

The role of innovation management in achieving sustainable innovation in productive institutions

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Abstract:

The world is divided into producing and consuming countries, and it is a great achievement for a country to reach the ranks of the producing countries and then to export to others not only because of the prosperity it produces, but also for its independence from any control imposed on it by the countries that provide it with its needs. Especially the Arab countries, which are striving to keep up with progress and join the producing and exporting countries as well.

In order for any State to achieve that lofty goal, it must provide industries and services that promote global competition and are even capable of overcoming their rivals. There is no doubt that the best way to achieve this, is to follow the successful global methods and methodologies in industry, management, innovation, design, marketing and other areas of influence in the entire productive process.

Over the past few years, a new global management term has emerged in the organizational structure of productive institutions:

Innovation Management; which allows the productive organization to respond to available internal and external opportunities. This is achieved through the active participation of all employees in the development of the organization's products manufacturing and marketing processes, high quality of all operations, and then global competitiveness.

The ISO 56000 series standards have been recommended by adding innovation management to the organizational structure of production enterprises, developed by ISO TC 279 in 2013. It is expected that there will be a boom over the next few years in the organizational structure of the productive institutions globally, and we, as Arab production institutions, must keep up with that development in a timely manner, in order to ensure our continuity in the global markets and our ability to compete.

This research has sought to legitimize the role of innovation management in productive institutions, and to conceptualize the interactive relationship among them and all departments of the enterprise; thus achieving sustainable innovation for all activities and results.

The researcher reached the objective of the research using the explanatory approach, by studying and analyzing the concept of innovation management and how it interacted with all the productive departments of the institution, and clarifying the effect of this in the practice of activities innovatively to reach the best quality desired.

Keywords

Innovation management, Sustainable innovation, ISO56000.

ملخص البحث:

ينقسم العالم إلى دول مُنتجة وأخرى مُستهلكة، وأنه لإنجاز عظيم أن تصل دولة ما إلى مصاف الدول المُنتجة ومن ثم المُصدرة لغيرها؛ ليس فقط لما يحققه ذلك من ازدهار لاقتصادها، وإنما أيضاً لاستقلالها عن أي سيطرة قد تفرضها عليها الدول التي تؤمن لها احتياجاتها، خاصة الأساسية منها. لا سيما الدول العربية والتي تحاول جاهدة أن تواكب ركب التقدم وتلحق بالدول المُنتجة، والمصدرة أيضاً.

ولكي يتسنى لأي دولة تحقيق ذلك الهدف السامي، فإن عليها أن تقدم صناعات وخدمات ترتقي للمنافسة العالمية، بل وتكون قادرة على التغلب على نظيراتها أيضاً. ومما لا شك فيه إن أيسر السبل لتحقيق ذلك هو إتباع الطرق والمنهجيات العالمية الناجحة في مجالات الصناعة والإدارة والابتكار والتصميم والتسويق وغير ذلك من مجالات مؤثرة في العملية الانتاجية بالكامل.

ظهر خلال السنوات القليلة الماضية مصطلح إداري عالمي جديد ضمن الهيكل التنظيمي للمؤسسات الانتاجية هو ادارة الإبتكار Innovation management والتي تتيح للمؤسسة الانتاجية الاستجابة للفرص الداخلية والخارجية المتاحة، وذلك من خلال مساهمة كل العاملين في كافة الإدارات بشكل خلاق في تطوير منتجات المؤسسة وعمليات التصنيع والتسويق؛ مما يضمن تحقيق الابتكارية والجودة العالية لكافة العمليات، ومن ثم التنافسية العالمية .

لقد أوصت معايير سلسلة ISO 56000 بإضافة إدارة الابتكار للهيكل التنظيمي للمؤسسات الانتاجية، والتي طورتها ISO 279 TC عام 2013. ومن المتوقع حدوث طفرة خلال السنوات القليلة القادمة في الهيكل التنظيمي للمؤسسات الانتاجية عالمياً، ويتوجب علينا كمؤسسات إنتاجية عربية مواكبة ذلك التطور في حينه؛ بما يضمن استمراريتها في الاسواق العالمية وقدرتنا على المنافسة .

