection of the variance hypothesis in order to identify the extent of variation between the faculties of the study sample in the extent of strategic management and the efficiency of research innovation.

3.5.2. Analysis of variance at faculties level

1. Sample study in strategic management varies depending on the efficiency of the research performance

The content of the hypothesis refers to the variation of the study sample colleges at the University of Duhok (Polotechnik) in strategic management, as shown in table (8) that there is a clear variation in the study sample colleges according to strategic management and this is seen through the morale of the model represented by the value (F) calculated (4.674) which is a significant value at the level (0.05) and that was an indication that the study sample colleges vary in the results of alienation experienced by it.

Table 10. Indicates the variation of the colleges according to strategic management

S. O. V.	S. S.	D. F.	M. S.	F	Sig.
B. G	34.310	79	0.434	4.674	0.000
W. G.	1.115	12	0.093		
Total	35.425	91			

$P \leq 0.05$

$N = 92$

Consequently, a Duncan test was conducted to determine the degree of inequality between the study sample faculties. Table(9) There is a difference between the colleges according to their arithmetic circles, as they came higher for the strategy in the (presidency of the university) and that was an arithmetic mean of (3.9690).

And then (Bardrsh), where it was an arithmetic mean of (3.0250) and this is an indication that both of the kidneys of the two strategies are close to the same table (9) Figure (2), but we find that less Strategies in the study sample were in the colleges of (Dohuk, Sheikhan, Aqra, Zakho) and that was in the mean arithmetic capacity (0.8104 and 1.79541 and 2.9769 and 2.9977) respectively, and accordingly we find that the greatest variation or in strategic management was the difference between (Dohuk, which suffers a percentage of (0.8104) for the presidency of the university, which reached the mean (3.9690).

Table 11. Colleges and their variation according to strategic management

2	1	Colleges
	0.810	Dohuk
	1.7954	Sheikhan
	2.976	Aqra
	2.997	Zakho
3.0250		Bardarsh
3.969		Presidency University

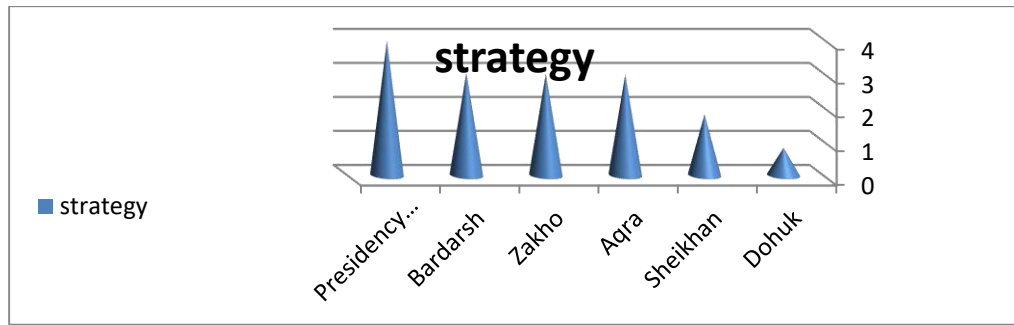


Figure 10. Strategic Management Sample Study

CONCLUSIONS AND RECOMMENDATIONS

This chapter is a summary of the findings of the researcher based on theoretical and field results, as the conclusions are the main pillar for the development and formulation of proposals, which the researcher deems necessary for the research universities, and to complement the proposed model to develop the relationship between strategic management and research & innovation, the conclusions based on the results.

Hypothesis

In the context of the methodology of scientific research and in order to clarify the findings of the current study of the results and how different from this axis to show the most important results obtained by the study through the field side, can be summarized as follows:

The hypothesis describes the description of strategic planning (SWOT analysis, strategic selection, strategic decisions, strategic control, strategic implementation) at the aggregate level of the study sample as shown in Table 3, and the study sample was varied by the extent of its awareness of the dimensions of the current study and the variance with hand.

The indicators of innovation in the field of research, which have been indicated in the theoretical and accredited side in a study model. Table (4) shows through repetitive distributions, percentages, and standard deviations at the total level for the universities of the study sample, we find here that the study sample is satisfied in its response to The study sample.

Table (7) shows that there is a positive statistically significant correlation between the variable (strategic planning) and the variable (efficiency of research innovation), where the correlation coefficient of the total index (0.825 **) which is a significant value at the level of significance (0.01), Thus accepting the third hypothesis at the macro level of the study sample. The table (7) shows that there is a significant correlation between strategic management and each dimension of the efficiency of research innovation, and that the strongest correlation was significant between strategic management (strategic decisions) and research innovation (qualitative improvement), The correlation coefficient was (69%), while the weakest correlation between (strategic choice) and (scientific research), the degree of correlation (49%), and thus the correlation hypothesis was fully

achieved at the level of the overall index The level of sub-dimensions was partially achieved.

