ISSN 2977-1498 (Online)

المجلة الدولية للعلوم المالية والإدارية والاقتصادية

International Journal of Financial, Administrative, and Economic Sciences - IJFAES

Vol. (2), No. (6) October 2023

الإصدار (2)، العدد (6) أكتوبر 2023

مجلة علمية دولية محكمة

تصدرها دار النشر

رؤية للبحوث العلمية والنشر

Vision for Scientific Research and Publishing

London, UK

المجلة الدولية للعلوم المالية والإدارية والاقتصادية

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)

مجلة علمية دولية محكمة

المجلة حاصلة على رقم تسلسلي معياري دولي: ISSN 2977-1498 (Online)

Journal Doi: https://doi.org/10.59992/IJFAES.ISSN.2977-1498

موقع المجلة: https://ijfaes.vsrp.co.uk

البريد الإلكتروني: ijfaes@vsrp.co.uk

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تصدرها دار النشر **رؤية للبحوث العلمية والنشر**، لندن، المملكة المتحدة

Vision for Scientific Research and Publishing, London, UK

71-75 Shelton Street, Covent Garden, London, WC2H 9JQ

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)
Vol. (2), No. (6)

المجلة الدولية للعلوم المالية والإدارية والاقتصادية
الإصدار (2)، العدد (6)

October 2023

تقديم

عزيزي الباحث

يسعدنا في دار النشر **رؤية للبحوث العلمية والنشر** أن نقدم لكم المجلة الدولية للعلوم المالية والإدارية والاقتصادية IJFAES وهي مجلة علمية دولية محكمة متخصصة، تهدف إلى أن تكون عوناً للباحثين العرب لتساعدهم على نشر إنتاجهم العلمي من الأبحاث، والدراسات العلمية. وتهتم المجلة بنشر الأبحاث العلمية التي يتوافر فيها الأصالة والحداثة والمنهجية العلمية والتي تشكل إضافة علمية في جميع التخصصات والعلوم باللغتين العربية والإنجليزية. وتخضع البحوث المنشورة في المجلة لعملية تحكيم على يد نخبة من الأساتذة الأكاديميين المتخصصين من العديد من دول العالم.

تنشر المجلة الدولية للعلوم المالية والإدارية والاقتصادية IJFAES الإنتاج العلمي في العديد من المجالات والتخصصات العلمية لإتاحة الفرصة أمام الباحثين وطلاب الدراسات العليا لنشر بحوثهم وأوراقهم العلمية. ومن أهم هذه التخصصات على سبيل المثال (وليس الحصر):

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- النمذجة المالية Financial Modeling
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- نظم التمويل الإسلامي Islamic Financing Systems
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- اقتصاد دولي International Economics
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- الائتمان Credit
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- محاسبة التكاليف Cost Accounting
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كما تشجع المجلة الدولية للعلوم المالية والإدارية والاقتصادية IJFAES نشر الإنتاج العلمي في العلوم والموضوعات المتداخلة ذات الفائدة العلمية أو التطبيقية الواضحة. وهذه النوعية من الأبحاث تشمل موضوعين أو أكثر من الموضوعات المذكورة سابقاً.

نظراً لأهمية الوقت لجميع الباحثين، تتعاون المجلة الدولية للعلوم المالية والإدارية والاقتصادية IJFAES مع مجموعة من المحررين المتميزين والمراجعين النظراء الذين لديهم الخبرة الكافية والمهارات الفنية والأدوات لتسريع عملية المراجعة والنشر قدر الإمكان. وغالباً ما تستغرق هذه العملية فترة زمنية من أسبوع إلى 3 أسابيع على الأكثر.

رئيس التحرير

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)
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IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk

E-ISSN 2977-1498

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IJFAES

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"Key Performance Indicators (KPI) of Information Systems Project Management"

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Abstract:

Performance measurements are used in project management and quality processes to determine and communicate status and accomplishments measured against specific objectives, schedules, and milestones. This paper is concerned with the calculation of performance indicators of Information Systems Project Management (ISPM). It clarifies the relationships between ISPM domains, performance metrics, and performance indicators. This paper presents a proposed list of metrics for ISPM. Based on these ISPM metrics and a combination of statistical techniques, we built a model for calculating ISPM performance indicators. The quality reviewers can use this model to evaluate and track the performance of IS project managers.

Keywords:

Key Performance Indicators, Projects Management, Software Projects, Metrics, Measures.

1- Introduction and Problem Definition

A metric is a quantitative measure of the degree to which the project manager performs the ISPM domain. The metrics can be used for measuring the project manager's performance in IS projects. They can be useful in extracting performance indicators that can help in increasing capability level and productivity, improving quality, tracking project progress, and assessing project status. An indicator can be defined as a function of metrics. Calculating metrics is a simple process because it depends on simple or known statistical or mathematical formulas such as percentage, ratio, present value, and time deviation (in hours, days, weeks, or months). On the other hand, calculating indicators from metrics is not an easy process because the indicator value may depend on a combination of metrics and each of them doesn't have the same level of importance and they may not have the same nature [1].

The rate of failure in large IS projects is larger than the rate of success [12]. So, there is a need to a set of performance indicators that may help in managing ISs projects to reduce the failure rate of these projects. The mismanaged projects may lead to the following results: unfulfilled or unidentified requirements, uncontrolled change of project scope, uncontrolled change of technology, uncontrolled risk of the project, uncontrolled subcontracting and integration, cost overruns, and/or late delivery [8].

The problem is that there are no agreed or clear performance indicators that can be used for evaluating ISPM practices. The process of evaluating performance indicators is very complicated and there are no clear or sufficient techniques for this process. For previous reasons, evaluating the performance indicators is the main concern of this paper.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

2- ISPM Domains and Phases

ISPM activities can be organized in ISPM domains, and each domain includes a set of activities related to a specific field in ISPM practices. From our survey, ISPM domains include: project scope management, project schedule management, project costs management, project integration management, project quality management, project human resources management, project communication management, project risk management, project subcontracting management, project documentation management, users' participation management, review and approval process management, systems development management, and feasibility study management.

ISPM activities are encountered through the project life cycle. So, ISPM activities can be organized in life cycle phases. Each phase includes activities, and each activity can be achieved through steps by using standards. A common ISPM life cycle includes the phases [7]: initiating the project, planning the project, executing the project, and closing the project.