توصل البحث لتقنين دور إدارة الابتكار في المؤسسات الإنتاجية، ووضع تصور للعلاقة التفاعلية فيما بينها وبين كل ادارات المؤسسة؛ مما يحقق الابتكارية المستدامة لكافة الأنشطة والنتائج.

وتوصل الباحث لتحقيق هدف البحث مستخدماً المنهج الاستدلالي، وذلك من خلال دراسة وتحليل مفهوم إدارة الابتكار وكيفية تفاعلها مع كافة إدارات المؤسسة الإنتاجية، وتوضيح مدى تأثير ذلك في ممارسة الأنشطة بابتكارية والوصول لأفضل جودة مرجوة.

الكلمات الافتتاحية:

إدارة الابتكار، الابتكارية المستدامة، سلسلة أيزو.

Introduction:

Given the globalization's control of all areas of life, all institutions must follow the latest standards, ways, methods and methodologies in completing their work, with the aim of developing their competitive capacity and ensuring their survival in global markets.

Among the most important of these fields is the field of innovation, which has become a feature of the current era in all branches of basic and applied sciences, and given that it is permanently codified and developed and the development of methods and ways for its application by multiple sides. Which necessitates following up on those developments and making optimal use of them in order to achieve the best results in the concerned fields.

Problem of the study:

The world daily faces consequent challenges in all areas of life, especially in the areas of production and service delivery. Professionals are constantly seeking to provide successful ways to meet these challenges.

Since 2013, ISO has started to set up a new international standard for innovation management known as ISO 56000, which aims to introduce innovation as a methodology that affects results of production in service organizations.

It is incumbent for all institutions wishing to maintain their competitiveness in the global markets to identify, study and adopt these standards as a method of action. In order to offer products and services that are competitive at the global level and capable of overcoming their counterparts as well.

In addition to examining the extent of development and change that will be imposed by applying these standards on the organizational structure of the institution, and in the form of interactive relations among different departments.

Significance of the study:

The importance of the research is to identify the ISO 56000 standard, its principles and contents of its files, which helps lay a clear foundation for the application of these standards in the Arab production institutions in order to achieve the highest rates of sustainable innovation and thus keep abreast to global development, International markets.

The research also provides an overview of the mutual interaction among innovation management and all other departments in the productive establishment, which will facilitate the work and reach the best results and ensure sustainable innovation at all levels and in all activities.

Objective of the study:

The aim of the research is to legitimize the role of innovation management in production enterprises in accordance with the ISO 56000 series standards, and thus to visualize the interactive relationship between them and all departments of the enterprise in order to achieve sustainable innovation for all activities and results.

Methodology of the study:

The research follows the explanatory method.

Theoretical framework:**ISO 56000 series innovation management:****1- Origin and Definition of ISO 56000 Series:**

The international organization ISO established a technical committee in the name of ISO / TC 279 in 2013 and assigned it with the task of establishing a set of international standards directed to organizations and companies in the field of innovation management, with the aim of helping institutions develop their ability to innovate, in order to meet future challenges.

Three documents from the ISO 56000 series have already been published. In February 2019, the International Organization for Standardization (ISO) published ISO 56003 on Innovation Partnership Methods and Tools, and ISO 56004 on Innovation Management Assessment, and in July 2019, ISO 56002 on Innovation Management Systems was published.

Usually the word innovation creates activities and processes that aim to and lead to innovation, while in the ISO 56000 series is defined for its outcome or result.

The ISO 56000 series is defined as documents containing considerations for an innovation management system, as it confirms that innovation management is more effective when dealing with it as a comprehensive system that directs the entire organization to identify effective support activities, and then focus on them. It also helps in the optimal use of resources, and allows informed exchange of insights, tools and methods.

2- ISO 56000 Series Stakeholders:

A- All types of private, public, and non-profit institutions, of all types, sectors, and sizes, provided that the establishment is not newly established or temporary.

B- All kinds of innovations, whether it is a product, service, process, method or model, from partial innovations to root and other types of innovations.

C- All types of innovations such as internal, collaborative, user-oriented, market-oriented, and technology-based innovation.

3- Reasons for Attention to ISO 56000 Series: Figure (1)

A- Academics are interested in the ISO 56000 series to be used in education and in conducting comparative researches.