Table (8) shows the significant impact of strategic management on research innovation, supported by the calculated value of (F) of (192.181), which is greater than the table value of (3.84) At a significant level (0.05) and a degree of freedom (90, 1), which shows that the regression curve is good in explaining the relationship between strategic management and research innovation and at the macro level, the determination coefficient of R^2 reached (0.681), which indicates the capacity of the variable The independent analysis of the impact on research innovation by (68%), and this reinforces the value of the regression coefficient (β_1) by (0.907), and this indicates the achievement of the hypothesis.

The content of the hypothesis refers to the variation of the study sample colleges at the University of Duhok (Polotechnik) in strategic management, as shown in table (8) that there is a clear variation in the study sample colleges according to strategic management and this is seen through the morale of the model represented by the value (F) calculated (4.674) which is a significant value at the level (0.05) and that was an indication that the study sample colleges vary in the results of alienation experienced by it.

Results

In the context of the methodology of scientific research and in order to clarify the findings of the current study of the results and how different from the previous studies we will try within this axis to show the most important results obtained by the study through the field side, through the distribution of the questionnaire on the sample of the study represented by the teaching staff within the technical institutes in the province Duhok can be summarized as follows:

1. Through the descriptive analysis of the dimensions of the study represented by strategic management, the percentage of agreement by the sample on the possession of this feature or dimension within the actual field by (53.22), which is almost half of the sample of the study was consistent with the opinion of the researcher on that after the strategic management is important Within the field work.
2. The same dimension ratio of the number of individuals within the sample of the study who did not agree with the researcher on this dimension that it is

unimportant within the field and that does not affect the reality of field work for teaching was (18.20), a small percentage, which indicates the importance of the first variable Within the current study and to the variation in the views of the sample about that variable.

3. On the other hand came the results of the current study on the second variable efficiency of research performance and the study sample agreed on the percentage of interest in the variable was (54.96) It is also the proportion of the same as the first variable that the study sample interest in the two variables were in half, and this is evidence of the awareness of the sample The current study
4. The results of the study on the same variable in terms of disagreement on this dimension ratio (15.89), which is a very small percentage, , the sample was actually approved about the dimensions of the study by almost unanimity.
5. The results of the correlation about the dimensions of the study, and about the hypothesis within the hypothesis of the correlation of the dimensions of the study at the macro or partial level, showed that there is a very strong correlation between the variables of the study at the macro level up to (82%) at the level of the total index.
6. The results of the statistical analysis of the answer to the hypothesis of the partial correlation showed that the strongest correlation between the strategy and the efficiency of research performance (75%), which is very good at the micro level, while the lowest correlation at this level between the strategy and research performance The percentage was (56%).
7. The results of statistical analysis on the hypothesis of the effect between the two main study variables indicated that there is a strong and positive effect between the strategic management and the efficiency of scientific research as much as (68%), that is, the approved variable is the same as the independent variable (68%) and that is a good percentage about the effect. Between variables.
8. The same effect hypothesis on the impact relationship between the sub-variables of the study indicated that the strongest impact relationship between the variables of strategic management and improvement, and this is consistent

with the correlations between the variables of the study, and the proportion (57%).

9. The results of the analysis indicated that the least effect was between variable study between the two strategic management and after scientific research by (31%).
10. The results of the analysis of variance showed that the sample of the study varied from the sample's perception of the strategic management dimension and that was a value (F) of (4.674) which is greater than its tabular value.
11. The results of the analysis of variance analysis to determine the disparity between the study sample colleges using the test (, (Duncan) tes The high contrast ratio was in the (Presidency of the University, Bardrish Institute) according to arithmetic circles, The variation of the second degree was between the colleges (Duhok, Sheikhan, Aqra, Zakho) respectively.

Conclusions

The study reached a number of conclusions that can be presented according to each variable separately as follows:

1. The results of the descriptive analysis of the study sample according to the analysis of questionnaire forms and arithmetic circles indicated that there is a great variation in the sample of the study on the extent of their awareness or knowledge of the dimensions and stages of strategic management as many of them did not give any importance within the strategic planning or strategic plan for innovation within the field of scientific research.
2. The results of the descriptive analysis also showed that a clear discrepancy within the study sample from the staff of Tetrasi and administrative technical university about the concepts of efficiency of research performance and this indicates that the study was successful in identifying those differences and differences within the sample study.
3. The results of the analysis of the link between the strategic management and the efficiency of research, but there is a strong correlation between each of the dimensions of strategic management, as the results indicated that the strong correlation between strategic decisions and improve the quality of research, which indicates that whenever the strategy takes into account the research In

addition, the dimension of loss of meaning has also played a role in increasing the percentage of feelings of alienation, but to a lesser extent. Polytechnic University.

