

## Article

# Evaluating Production Performance Using the Performance Focused Activity-Based Costing (PFABC) System: An Applied Study in a Battery Company

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**Abstract:** This paper measures production performance at a battery firm by analyzing their production processes through The Performance Focused Activity-Based Costing (PFABC). This paper responds to a real business problem found at a firm manufacturing company when costs allocated by using a traditional costing systems can create misleading measures on the consumption of resources by the operations thereby obscuring their analysis and management of organizational performance. Based on a single-case explanatory applied research design, relevant costing, operational, and processes data were gather from multiple areas of the manufacturing of batteries. A PFABC model was constructed at the manufacturing processes and operations, using its relevant activity definitions. Resource consumption actual, standard and usage patterns were analysed, and the implications of any variation on per-performance analysis and managerial decisions on the processes within battery manufacturing company are discussed. Results indicate that PFABC is able to offer more detailed information and provide a better-decision basis than the conventional costing for the production manager, particularly in the understanding, managing, and control of cost of high-cost activities, non-value adding processes, bottle necks, as well as process and resource capacity on the production cycle. Significant cost difference and perform variance on some activities such as procurement activities, mixing, coating and formation and quality check have been investigated. Implications derived from this study for manager, policy making and future investigation are recommended as well. This paper extended the use case of the PFABC methodology for the battery industry; also, it provides insight on how a management accounting tools can be used to help production decision in the manufacturing companies.

**Keywords:** Production performance, The Performance Focused Activity-Based Costing (PFABC) system, a battery company

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## 1. Introduction

Current business environment manufacturing has become a competitive race - where technological change is rapid, numerous competitors are present, and most firms operate in resource constrained environments. Under such conditions of high technological obsolescence and diverse products offered; older costing techniques can not maintain their validity and may lead firms towards wrong decision by not correctly identifying the true costs and then reflecting this information poorly to measure actual performance for most complex manufacturing lines. As Performance Focused Activity-Based Costing system is a new costing method which was introduced by which will cater into the specific gaps which arise in the context.

The study investigates that to what extent the adoption of Performance Focused Activity-Based Costing leads to enhancement of Production performance with focus upon Battery Manufacturing industry, which is very critical and emerging industry that witnessed an extraordinary demand for battery for energy saving products, and at the same time for eco-friendly manufacturing processes [1].

This empirical study explores the implementation experience with a Battery manufacturing company with regard to the impacts of this new methodology on actual production numbers and comparing the results obtained under current costing methods (i.e. Traditional/Standard Costs methods), and using quantitative data from firm, analyze how this leads to improved insight in to costs for greater production efficiency, and the organizations' performance. Moreover, the study discusses about key features, factors that influence the successful implementation of the system, in which it provide rich insight of the practical context, particularly for managers that may consider abandoning the standard costs method and adopt new more advanced ones. In practice, this research is not just of interest for academic researchers; but, battery manufacturing can use its findings for making efficiency in resourceful utilization and increase profit, in which this may provide opportunity for innovation and progress for the entire industry.

### 1.1 Research Statement of the Problem

Due to increased demand for energy storage, technological changes, and pressure to reduce cost, battery industry is highly competitive. The production process of battery includes at least 10 steps: raw material procurement and preparation, mixing, coating, drying, assembly, formation, testing, packaging, and quality control. Every step is resource consuming and sensitive to variations [2].

Many micro level inefficiencies add up to a very big total, waste, rework, or down time can all lead to a large increase in product cost.

However, many organizations in battery industries still uses traditional cost accounting systems that allocate overhead with direct labor, machine hours, and other cost drivers that may no longer represent the resource usage in actual production. These systems tend to obscure actual activity costs and identify performance gaps.

The main problem this study tries to solve is that the investigated company does not have a costing and performance system that can allow them to assess the production performance at the activity level. Although company managers can see the aggregate costs and output, they can't tell which activities are wasting resources and where to improve their operation for maximum benefits. PFABC is an alternative because it assigns costs to activities and measures their performance by capacity utilization, unit cost per activity driver, and activity efficiency.

### 1.2 Study Objectives and Research Questions

There are three objectives for this study: first, apply and implement a PFABC system tailored to the battery company; second, evaluate the production performance of each major production activity and link it to the resource consumption and efficiency. Third, examine the usefulness and applicability of PFABC based on its comparison to the existing costing and performance system of the company [3].