B- Organizations are concerned with this series to be used in promoting the culture of innovation, and also as a guide for systematic innovation.

C- Consultants are interested in it because it serves as a basis for providing services and advice on innovation management.

D- Decision makers are interested in it because it is considered an incentive to encourage innovation in the public and private sectors, and it also helps in determining the general budget for institutional financing.

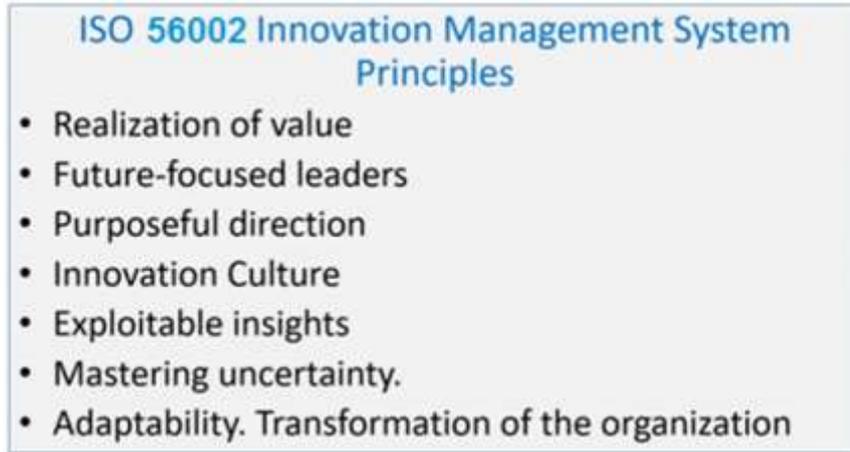
Why you should care			
Academics	Organizations	Consultants	Policy-makers
Framework for comparative research, and for education	Guide (check list) to drive systematic innovation & promote innovation culture	Framework for providing innovation management services, advice	Promote in private and public sectors. Requirements for public funding?

<https://innovationmanagementsystem.com/wp-content/uploads/2019/07/Towards-an-international-framework-at-ISPIM-Kuala-Lumpur-2016.pdf>

Figure (1): Reasons for Paying Attention to ISO 56000 Series

4- Innovation Management Principles according to ISO 56000 Series: (ISO 56002):

The criteria for managing innovation are determined on the basis of seven principles (Figure 2), and they are as follows:



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Figure (2): Innovation Management Principles according to ISO 56000 Series

A- Realization of value:

ISO / TC 279 identified innovation as the result, which is value realization or redistribution.

Innovation management standards seek to increase business profitability, as well as competitiveness, reduce costs, increase customer satisfaction, renew the portfolio of offerings, and also comply with regulations, attract talent, partners, financing, brand enhancement, and achieve social benefits. Where the realization of value is the ultimate goal and desired effect, and is the basis for institutions to adopt and practice innovation activities.

B- Qualifying future-focused leaders:

Usually the leader of the organization is distracted between maintaining the current level and trying to realize the promising future opportunities, but the leaders must look to the future and prepare for it.

As the institution's inability to take advantage of new opportunities may lead to stagnation, and ultimately lead to its elimination from the markets, but engaging in innovation activities makes organizations focus on the future.

Not only are leaders here referring to senior management, but also to all middle managers who want to challenge the status quo. They create inspiring methods to manage the entire process. Leaders must be flexible, energetic and honest, as well as courageous and curious to act.

It may require training leaders on how to manage innovation, and entrenching 'innovation as a way of life' in their minds.

C- Purposeful direction:

The organization's vision and strategy for innovation must match together. That strategy should also be announced through the whole organization, as well as the institution's position in the markets, in order to achieve a common perception of all workers towards the direction of innovation.

Targeting also creates clear performance and evaluation standards for innovation activities, an innovation project portfolio, an innovation management system, and the contribution of innovation to increased competitiveness.

D- Spreading the innovation culture in the institution:

Advance training and qualification help providing a common basis for exchanging a culture of innovation. Workers must have a suitable environment in which they can develop flexibility at work and stimulate them with a constant passion for knowledge and innovation.