4. The results indicated that there is a direct and strong correlation between strategic management and the efficiency of research performance at the total level of the study sample. This indicates and validates the selection of the subject of the study about the strategies adopted within the university have a big role in improving the quality of scientific research and expanding its horizons, whether at the macro or micro level.
5. The results showed that there is a strong and direct impact between the strategic management and the efficiency of research performance at the macro and micro levels of the university. It was found in the presidency of Duhok Technical University that the higher or well implemented the strategy, the higher the research performance of the teachers and hence the positive feelings. At the same time, the strategy has had a simple impact on the dimension of (cost reduction) for teachers, considering that the teaching profession is a human profession that cannot be affected by any pressures.
6. The results of the analysis showed that there is a significant effect between (strategic management and the efficiency of research performance) at the macro level and this confirms the link, if any change or modification in strategic management leads to affect the quality and quantity of scientific research on all levels of the sample of the study and on both Both levels and both university.
7. The results of the discrepancy indicated that both the same faculties suffer differences in their strategies followed, ie they were not similar in terms of the nature and type of strategy they follow or own, and this may be due to the consideration of these strategies of the basics of university work from the ministries of education.
8. It was found that there are different differences in the degree of strategy between the institutes and the university itself between its faculties. Technical colleges (Dohuk, Sheikhan, Aqrah, and Zakho) were among the colleges in which strategic performance is somewhat weak, due to the difference between the colleges due to the different demographic characteristics of the sample

schools, as well as the nature of the tasks and duties required by them in the College, as well as age differences.

Recommendations

Complementing the methodological requirements and based on the findings of the study and its conclusions, it is possible to summarize the most important proposals that will contribute to the benefit of the university respondents of the study sample, in particular its research colleges, in addition to giving some future studies research took two aspects:

1. Increase the interest of the departments of colleges and universities researched to open the field for teachers to participate and allow them to strategic and strategic management and express their views and ideas in vital decisions, as well as encourage the effort, as it gives an opportunity for departments and universities departments to reduce the obstacles for teachers Than in regards to scientific research.
2. The higher administrations within the scientific departments and the university presidency should take into account the integration of teachers intellectually and professionally with the job first and with their colleagues secondly and the university itself third, because this in turn to adapt to the strategy and thus push towards the reduction of constraints and follow or increase research creativity and work within Principle (putting the right person in the right place).
3. The university adopts real policies that try to integrate the teachers in their jobs through support and motivation and follow the open door policy within the university work, which helps them to increase interaction between the teaching staff and administrative units and reduces the ambiguity that may affect the educational process.
4. My presidency adopts new strategies in development and growth through moral and emotional commitment, and this is by reducing the supervisory and supervisory levels that are critical to the performance of the teachers to perform their tasks, but on the contrary they should activate the concept of self-control, which leads to give teachers confidence first Senior Management Second, moreover, senior management should increase the sense of job

belonging by encouraging team concepts as the primary source of research behavior by teachers.

5. Developing the creative abilities of the teachers by directing them to self-reliance, taking risks, expressing opinions and solving problems without referring to senior management, as well as giving them the actual opportunity to acquire the environmental opportunities surrounding them without any external influences. This helps to encourage research creativity and the ability to change from On the one hand, on the other hand, encouraging commitment through the development of social relations between teachers, which will help in creating cooperation between them thereafter.
6. Attention to the means of development for teachers, especially those related to training and qualification of teachers (teaching methods) through the attention of training and qualification units to transfer and update knowledge and develop them to innovate the employee in his job.
7. Prepare and implement a modern system of job descriptions and categorization in order to ensure the assignment of duties, responsibilities and relationship of each job and teaching and responsibilities required in filling the positions and considered the basis in the teaching of the functions of his job so that these tasks are consistent with his qualifications and capabilities.

As a results, there is a positive statistical correlation between strategic management and research&innovation. There is a statistically significant correlation between strategic management and every dimension of research &innovation efficieniy. There is a significant correlation between strategic management and research creativity. There is a significant impact between strategic management and each dimension of research &innovation efficieniy. In this case universities can have strategic management as a tool for research &innovation efficieniy.