3- Key Performance Metrics and Indicators

Performance measurements are used in project management and quality processes to determine and communicate status and accomplishments measured against specific objectives, schedules, and milestones. These measurements extend to include delivery of desired products and services to customers, whether external or internal [2]. Performance measurement can be useful to improve future work estimates [11]. Performance measurement is the ongoing monitoring and reporting of project accomplishments, particularly progress towards pre-established goals. Performance measures may address: the type or level of project activities conducted, the direct products and services delivered by a program, and/or the results of those products and services [1].

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

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3-1 Key Performance Indicators for ISPM Domains

Metrics should be objective, timely, simple, accurate, useful, and cost-effective. An indicator may be extracted from a metric or a combination of metrics. Figure (1) illustrates the relationships between ISPM domains, metrics, measures, and indicators.

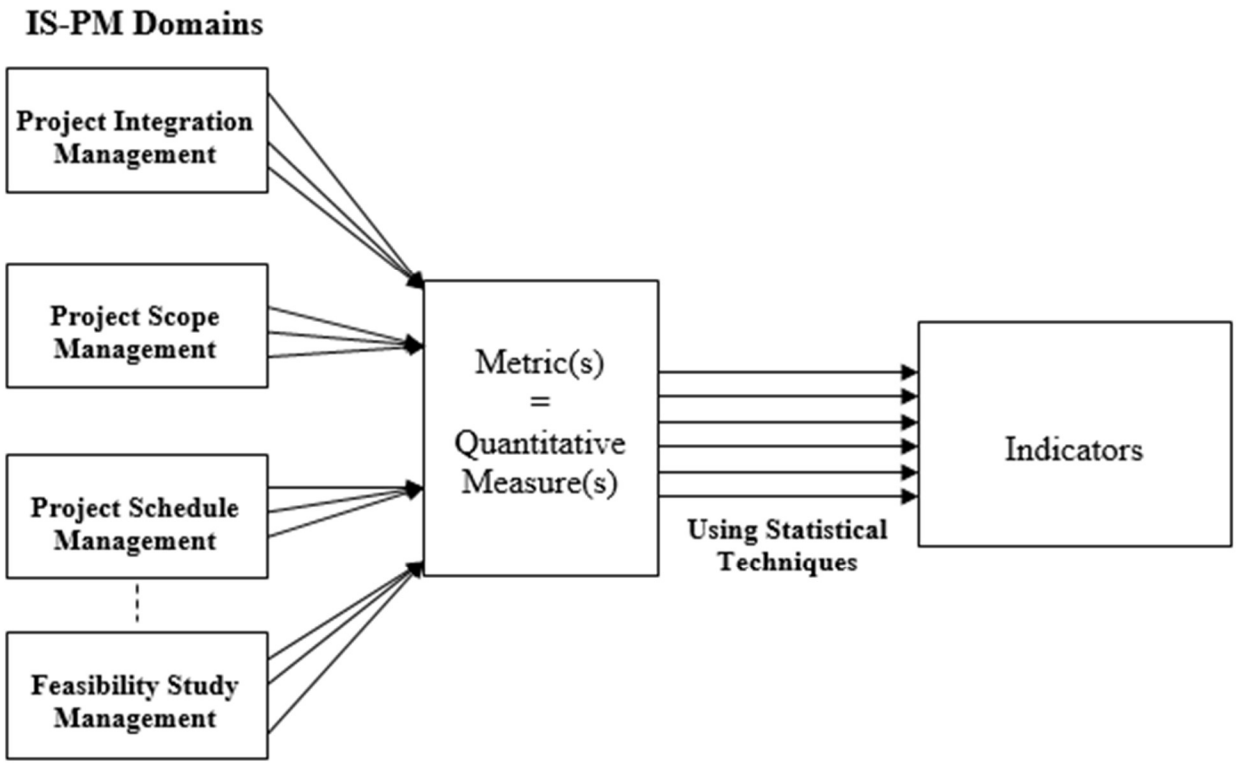

Figure (1): IS-PM Domains, Metrics, Measures, and Indicators.

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https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

The typical performance measurement for an ISPM domain includes: identifying performance metrics, collecting measurement data, calculating metrics, and calculating performance indicators.

The performance metrics can be divided into three basic categories: measures of efforts, measures of accomplishments, and measures that relate efforts to accomplishments [1].

- Measures of efforts: Efforts are the amount of resources, in terms of money, people, etc., applied to a project. Examples: The amount of money spent, and the number of person-hours burned on a project.
- Measures of accomplishments: Accomplishments are milestones achieved with the resources used. Examples: number of modules coded and number of deliverables.
- Measures that relate efforts to accomplishments: These measures are associated with resources or costs relative to accomplishments achieved. Examples may include: the amount of money expended for the portion of the project completed versus the amount of money planned to be expended for this portion of work.

Table (1) presents examples of ISPM performance metrics. These performance metrics includes the three categories of performance metrics.

3-2 Quality Metrics for ISPM Domains

There are many ISPM performance metrics that are not have the same degree of importance or efficiency in measuring the performance of IS project managers. So, we proposed a set of ISPM quality metrics. ISPM quality metrics are the most important or efficient performance metrics for each ISPM domain. So, we can say that the set of ISPM quality metrics is a subset of the set of ISPM performance

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
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metrics. Figure (2) illustrates the relationships between quality metrics, performance metrics, and performance indicators.

Table (1): Examples of Performance Metrics for ISPM Domains.

ISPM Domains	Performance Metrics
Project Scope Management	• No. of business areas involved in the project scope. • No. of users involved in defining scope and deliverables. • No. of acceptance and approval criteria identified for the project. • No. of assumptions and constraints identified for the project. • No. of modifications of the project scope statement. • No. of meetings of the project team. • No. of scope changes requested, documented, and analyzed. • Percentage of users involved in defining scope and deliverables vs. total number of users. • Percentage of scope management procedures applied vs. planned. • Percentage of project deliverables achieved vs. planned. • Percentage of project deliverables reviewed and approved vs. achieved. • Percentage of major milestones met vs. planned. • Percentage of project team meetings vs. planned. • Average ratio of feasibility studies to scope change requests. • Average ratio of integration tests related to scope change requests. • Average ratio of configuration management tests related to scope change requests.
Project Schedule Management	• No. of identified activities in Work Breakdown Structure (WBS). • No. of modifications of the approved plan. • Percentage of schedule management procedures applied vs. planned. • Percentage of tasks completed vs. planned at a point of time. • Percentage of major milestones met vs. planned. • Percentage of project deliverables achieved vs. planned. • Slippage time of the project schedule (in days).