The culture of innovation enhances the mentality of entrepreneurship, and believes that leaders have a pivotal role in developing this culture, and they should set an example in inspiring workers, also in challenging the status quo.

E- Focusing on Exploitable Insights:

This principle embraces trends that started in the 1990s as business development that moved from being a technology approach to a market trend.

The initial stages of innovation require spending large amounts of resources, despite poor performance and results, but as knowledge and learning accumulate, progress is faster and innovation reaches the desired level.

Therefore, as work continues on innovation projects, the organization can access data and knowledge to take decisions with more confidence.

F- Mastering uncertainty:

This principle emphasizes that traditional project management is not strong enough to manage innovative projects. In fact; innovation projects are usually accompanied by ambiguity, which represents a confirmed risk to the viability of these projects.

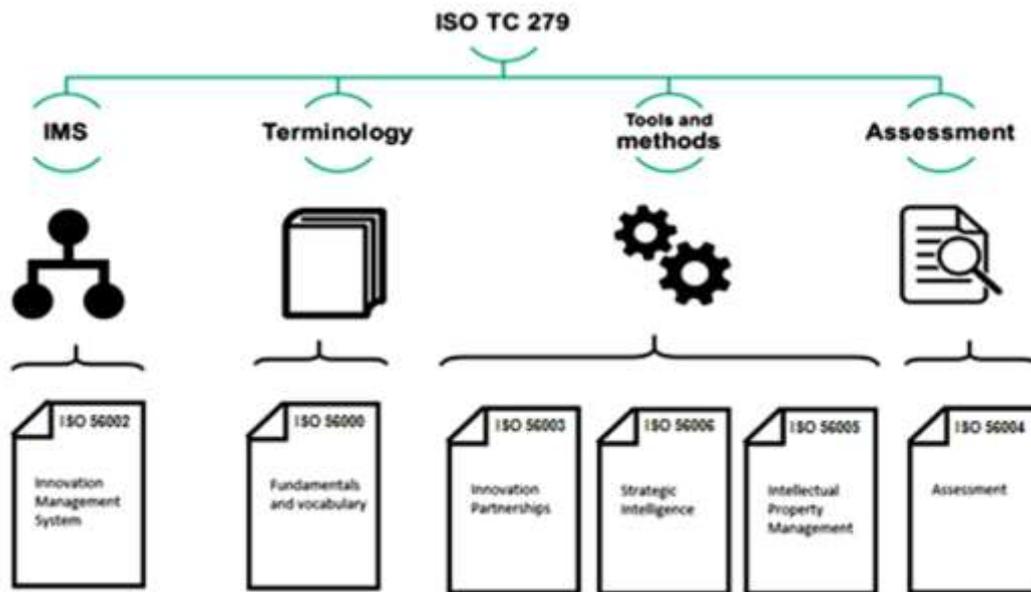
Ambiguity differs from risk: the risk is related to future contracts that can be developed for implementation, while ambiguity revolves around future contracts that cannot be put in place for implementation.

The role of good management of ambiguity is to turn it into a risk that can be dealt with, considering that every new innovation is completely similar to a traditional project that has been previously managed and implemented.

G- Flexible Adaptability Management:

New ideas and new solutions often require changes in institutions, systems, processes and competencies to respond. Effective innovation management requires that the organization adapts continuously and actively to anything that is new in a timely manner, projected needs resulting from ideas, changes in the environment, or goals.

5- ISO 56000 Series Documentation for Innovation Management: Figure (3)



https://www2.aston.ac.uk/aston-business-school/documents/IAMOT2018_paper_97.pdf

Figure (3): ISO 56000 Series Documentation for Innovation Management

A- ISO 56000 / Fundamentals and Vocabularies:

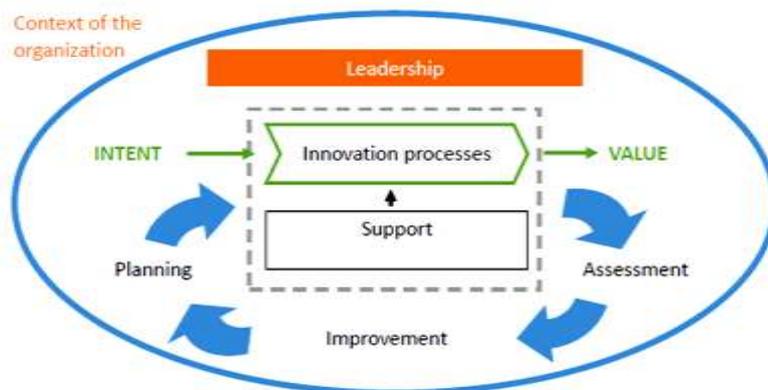
The vocabulary document will outline some keywords such as innovation, innovation management, and innovation strategy.