APPENDIX

App 1. Originality Report



SOSYAL BİLİMLER ENSTİTÜSÜ

YÜKSEK LİSANS TEZ ÇALIŞMASI ORJİNALLIK RAPORU

ÖĞRENCİ BİLGİLERİ	
Adı-Soyadı	VADR SALİM MUSTAFA XAGEWAYCI
Öğrenci Numarası	MBA
Enstitü Anabilim Dalı	İşletme
Programı	Business Administration
Danışmanın Unvanı, Adı-Soyadı	Prof. Dr. Kenan PEKER
Tez Başlığı (Türkçe)	Sosyal Bilimlerde Araştırma ve Yenilik Mesleğinde İnsan Kaynaklarının Değerlendirilmesi

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ'NE

Yukarıda başlığı belirtilen tez çalışmamın a) Kapak sayfası, b) Giriş, c) Ana bölümler ve d) Sonuç kısımlarından oluşan toplam 103... sayfalık kısmına ilişkin, 15.11.2017 tarihinde şahsım/tez danışmanım tarafından Turnitin adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezin benzerlik oranı % 25,72'dir.

Uygulanan filtrelemeler:

- 1- Kabul/Onay ve Bildirim sayfaları hariç,
- 2- Kaynakça hariç
- 3- Alıntılar hariç/dâhil
- 4- 5 kelimeden daha az örtüşme içeren metin kısımları hariç

Yukarıda bilgileri verilen öğrencinin doktora tezi Sosyal Bilimler Enstitüsü Yönetim Kurulu tarafından belirlenen azami benzerlik oranlarını aşmadığını ve tez çalışmamın herhangi bir intihal içermediğini; aksinin tespit edileceği muhtemel durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

Gereğini saygılarımla arz ederim.

Prof. Dr. Kenan PEKER

Danışmanın Adı-Soyadı

(İmzası)

Prof. Dr. Zahir KEMAL

Anabilim Dalı Başkanı

(İmzası)

Lisansüstü tezler, savunma öncesinde intihal program raporu ile birlikte enstitüye teslim edilir.

İntihal raporu ile ilgili olarak etik kurallar dâhilindeki benzerlik oranları ilgili Enstitü Yönetim Kurulu tarafından belirlenir. (Enstitü Yönetim Kurulu tarafından tezin, intihal kapsamı dışında değerlendirilmesi için TURNITIN'den alınan raporda "benzerlik oranı"nın, "alıntılar hariç" en fazla %10, "alıntılar dâhil" % 30'u geçmemesi şeklinde kabul edilmiştir).

App 2. Questionnaire

Duhok Polytechnic University

Dear.....

Greetings and Appreciation: The form in your hands represents part of (Management and Economics) in business administration entitled: (Strategic planning of performance management of Duhok Polytechnic University)This form is a criterion for scientific research, and your preference for an appropriate answer will contribute to obtaining accurate results in order to enhance the achievement of the research objectives. All information will be confidential and scientific

General Notes:

1-Please indicate your agreement with each paragraph by placing a () sign in the box that gives the accuracy of your description of your agreement with the terms.

2- Please do not leave any words without answer, because this means that the form is not valid for analysis.

Researcher Scientific Supervisor

Firstly: General information:

A- Age: (18-25), (26-33), (34- and above.()

B- Gender: male () female()

C- Certificate: Bachelor's and above (), Diploma (), Preparatory and below.()

D- Current position() .

E - Duration of service: (less than one year - less than 3 years) (), (3 - less than 5)(), (5 - or more) ()

Second: Strategic Management

N	Phrases	Strongly agreed	Agreed	Neutral	Do not agree	I do not agree strongly
SWAT analysis						
1.	Senior management relies on SOWT analysis to find out the strengths, weaknesses, opportunities and threats in the external environment.					
2.	The company develops its plans and strategy based on the results of the analysis of elements of the external and internal environment.					
3.	University plans and strategies are prepared based on accurate data and information.					
4.	The university administration defines the university's strategy towards the community with a clear degree.					
5.	University management determines the impact of community values and beliefs on the university.					
6.	University administration takes into account the internal organizational structure of the university.					
Strategic choice						
7.	The company has a strategic and specific strategy written					
8.	Alternative plans and strategies are used when changes occur in the external or internal environment or deviation in plans and strategies					
9.	To prepare company plans and strategies based on accurate data and information.					
10.	University administration develops appropriate strategic alternatives in the process of strategy formation.					
11.	University administration proceeds according to appropriate and clear policies are developed.					
12.	Differentiate the university administration among the available alternatives accurately to achieve its objectives.					
13.	The trade-off between strategic alternatives depends on the time and cost borne by the alternative credited.					