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https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

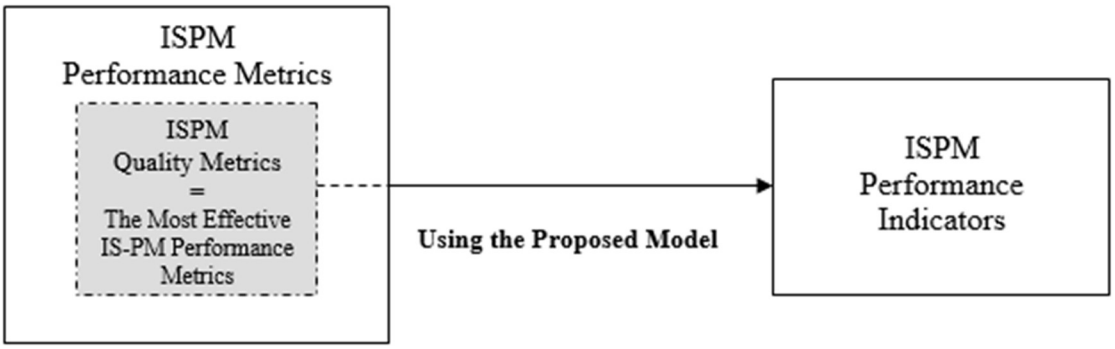

Figure (2): Quality Metrics, Performance Metrics, and Performance Indicators.

ISPM quality metrics can be effectively used in calculating performance indicators. Table (2) provides examples of the proposed quality metrics for ISPM domains. Appendix (B) includes a list of these proposed quality metrics. We classified the proposed ISPM quality metrics into two categories:

Category "Q": It can be used to give a quick vision on the performance of the IS project manager. So, they are called "Q" or "Quick".

Category "R": It includes the rest of ISPM quality metrics. So, they are called "R" or "Regular". If the quality group decided to evaluate the detailed performance of the IS project manager, they should use the two categories "Q" and "R" in calculating performance indicators.

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

Table (2): Examples of Quality Metrics for ISPM Domains.

ISPM Domains	ISPM Quality Metrics	Type
Project Scope Management	Percentage of users involved in defining scope and deliverables vs. total number of users.	R
	Percentage of scope management procedures applied vs. planned.	R
	Percentage of project deliverables achieved vs. planned.	Q
	Percentage of project deliverables reviewed and approved vs. achieved.	Q
	Percentage of major milestones met vs. planned.	Q
	Percentage of project team meetings vs. planned.	R
	Average ratio of feasibility studies to scope change requests.	R
	Average ratio of integration tests related to scope change requests.	R
	Average ratio of configuration management tests related to scope change requests.	R
Project Schedule Management	Percentage of schedule management procedures applied vs. planned.	R
	Percentage of tasks completed vs. planned at a point of time.	R
	Percentage of major milestones met vs. planned.	Q
	Percentage of project deliverables achieved vs. planned.	R
	Slippage time of the project schedule (in days).	Q

4- The Proposed Model for Calculating Performance Indicators

Calculating indicators is not easy process because the indicator value may depend on a combination of different metrics. So, we propose a simple model for calculating the performance indicators for ISPM domains. Figure (3) illustrates a general flowchart that presents the proposed model. The proposed model includes the following main procedures:

1. Define quality metrics, weights, and required implementation range for ISPM domains.
2. Calculate the quality metrics for an ISPM domain.
3. Input the data of the quality metrics.
4. Calculate the performance indicator.
5. Interpret and analyze the performance indicator.

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

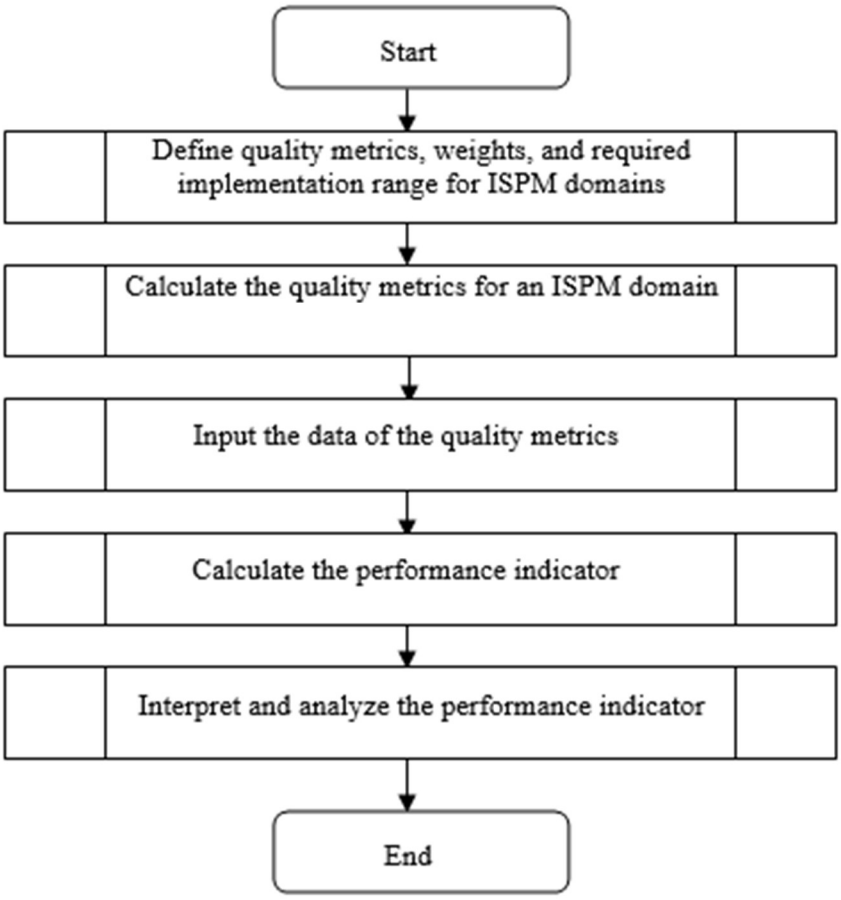

Figure (3): The Proposed Model for Evaluating the Performance Indicator.