B- ISO 56002 / Innovation Management System:

ISO 56002 is an essential document for establishing, implementing and maintaining the innovation management system, through the following activities: Figure (4)

- (1) Understand the scope of the organization.
- (2) Establish leadership and commitment of senior management.
- (3) Planning to develop innovation.
- (4) Identify and reinforce innovation / leadership factors.
- (5) Dissemination of innovation management process.
- (6) Understand and use innovation management tools and methods.
- (7) Spreading a culture of innovation.
- (8) Evaluate the performance of the innovation management system and change it if necessary.

Innovation Management System



[What to consider, not how to do it]

<https://innovationmanagementsystem.com/wp-content/uploads/2019/07/Towards-an-international-framework-at-ISPIM-Kuala-Lumpur-2016.pdf>

Figure (4): innovation management system activities ISO 56002

Contents of the standards files: Figure (5)

- (1) Introduction
- (2) The general framework.
- (3) Normative references.
- (4) Terms and definitions.
- (5) The scope of the organization.
- (6) Driving.
- (7) Planning.
- (8) Support.
- (9) Operation.
- (10) performance evaluation.
- (11) Improvement.

ISO Standards Mandatory Chapters	
•	0. Introduction
•	1. Scope
•	2. Normative references
•	3. Terms and definitions
•	4. Context of the organization
•	5. Leadership
•	6. Planning
•	7. Support
•	8. Operation
•	9. Performance evaluation
•	10. Improvement

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Figure (5): Contents of the standards files

Since ISO 56002 does not contain any conditions, it will only rely on the suitability of document content for organizations. Relevancy with content is the benchmark for document success and certification.

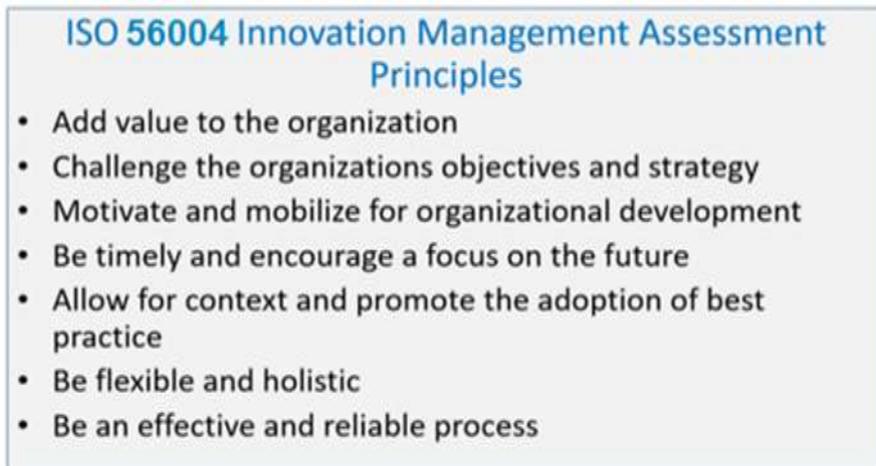
C- ISO 56004 / Evaluation:

Organizations will self-assess their innovation management capabilities by ISO 56004 Innovation Management

ISO 56004 is based on some principles for assessing innovation management, and they are as follows: Figure (6)

- (1) Add value to the organization.
- (2) Challenging the goals and strategy of the organizations.
- (3) Stimulating the development of the organization.
- (4) Permanent interest in time factor and encourage focus on the future.