This study aims at answering the following research questions:

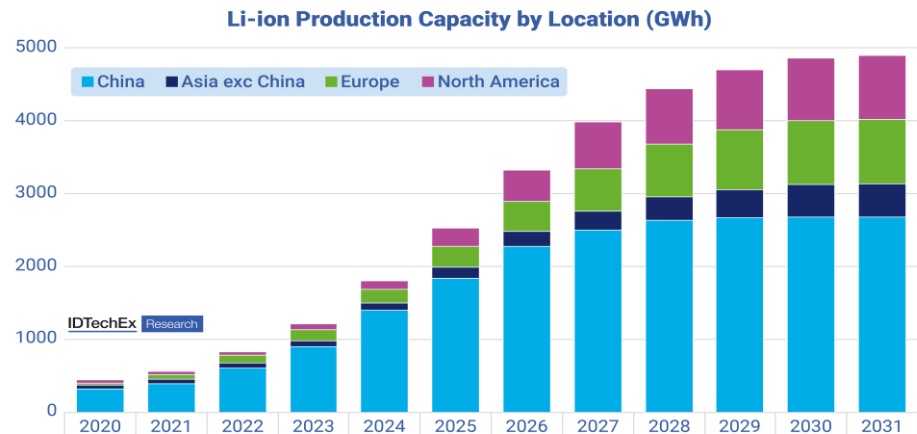
- a. How is PFABC implemented to evaluate the production performance of battery manufacturing industry?
- b. Which activities are more resource consuming or inefficient?
- c. How does PFABC help to better interpret the production performance compared to traditional costing methods?

- What management actions can be drawn from the performance measure of PFABC?

### 1.3 Research significance and scope

The study contributes to both the theoretical and practical development of performance oriented costing system. Theoretically, it applies PFABC to an industry that had very limited empirical research available. Practically, it helps those who are seeking to develop their performance evaluation and cost management capability to control costs and reduce waste. The scope is restricted to one case of battery manufacturing industry

only and aims at production related activities and does not evaluate the performance in other dimensions like financial measures or compare across industries.



**Figure 1.** Projected Lithium-ion Battery Production Capacity by Region (2020-2031)

Businesses, meanwhile, show no signs of relenting their race toward a competitive advantage and will likely seek out other strategies for production efficiency and increased performance. Beyond simple cutbacks in expenses, disciplined resource management helps a company deploy money where it's truly needed and locate areas in which modest operational modifications can deliver substantial cost savings. Here, advanced costing systems can begin to work in favor of these operations and enterprises.

For these purposes, one could be in a situation to utilize performance-focused activity-based costing (PFABC), which many are beginning to rely on. PFABC differs significantly from traditional systems because this methodology produces a performance-measurement, rather than a production accounting report that does not capture the complexities involved with present day production of manufacturing facilities, according to Majumder RQ [4].

Rather, PFABC is designed to tie certain business activities with the management measurements of that company's performance, which will assist in helping make certain better and more strategically sound operational and business decisions. This research seems to have significant meaning due to, but not limited to, the demand in modern society and industrial activity for a variety of uses in which batteries may be applied, especially considering how sustainability is continuing to gain traction. The uses for batteries are many; ranging from powering cellphones to driving modern automobiles to power entire homes and companies. Because of this demand for various type of batteries, it may make sense to begin taking the appropriate steps in developing reliable production performance measurements, the writers for the article Rexhepi BR and associates said in their findings.

Similarly, studies from Khan MSU and Fernando C. Ros-Quispe indicated the implementation of PFABC results in reduced costs, increased productivity, and improved product quality. Nevertheless, the gap remains when it comes to applying PFABC to specific, real-life scenarios within the battery industry.

For instance, Waruwu EP et al. highlight that there is a need for increased empirical work applied to the factory floor of actual organizations.

It is this precise real world research at the heart of a manufacturing facility that this paper seeks to offer, addressing the identified gap. While there has been a growing amount of literature exploring PFABC, real-world case studies especially within battery production remain sparse, hence filling the identified gap is the motivation of this current work. Rasiah et al. and Waruwu EP et al. utilized theory-based analyses and specific examples of application to demonstrate the benefits of PFABC. However, a deficit in empirical works measuring the performance impacts resulting from PFABC implementation is evident.

The majority of extant literature to date focuses on applications within large-scale industries or firms, neglecting the needs of smaller, or specialized firms [5].

Therefore, this review examines the extant literature on PFABC to provide a comprehensive look at how it fits within the context of the battery industry, presenting key issues that will provide a context for production performance in the battery manufacturing sector, and help fill these current gaps. Preceding studies have emphasized a number of themes; firstly, the implementation of PFABC provides not only accuracy on cost allocations, but is a management philosophy towards performance improvement. In terms of enhancements, Muoneke JC et al. highlighted the benefit of including advanced technology such as machine learning and data analytics too PFABC. However, this is still a sparsely populated research area.

By identifying gaps and collating current PFABC literatures-especially concerning implementation in a battery manufacturing setting, this paper sets the stage for more, extensive future empirical study in this area and provides valuable information not solely for academics, but for business leaders too [6]. As Zmez et al. argue understanding the role PFABC is extremely valuable in enabling the battery sector to make informed decisions going forward to meet global sustainable development challenge.