4-1 Define ISPM Quality Metrics

The quality group should define quality metrics for ISPM domains. The definition of each ISPM quality metric should include the mathematical or statistical techniques for calculating this metric. The quality metrics for a specific domain are not having the same level of importance. So, each metric must have a weight of 1, 2, or 3. The

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

weight is a measure of the importance of each metric. A weight 3 is used to show the quality metric of the most importance. A weight 1 is used to show the quality metric of the lowest importance. A weight 2 is used to show the quality metric of the average importance. So, the quality group should determine the appropriate weight for each quality metric that is required for calculating the performance indicator for each ISPM domain.

Also, the quality group should determine the required implementation range for each ISPM quality metric. The required implementation range is the acceptable range of the quality metric. The time check points for calculating the ISPM quality metrics. These metrics can be calculated weekly as a part of the project progress report. The project manager should be involved in this process. The quality group should present the ISPM quality metrics to the project manager and deal with his objections by clarifying, negotiating, or modifying these metrics.

The previous experience from similar projects can be useful in this process. Also, this process can be achieved with the assistance of external consultants to define and validate the ISPM quality metrics. Figure (4) illustrates a flowchart that presents the algorithm of this procedure.

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https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

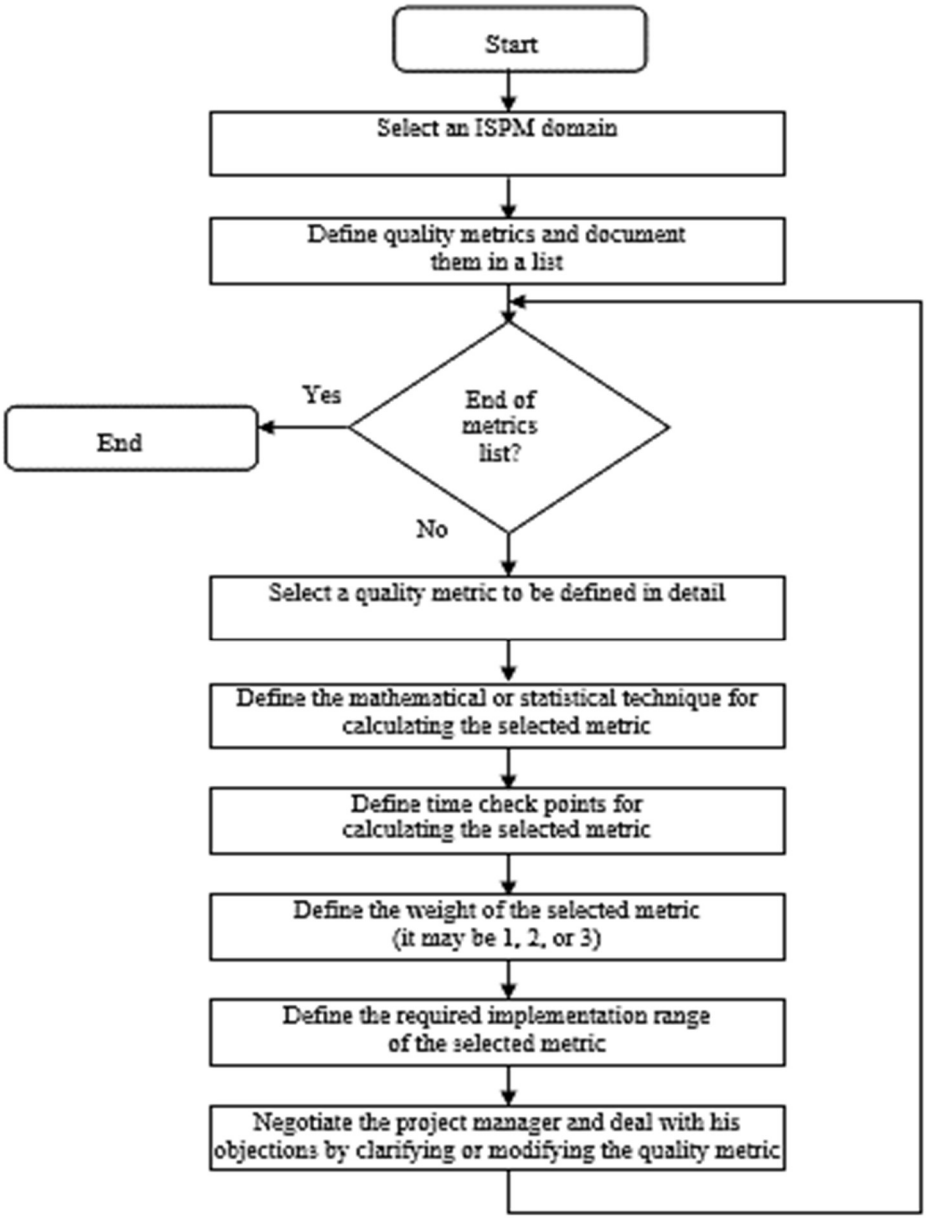

Figure (4): The Proposed Algorithm for Defining ISPM Quality Metrics.

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

4-2 Calculate the Quality Metrics for an ISPM Domain

The second procedure in the proposed model is calculating the quality metrics for a specific ISPM domain. The quality group should select an ISPM domain to calculate its quality metrics. Figure (5) illustrates a flowchart that presents the algorithm of this procedure.

4-3 Input the Data of the Quality Metrics

The third procedure in the proposed model is entering the data of the quality metrics for a specific ISPM domain. For achieving the purpose of the proposed model, the quality metrics are organized in the table as in Table (3). We proposed a scale for measuring the implementation of the quality metrics. The proposed scale is based on that each quality metric value is compared with the required implementation range. If the metric value is in the required range, the implementation value will be "Accepted" or equal to the numeric value "2". If the metric value is greater than the required range, the implementation value will be "Excellent" or equal to the numeric value "3". If the metric value is less than the required range, the implementation value will be "Poor" or equal to the numeric value "1".

Some quality metrics may not be applicable in some specific cases. So, there is a column titled "NA" in the table [13]. During computing the performance indicator, the not applicable quality metrics will be eliminated. The quality group input the actual data for each quality metric related to the performance indicator to be evaluated. Table (3) presents a sample of the actual data for ISPM quality metrics related to a real IS project. This project is GAZADCO project. Gazan Agricultural Development Company (GAZADCO) is one of the largest companies in the Kingdom of Saudi Arabia. In the next section, the performance indicators of these ISPM domains listed in Table (3) will be calculated.