Strategic decisions						
14.	The departments and sections of the university develop its annual plans based on the overall strategy of the university.					
15.	University administration depends on the selection of strategic decisions unanimously according to the objectives set.					
16.	The decisions taken by the university are neutral in terms of application for the benefit of all.					
17.	Choose the appropriate decision for all administrative units based on benefit and lower costs.					
18.	University administration takes into account the material resources in the implementation process of the plan developed by.					
19.	Provides university administration deanships and departments with a database to help them in the implementation of their tasks.					
Strategic control						
20.	Senior management exercises strategic control to identify and address deviations before they occur.					
21.	The university has a strong control over strategic planning.					
22.	University management depends on self-control by influential decision-making.					
23.	University administration evaluates performance according to a clear and transparent system.					
24.	University management uses clear criteria and indicators to judge the strategic management process.					
25.	The university administration uses clear and transparent criteria to judge the strategic composition.					
26.	University administration uses clear and transparent criteria to judge strategic implementation.					

Strategic implementation						
27.	University administration takes into account the implementation steps that have been developed in the process of strategic formation.					
28.	University administration engages individuals concerned with implementation in the development of the plan.					
29.	University administration takes into account the organizational structure, responsibilities and powers to ensure that it is appropriate to implement the plan.					
30.	University administration takes into account the material resources in the implementation process of the plan developed by.					
31.	Operational management personnel are involved in the process of developing university plans and strategies.					
32.	The university administration takes into account the mission of the university and its vision when implementing the plans developed accurately and continuously.					
N	Phrases	Strongly agreed	Agreed	Neutral	Do not agree	I do not agree strongly
Research Innovation						
Improved quality						
33.	University departments work to follow up the teaching through the development of research staff.					
34.	Consider the university administration to carry out training programs periodically to ensure the quality of work.					
35.	Consider the university administration to obtain qualified human cadres in order to maintain their educational quality.					
36.	Plant culture quality PHP education to make it a basics of university education.					
37.	University administration takes into account the issue of focusing on quality within its mission and vision of the community within which it operates.					

Increase scientific research						
38.	Consider the university administration to urge staff to improve research performance					
39.	The university administration works to bear a part of the research costs as a desire for university development.					
40.	Consider the university administration to follow up the teaching staff through quality programs with regard to scientific research.					
41.	The work of the university administration to link the performance of teaching performance research.					
42.	University administration works on rewards and compensation for the outstanding research of the teaching staff.					

N	dimensions	Recourse
1	Strategic Management	
A-	SWOT analysis	• Muhammad Jamal Al-Din Al-Morsi et al., Strategic Thinking and Strategic Management, An Applied Approach, University House, Alexandria, 2002, • Ahmed Maher, Director's Step-by-Step Guide to Strategic Management, University House, Alexandria, 2002,
B-	Strategic choice	• Al-Douri Zakaria Mutlak, "Strategic Management, Concepts, Processes and Study Cases" (2005), Al-Yazouri Scientific House for Publishing and Distribution, Amman / Jordan.
C-	Strategic decisions	• Al-Douri Zakaria Mutlak, "Strategic Management, Concepts, Processes and Study Cases" (2005), Al-Yazouri Scientific House for Publishing and Distribution, Amman / Jordan.
D-	Strategic control	Hatten. T.S; Small Business Management Entrepreneurship & B'ond, 2nd edition, Hughton Mifflin Company, Boston, New York, 2003.
E-	Strategic implementation	• Akab Mohammed Abdel-Fattah Al-Janabi, (2016), The Impact of Strategy Implementation on Organizational Performance: A Case Study in Jordanian Private Hospitals.
2	Research Innovation	
A-	Improved quality	• Flo Frank and Anne Smith, 1999, THE COMMUNITY DEVELOPMENT HANDBOOK A TOOL TO BUILD COMMUNITY CAPACITY , Minister of Public Works and Government Services Canada
B-	Increase scientific research	• Wheelen, Thomas L. & J. David Hunger (2002). Strategic Management and Business Policy, Eighth Edition, Prentice Hall, New Jersey
c-	Reduce costs	• Zekr Al-Douri, (2009), Analysis of the content of the blue ocean strategy within the green marketing philosophy, Al-Isra University, Al-Zaytuna.
d-	Community Development	• Flo Frank and Anne Smith, 1999, THE COMMUNITY DEVELOPMENT HANDBOOK A TOOL TO BUILD COMMUNITY CAPACITY , Minister of Public Works and Government Services Canada

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