- (5) Allocating scope and encouraging accreditation to achieve best practices.
- (6) Enhance flexibility and inclusivity.
- (7) Make the process effective and reliable

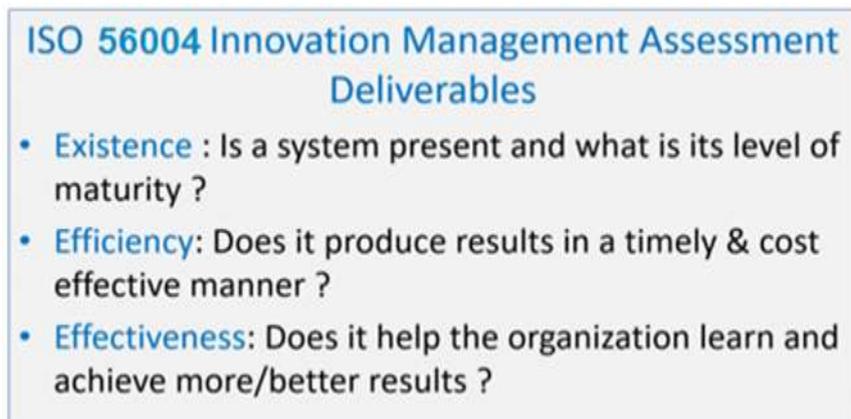


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Figure (6): principles of evaluation of innovation management ISO 56004

ISO 56004 will focus on testing the following factors: Figure (7)

- (1) Presence (to check the presence of a system and what is its level of maturity?)
- (2) Efficiency (Will it produce results in a timely and cost-effective manner?)
- (3) Effectiveness (Does the organization help to learn and achieve more / better results?)



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Figure (7): the basic factors for the evaluation of innovation management ISO 56004

ISO 56004 will provide a description of the innovation management evaluation process, and the recommended requirements, results, and proposed timelines to avoid deficiencies.

D- ISO 56003 / Innovation Partnership Tools and Methods:

ISO 56003 provides guidance to methods and tools that collaborating partners must use to achieve successful interaction and results.

It also provides an innovation partnership framework and tools to define the following:

- (1) Whether the organization needs to complete a partnership in innovation or not.
- (2) Identification, evaluation and selection of partners.
- (3) Balancing among expected value and challenges of the partnership.

(4) Managing partner interactions, as each partner must add value.

Among the most important benefits of partnership in innovation include:

- (1) Being able to access knowledge, skills, technology and other intellectual assets that are not available within the organization.
- (2) Take advantage of infrastructure resources, such as laboratories and experimental equipment, to develop existing products and services or create new ones.

E- ISO 56005 / Intellectual Property Administration:

Effective IP management is the backbone of protecting and increasing the competitiveness of the innovation project. This document will provide guidance to support intellectual property in managing innovation. It aims to address the following topics:

- (1) Building an IP strategy to support business and innovation strategies in the organization.
- (2) Establishing IP management in the innovation process.
- (3) Apply intellectual property methods and tools and integrate them into the innovation process.

F- ISO 56006 / Strategic Intelligence:

Strategic intelligence plays a major role in helping organizations determine their strategy in general and their ability to respond to changes that may occur in their external environment in particular. It reduces risk in addition to helping strategic growth, as it enhances the organization's decision-making ability.

ISO 56006 aims to provide leadership and senior management guidance on how to apply strategic intelligence as a support to decisions affecting vision, mission and innovation activities within an organization, and is part of a comprehensive innovation management system.

It also provides a methodology for obtaining intelligence information from internal and external sources, or a methodology for cooperating with the parties concerned in the use of the concerned tools and methods, for example data mining, analysis, forecasting, environmental survey, and technology monitoring.

Also, it defines the activities necessary to obtain, collect, interpret, analyze, apply and disseminate the necessary data, information and knowledge to decision makers and other interested parties.

It also examines the need to develop impactful activities to increase acceptance of innovation, for example the evolution of regulatory requirements, international standards and innovation ecosystems.

G- 56007 / Idea Management:

Creating and developing new ideas is essential to innovation, survival and growth of an organization. Ideas have the potential to make incremental improvements in an organization's efficiency by demanding a full reassessment of its business model.

ISO 56007 provides guidance for managing ideas, owners and what they achieve. It aims to address the management of ideas at the strategic and operational levels through:

- (1) the organization's culture of sound leadership.
- (2) Possession and risk management.
- (3) Promote entrepreneurship.