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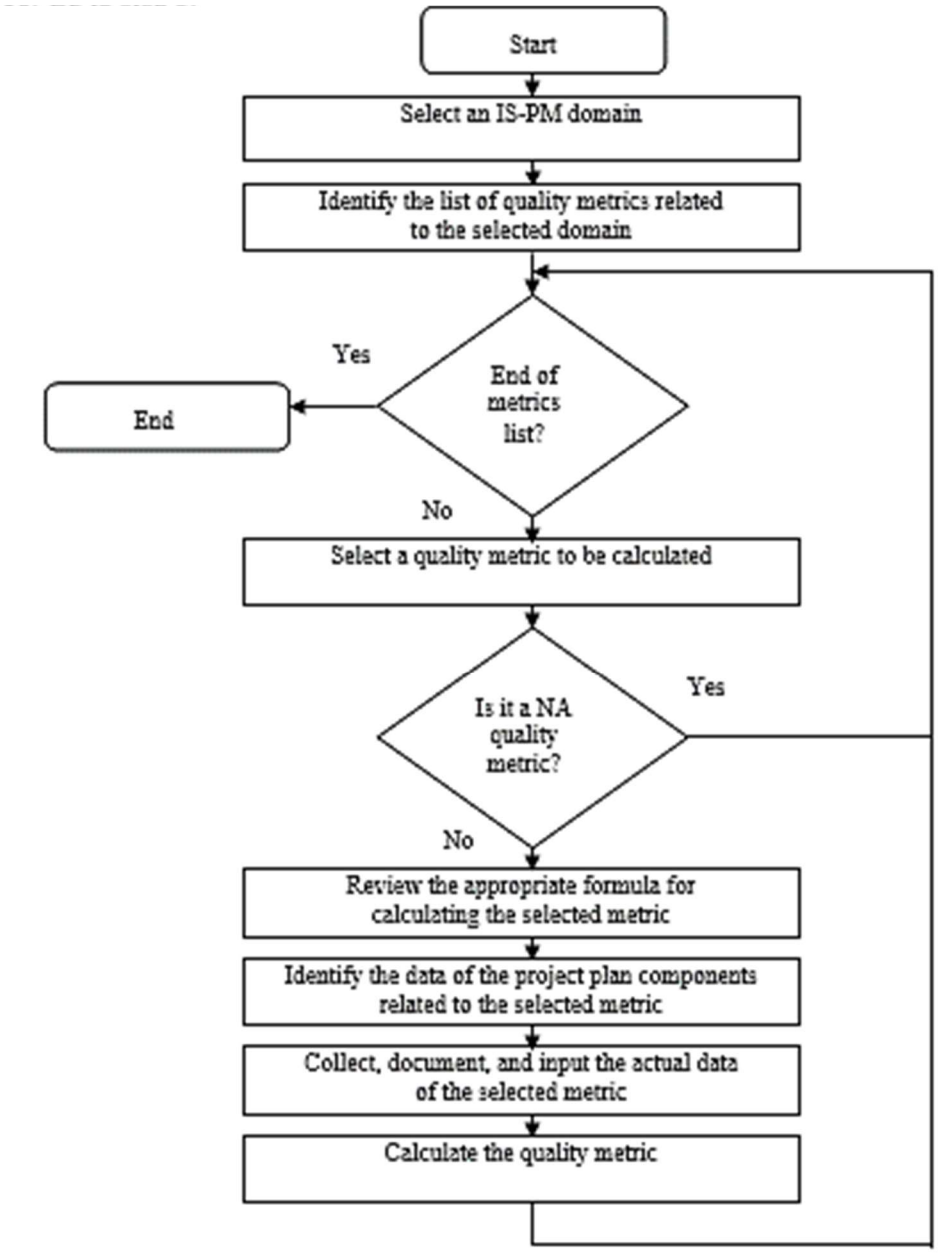

Figure (5): The Proposed Algorithm for Calculating the Quality Metrics for a Specific Domain.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
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Table (3): The Organization of the Quality Metrics.

ISPM Domains and Quality Metrics	Metric Value	Required Range	Metric Weight	NA	Poor	Accepted	Excellent
Domain - Project Scope Management							
Percentage of users involved in defining scope and deliverables vs. total number of users.	90%	85-95 %	2			√	
Percentage of scope management procedures applied vs. planned.	100%	95-100 %	3				√
Percentage of project deliverables achieved vs. planned.	70%	80-90 %	3		√		
Percentage of project deliverables reviewed and approved vs. achieved.	65%	80-90 %	3		√		
Percentage of major milestones met vs. planned.	75%	80-90 %	3		√		
Percentage of project team meetings vs. planned.	90%	80-90 %	2			√	
Average ratio of feasibility studies to scope change requests.	4:1	4:1	3			√	
Average ratio of integration tests related to scope change requests.	2:1	2:1	3			√	
Average ratio of configuration management tests related to scope change requests.	2:1	2:1	3			√	
Domain - Project Schedule Management							
Percentage of schedule management procedures applied vs. planned.	100%	95-100 %	3				√
Percentage of tasks completed vs. planned at a point of time.	90%	85-95 %	3			√	
Percentage of major milestones met vs. planned.	75%	85-95 %	3		√		
Percentage of project deliverables achieved vs. planned.	70%	85-95 %	3		√		
Slippage time of the project schedule (in days).	45	30	3		√		

Figure (6) illustrates the proposed algorithm for entering the data of the quality metrics for a specific domain.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

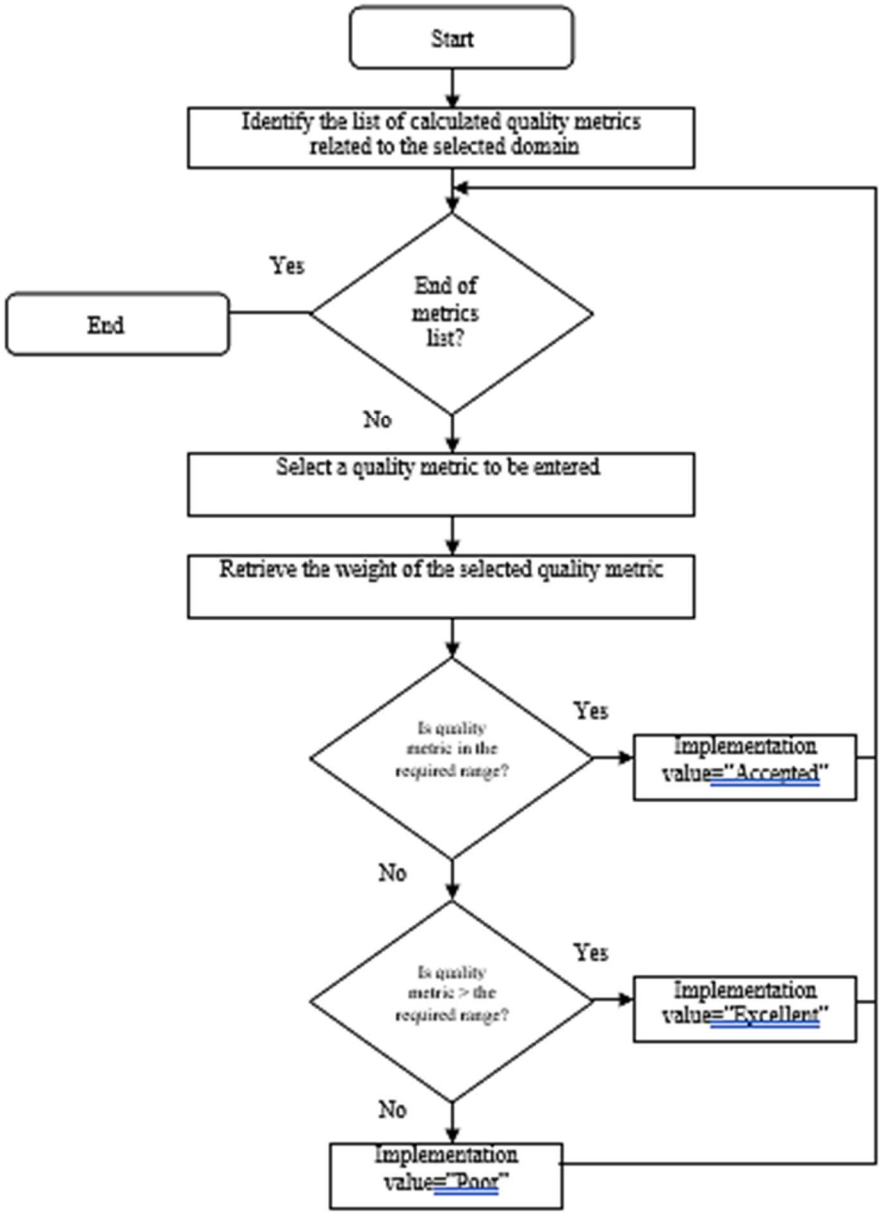

Figure (6): The Proposed Algorithm for Entering the Data of the Quality Metrics.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

4-4 Calculate the Performance Indicator

The fourth procedure in the proposed model is calculating the performance indicator for a specific ISPM domain. Calculating the performance indicator is not an easy process because the performance indicator is a function of a set of quality metrics. The source of complexity is due to the different nature of the data types of the quality metrics. They may include ROI, PV, percentage, ratio, number of days, or/and numeric amounts. Table (3) and the following proposed model may facilitate this process. The performance indicator can be calculated using the weighted mean. The weighted mean is appropriate because it takes the weights into account during calculations [13]. The basic formula of the weighted mean is:

$$\text{Weighted Mean} = (\sum Xi.Wi)/ \sum Wi$$

Where:

Xi is the implementation value of the quality metric i

Xi may take the value 1, 2, or 3 according to the rating Poor, Accepted, or Excellent respectively.

Wi is the metric weight of each quality metric i. It may take the value 1, 2, or 3.

Based on the rating scale that is used, the performance indicator value will range from 1 to 3. According to this algorithm, the performance indicator for the two domains in Table (4) can be computed as follows:

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https://doi.org/10.59992/IJFAES.2023.v2n6p1

Performance indicator of "project scope management" = (2x2 + 3x3 + 1x3 + 1x3 + 1x3 + 2x2+ 2x3 + 2x3 +2x3)/ (2 + 3 + 3 + 3 + 3 + 2 + 3 +3 + 3) = 1.76/3

Performance indicator of "project schedule management" = (3x3 + 2x3 + 1x3 + 1x3 + 1x3)/ (3 + 3 + 3 + 3 + 3) = 1.6/3

4-5 Interpret and Analyze the Performance Indicator

The fifth and final procedure in the proposed model is interpreting and analyzing the value of the performance indicator for a specific ISPM domain. The quality group should report their interpretation to their top management. If the performance indicator is not accepted, top management may take corrective actions or inform the project manager to take corrective actions. The acceptable value of the performance indicator for a specific ISPM domain depends on: the ISPM domain itself, the company, and the project nature. The quality group can determine a specific value in the range from 1 to 3 for judging and interpreting the quality value. For example: if we determined that the acceptable value of any performance indicator is 1.7. So, the performance indicator of "project scope management" is acceptable, but the performance indicator of "project schedule management" is not acceptable.

The value of performance indicator should be analyzed to discover the weakness and strength points of ISPM practices. The analysis may return to ISPM quality metrics to reveal which of them contribute to increase or decrease the value of the performance indicator. This analysis can be used to reduce or avoid many risks or obstacles that may be encountered in later phases in the same or next IS project.

5- Conclusion

Evaluating performance indicators for managing IS project is helpful for increasing capability level and productivity, improving quality, tracking project progress, and

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

assessing project status. The main objective of this paper was proposing a model for evaluating the performance indicators of managing ISs projects. So, we presented a proposed list of quality metrics that are very important for evaluating performance indicators of ISPM domains. Depending on this list of quality metrics, we built a proposed model for evaluating the performance indicators. The proposed model includes five procedures: define ISPM quality metrics, calculate the quality metrics for an ISPM domain, input the data of the quality metrics, calculate the performance indicator, and interpret and analyze the performance indicator.

We conclude that the roles of quality group are very important in ISs projects. They can use the list of quality metrics and the proposed model to evaluate and track the performance of the IS project manager. Also, we conclude that the IS project manager can use the proposed quality metrics and the proposed model to evaluate, enhance, and correct his performance in managing an IS project.

Finally, we conclude that special emphasis must be given to performance indicators in ISs projects in a trial to reduce the failure rate of ISs projects.

6- Future Work

There are some hot topics in this domain and must be targeted, which are:

- Developing a software tool for evaluating the performance indicators of software project managers.
- Finding a relation between the Capability Maturity Model (CMM) and the performance of the software project manager.