- (4) Be able to solve problems.
 (5) Providing tools and methods for managing creativity and ideas.

Statement of the study:

The emergence of the term quality in the nineties through the series of ISO 9000 standards spread the culture of quality in production and service institutions, and also reorganized and restructured institutions according to these standards. As a result, it has become a global standard for evaluating productive and service institutions, and hence their acceptance or rejection in global markets.

Given the prevalence of globalization in all spheres of life, including markets, technologies, products and services, it makes sense for competition to increase day after day, which imposes on the productive and service institutions the need to adopt successful global approaches in practicing their work to ensure their ability to compete.

Innovation is considered one of the most essential success factors for most fields, especially production, industry and service provision, because of its unprecedented new products, methods in the concerned fields. As it is considered an effective factor to achieve competitiveness through achieving value and modernity.

The ISO 56000 Series for Innovation Management is expected to have the same impact in the near future as it is concerned with innovation, which is one of the pillars of global competition today and permanently.

And it makes sense that adopting the ISO 56000 series standards for innovation management helps organizations build and support their innovation culture, making it a working methodology, not just a task that is performed at a specific time then expires. The institution's policy, when adopting these standards, is to create opportunities for innovation, not just to seize the available opportunities.

All of the above stresses; the need for productivity, so service institutions ought to adopt the ISO 56000 series standards for innovation management immediately upon publication, especially Arab institutions that strive to keep pace with continuous progress, as well as excel in fierce competitions over their counterparts.

Results of the study:

The research presented the ISO 56000 standards, principles, institutions and contents of the ISO 50500 series, and explained the importance of adopting them by the concerned institutions, in order to achieve the highest rates of sustainable innovation and thus keep abreast with the global development and face fierce competition in global markets.

Below is a presentation of the role of innovation management in productive institutions and a visualization of the interactive relationship among them and all other departments of the institution, which would facilitate work, also reach the best results and ensure sustainable innovation at all levels and in all activities.

1- The Innovation Department is considered the executive authority of the institution, as the work tasks start with an order from them, and ends with its approval of the validity of the results of those tasks. This is done in coordination with the higher management of the institution.

- 2- Innovation management is continuously pursued with all departments of the institution to see their needs and the obstacles they may face while performing their work. This communication is by direct contact and not only by traditional reports.
- 3- The Innovation Department provides suitable training programs for all departments of the institution, each in its specialty. This is to ensure the application of the latest methods and methodologies to carry out all required tasks.
- 4- Holding periodic meetings between the various departments of the institution to exchange experiences and discuss the tasks under implementation, and emphasize the unity of purpose between all functions and all departments.
- 5- Holding periodic meetings with the various departments of the institution to inform them of positive feedback and discuss the negative remarks and turn them into a meaningful improvement plan, according to the reports of the team to follow up innovation in the institution.
- 6- The Innovation Department provides special training programs for the development of the innovation skills of the employees of the institution in all departments, and not only the departments concerned with design and development, constantly update those programs.
- 7- Innovation Management identifies a team of communication skills and innovation skills whose mission is to interact continuously with all employees of the organization in all departments. The aim is to spread the culture of innovation among employees and to record results and observations for presentation and discussion later.
- 8- Work to develop the spirit of innovation among workers, by presenting some work problems in different departments, and they are asked to provide innovative proposals to solve them, and reward those who provide a promising solution.
- 9- Inform all employees of the institution of promising opportunities and potential risks and involve them in developing an initial plan to seize opportunities and overcome risks.
- 10- The first and greatest objective of innovation management is to sustain innovation in the enterprise in all activities and departments, thereby achieving the sustainability of the results.

Recommendations:

The research recommends the following:

- 1- Follow up the Arab productive and service establishments of the ISO 56000 series to manage innovation, and be informed of any development that occurs on them.
- 2- Arab productive and service institutions adopt ISO 56000 series standards for innovation management in pursuit of sustainable innovation.
- 3- The start of Arab productive institutions in developing their innovation systems in general to keep pace with the progressive development in that field worldwide.
- 4- Arab productive and service institutions adopt a culture of innovation and develop it in all departments and activities of the institution.

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