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

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IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p1

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)
Vol. (2), No. (6)

IJFAES

October 2023

المجلة الدولية للعلوم المالية والإدارية والاقتصادية

الإصدار (2)، العدد (6)

"The Utilization of Best Practices and Contemporary Developments of Cost Accounting in Strategic Cost Management"

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Abstract:

For harmonizing production processes and providing an effective production process in industrial enterprises, the first measure to be taken is to use contemporary developments that are appropriate for the structure of the enterprise. For industrial enterprises to be successful, the costing system in each production system should be determined and managed efficiently. Taking as a basis the cost management system is to help maximize the profit of the enterprise. To achieve this aim, contemporary enterprises should prepare for the future by constantly renewing themselves and competing under today's circumstances. The fierce competition circumstances of today's world and the gradual shortening of the product life cycle compel enterprises to achieve their cost, time and quality objectives simultaneously. The said situation requires the enterprises to launch to market their products with a lower cost, higher quality and faster as compared to their competitors to meet the needs and demands of the customers, and this accomplishment can be realized by using modern costing systems in production.

This paper examines the use of contemporary developments in cost accounting in strategic cost management.

Keywords: Cost, Contemporary Developments, Strategic Cost, Management.

E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

1- Introduction

Since the principal aim of enterprises is to gain profit, they seek to keep costs under control by applying strategic cost management. The principal aim of the cost management system is to help enterprises maximize their profit. To achieve this aim, contemporary enterprises should constantly improve themselves and get ready for the future as well as competing under today's circumstances. Therefore, enterprises should achieve global competition and continuous improvement while establishing their cost management systems.

The approaches that have attracted much attention in recent years in cost management systems are modern costing approaches. The research examines the contemporary approaches in cost accounting and then the use of these approaches in strategic cost management.

2- Literature Review

Accounting has been the most controversial field which has drawn much attention on the intellectual side. The objective of all the new accounting theories is to turn accounting data into information to be used in decision-making by the management [1].

In the early 20th Century, the financial reporting aspect of accounting, which is outside-oriented, weighed heavily and this caused the managerial aspect of accounting to be neglected [2]. Success factors of enterprises have been limited by the globalization of trade, transformation of enterprises into international companies, fierce competition, increased attention to customer satisfaction, and the shortening of the product life cycle. These success factors can be listed as follows [1]:

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

- **Cost**: In today's world, enterprises are under great pressure in terms of reducing the costs of their products and services. Enterprises must perform production at a lower cost without compromising quality to be ahead of their competitors.
- **Quality**: Customers' quality product expectations have considerably increased in recent years. Customers want to buy products that have a high quality at a cheaper price.
- **Timing**: For instance, an enterprise must act just in time in processes involving the raw materials and materials suppliers, production, and presentation of the products to customers. If there is a delay in these processes, the gap will be filled by the competitors.
- **Creativity** (Innovation) and Differentiation: To be ahead of competitors, enterprises must renew, differentiate their products and services and develop new products, and launch them on the market.

3- Methodology

The developments in information technology, different information inquiries of managers and third parties, and customers' demand for products that have a high quality at a cheaper price caused enterprises to deploy new applications in cost accounting. Some of the said applications are explained below [1].

Activity-Based Costing (ABC): Activity-based costing is the loading of indirect costs on products in a more detailed manner. The approach adopted in this kind of costing is to focus on activities and to load activity costs on cost carriers by taking into consideration the activity uses of the cost carriers that load source costs on activities by taking as basis the source usage of the activities. As a source-usage model, activity-based costing is a system that tries to find the costs of the sources used to perform the activities necessitated by various outputs [3].

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

This system is based on the two-phase cost distribution. In the first phase, the sources such as energy, placement, and stock-keeping are divided in terms of departments and each is delivered to cost pools in places of activity. In the second phase, the sources consumed for products are measured and the sources are loaded on the products from the related cost pools [4].

The basic difference between ABC and traditional costing is that while traditional costing assumes that products consume sources during production, ABC assumes that sources are consumed by activities rather than products and those products consume the said activities.

Benchmarking: Benchmarking can be defined as the effort to choose an enterprise with best practice in an activity as target enterprise and improve and advance that practice.

Quality Costs and Total Quality Management: This application brought forward new concepts of cost such as prevention and measurement costs, internal failure and external failure and steps have started to be taken towards flawless production through continuous improvements.

Theory of Constraints: Theory of constraints envisages that the activities, which cause bottleneck in value chain or supply chain, should be detected and corrected, or that, if correction is impossible, the activity profit should be maximized by arranging the whole system according to this bottleneck. Theory of constraints is defined as a management approach that focuses on continuous development by means of managing constraints. Theory of constraints argues that the constraints should be managed in a way so as to eliminate the constraining effects of constraints on the performance of an enterprise [5]. Theory of constraints includes best industrial practices, disciplines and philosophies of management developed for detecting and

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

eliminating the factor that has the biggest adverse effect on the performance of a system in the phase of increasing the performance of the system.

Just-in-Time Production: This approach envisages the continuance of production by keeping minimum stock in each phase. It requires effective coordination between the supplier, the producer, and the customer. In this system, production is planned upon the demand of the customer, the necessary raw material and materials are supplied without being stocked and delivered to production, and after the production is completed, the products are delivered to the customer without being stocked [4].

Just in time production system is the elimination of all waste in the process beginning with the purchasing of the raw material to the delivery of the product to the customer and thus the minimization of production costs by increasing quality and efficiency.

Target Costing: In this type of costing, cost is determined according to the price of the product. In other words, this approach is based on the view that the cost should not be more than what the price would tolerate. If the realized cost is greater than the targeted cost, the cost is reduced. Unless the cost is reduced, the enterprise will have to operate with a lower profit margin. The target costing approach is based on cost reduction and strategic profit planning. In this approach, cost reduction is the reduction of all costs at the level of high quality, while strategic profit planning is defined as the formulation of strategic profit plans by integrating marketing knowledge with engineering and production factors [4].

Product Life Cycle Based Costing: In this cost estimation method, all costs involved in the process from the product research and development phase to the end of customer support are taken into consideration. The advocates of this costing method argue the following points [1]:

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

- Non-production costs are viewed to be among the product cost such as research and development, design, marketing, sales, distribution and customer services. If the life cycle cost system is deployed, it becomes possible to include these kinds of costs in the product costs.
- Product development is a long and high cost process. Research and development and design costs have an important share in the total cost of the product. Therefore, excluding these costs from the production cost results in incomplete cost estimation.

Performance Measurement Card (Balanced Scorecard): This is a means whereby the performance of the manager, department or enterprise is measured via both financial and non-financial criteria. Performance measurement is performed in four basic aspects: financial aspect, customer aspect, the aspect of the internal activities of the enterprise, and the aspect of learning and growth.

Intellectual Capital: In recent years, the added value created by brain drain has been tried to be measured. Thus, intellectual capital will also be presented in the balance sheet. However, no result has been obtained regarding this issue. For, it is difficult to measure the added value contributed to the enterprise by the intelligence and creativity of a person.

Kaizen Costing and Improved Cost Monitoring Approach: Kazein costing is an approach used for reducing costs in the production phase and is based on detecting the target cost and continuous improvement of production costs to reach the target cost. Another aim of this approach is to monitor cost-saving activities in each phase of production with the aim of closing the gap between the targeted profit of the enterprise and the estimated profit. In line with these aims, this approach includes activities for reducing costs in the production process of the enterprise. In the

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

improved cost monitoring approach, valid cost information should be reported first for management purposes. This approach aims to design a low-cost system with continuously improved quality features [4].

4- **Analyses and Results**

In today's world, since enterprises can achieve simultaneously and successfully the goals of low cost, high quality, and shorter time, which have a critical role in the creation of competitive power, the need for certain changes has arisen out in enterprise management. In this process of change, along with the increase in the importance of the concept of strategy, strategic cost management (SCM) has come into the picture [5].

Strategic cost management, which aims at global competition, emphasizes the cost analyses and estimations in the strategic decisions to be made by the enterprise management. In this context, SCM focuses on two points: viewing the circumstances of global competition environment from a broader and long-term perspective in decisions to be made; and including strategic cost analysis in strategic plans [6].

4.1. The Definition and Aims of Strategic Cost Management

Strategic cost management is defined as the use of cost management techniques for developing the strategic position of an enterprise that views costs strategically and reduces the costs. SCM can be explained as a coherent set of cost management systems used for providing both financial and competitive advantages [7]. Accordingly, strategic cost management can be explained in different ways as an approach that provides information and guidance concerning issues such as [8]:

- Effective management of costs,
- Acting with respect to the external factors of the enterprise,

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

- Cost analysis including competitiveness in line with the strategies of cost leadership or product differentiation,
- Taking into consideration activities in the estimation of product costs,
- Realizing cost distribution by means of activity measurements on the basis of activities.

SCM is a method oriented to the planning and control of enterprise activities and analyses the sellers, buyers, and competitors in the value chain. Moreover, it covers the strategic position and cost activities of the enterprise as well as the strategic value chain [9].

The principal aim of SCM is to strengthen the strategic position of an enterprise while reducing costs. In line with the said objective, SCM differs from the traditional understanding of cost management that binds and restricts the enterprise.

In this respect, the benefits of SCM for enterprises can be listed as follows [10]. SCM provides the opportunity for

- establishing the structure in the enterprise for understanding the return of the sources and distributing sources strategically based on the basic activities of the enterprise,
- defining the strategic plans and cost factors related to cost periods,
- developing the cost management processes of the enterprise by using activity-based techniques.

According to the SCM approach, enterprises need to analyze cost data with the aim of providing a competitive advantage if they want to be active in a competition-based environment [11].

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E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

4-2 The Scope of Strategic Cost Management

The scope of SCM includes the value chain analysis, strategic positioning analysis, and cost factors analysis that exist in the strategic management literature [12].

4-2-1 Value Chain Analysis

The focus of the value chain is the cost management efforts, the primary issue of SCM. Within the scope of SCM, effective management of costs requires a comprehensive analysis of the outer environment of an enterprise. The focus of value chain analysis is value creation and the aim of this analysis is to consider events from an external perspective and to divide the value chain into the respective activities related to factors from suppliers to the end user and analyze those units for providing the effective management of costs [13].

Value chain analysis is utilized also for reducing costs. The activities performed for the production of products are analyzed and categorized as activities that add value and as activities that do not add value. Of the activities that do not add value, the avoidable ones can be eliminated and thus costs can be reduced [14].

4-2-2 Strategic Positioning Analysis

Strategic positioning, as the second important issue of SCM, is related to the understanding of the management accounting information. The role of cost analysis in SCM differs depending on the methods used by enterprises for competition [15].

Competitive advantage can be achieved if an enterprise improves the performance of its activities that add value in terms of cost effectiveness as compared to its competitors. In order to understand the differences of potential sources in value chain and the behavior of costs, interrelated activities should be approached strategically in the enterprise.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

An enterprise can sustain its competitive advantage as long as it performs the said activities in a cheaper and better way as compared to its competitors [16]. Strategic positioning analysis is based on meeting the expectations of customers differently than the competitors and thus setting a higher price accepted by the user and obtaining a return over the standards in the sector [17].

4-2-3 Cost Factor Analysis

In SCM, costs are accepted to arise due to different factors that are related to each other in various ways. In SCM, the cost is a factor that does not much reflect the richness of its structure [1]. Accordingly, the cost factors in SCM are categorized under two groups: structural ones and operational ones [13].

Structural cost factors result from the choices made by an enterprise according to its economic situation. The said choice is determined by the cost situation for a product group. Structural cost factors do not scale performances. Operational cost factors are factors that determine the cost situation of an enterprise, and they are based on the skill to manage and operate an enterprise successfully. Operational cost factors can be scaled.

5- Conclusion

Under the increasing competitive requirements, contemporary enterprises are making efforts to increase their profitability ratios with minimum cost. These efforts compel enterprises to keep costs under control and to use the most accurate and reliable cost systems.

The rapidly increasing global and technological changes have given rise to the need of changing enterprise management. The said changes and developments have both affected the cost systems of enterprises and led to new quests for change in the existing systems.

IJFAES, VSRP Publishing, UK
https://ijfaes.vsrp.co.uk
E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

When deprived of the competence in adapting to the rapidly changing market conditions and in obtaining the cost information of the traditional approaches, enterprises need modern costing systems that can provide the product and cost information in a more accurate, quality, and fast manner.

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E-ISSN 2977-1498
https://doi.org/10.59992/IJFAES.2023.v2n6p2

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)
Vol. (2), No. (6)

المجلة الدولية للعلوم المالية والإدارية والاقتصادية
الإصدار (2)، العدد (6)

October 2023

انتظروا العدد القادم

المجلة الدولية للعلوم المالية والإدارية والاقتصادية

International Journal of Financial, Administrative, and Economic Sciences (IJFAES)

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