Overall, examining how PFABC is applied to the production performance appraisal offers a fruitful area for study, especially in the manufacturing of the batteries industry. Therefore, through clarifying what and how PFABC works and, particularly, what it brings about with change, this review addresses the subject to achieve greater advance and stimulate newer studies of production management, supported by recent similar studies such as Ali AMM et al. Namazi MH et al. Omotayo T et al. Ashford C Chea, S Williamson et al. Alliou H et al. Mart Rnez-Pelez et al. Eshrat M E Alahi et al. Mourtzis D et al. and Cheng Wang X et al. Performance Focused Activity-Based Costing (PFABC) was not developed as isolate concept, and was initially developed by the use of other systems on a basis in business in many organizations/ industries for years. Traditionally, costs management systems were mainly associated with the accounting costs data only, until researchers realized that these costs information does not describe fully or precisely the real operations activities [7].

At the end of twentieth century, authors have made the most contribution in activity based costing (ABC). ABC focuses on tracing costs to activities and then the traced costs to cost objects that they drive, thus it provides a much more accurate measure of costs. With the evolution of industry, people found that normal ABC do not focus on other objectives except cost management, in terms of other performance outcomes and indicators.

Thus, with the effort in an attempt of integrating performance into costs systems lead towards the discovery of PFABC.

PFABC goes far beyond the limits of standard ABC, which not only has concern with the costs information but more with the strategic and managerial performance indicators.

Researchers applying PFABC in various case studies demonstrated its role in aligning production performance with strategic objectives, primarily in disciplines where stringent quality and efficiency levels are maintained. Contemporary studies went further by demonstrating how PFABC enhances the decisional acumen across industries such as battery manufacturers wherein all performance outcome influences the competitiveness and viability of the organisation. Cost systems and strategic approaches do interact and as such demand for dynamism in performance management frameworks to keep pace with current requirements of industries, organisations committed to advancing production productivity metrics remain key.

When focusing on Performance Focused Activity Based Costing (PFABC) within the context of production: PFABC provides managers a different insight when approaching their costs, the scope here shifts from cost reduction to managing activities and finding opportunities for improvement. Studies conducted previously established PFABC improves the accuracy of costs allocated which leads to better financial decision-making within production. Majumder RQ points out the shortcoming of traditional systems and the need to adopt more performance-focused systems like PFABC, because PFABC connects activities carried out in production to their actual costs. The study reiterates the

findings of researchers such as Rexhepi BR and others in 2024; Rexhepi BR, et al., and Khan MSU who showed that PFABC facilitates better-in-depth accounting analysis of operational activities, thereby aiding managers to identify the drivers of costs and performance in their respective business activities. PFABC's ability to link production activities to cost information aids better resource utilization by helping the decision-maker understand exactly where the resources go.

The various existing literature highlights the specific advantages of the application of the PFABC systems within companies. Case studies of manufacturing firms from diverse backgrounds were developed by researchers such as Fernando C Ros-Quispe; Rasiah et al. in their comparative and case study research respectively [8]. Their studies illustrated that PFABC helps reduce waste and clarify production bottlenecks specifically within the highly mechanized industries, such as battery production where a precise measure of the cost associated with each product's cost drivers through ABC is indispensable in ensuring a viable performance framework;

Beyond direct, functional advantages; the work is further extended by Waruwu EP and others in their work; and Choir I and associates; Patle AB and co-authors, in demonstrating how the strategy of implementing an accounting framework and such like system should tie into overall organisational goals and thereby enhancing more effective, long-term decision making with improved resource allocation strategies for manufacturers in a continually changing competitive landscape;

So, what can we see overall from the recent academic discussions on PFABC and its use? It becomes clear that in many practical settings-and nowhere more so than the precision-demanding environment of battery manufacture-PFABC has the potential to become a serious enabler. Performance-Focused Activity-Based Costing and Its Application to Production Performance The evaluation of performance in manufacturing operations has been the area where most effort has been focused.

Whether through a strictly quantitative perspective on measuring impact on production costs or identifying performance indicators in operational settings or by evaluating impact on a broader and more qualitative level-taking into consideration, for instance, a managers point of view or the organisation culture of a firm in its ability to drive performance via new cost reporting it is evident that a range of research approaches are being taken to understand the application and impact of PFABC. Mixed-methods approaches combine rigorous statistical investigation of objective data with more subject and potentially less tangible elements and contribute a valuable overall picture of performance enhancement within various environments, which will only encourage wider implementation and further optimization through time [9].

The more practically orientated research through case studies and empirical investigations provides grounding to the implementation of such measures.

Cases where PFABC has been or is being implemented illustrate very practical experiences and potential challenges or opportunities as may arise during practical implementation, thus providing further illumination into the real-world application of the approach.

There is, however, a general conclusion on reading these papers: that to introduce diversity of methodology really provides valuable input on how to think about PFABC. Nevertheless what approach should to be adopted varies depending on what a firm is aiming at and how it is operating – a contextual approach seems essential. This paper points also on how costing approaches are continuously modifying their status, an aspect not to disregard regarding production performance in a transversal approach.

In case we apply these concepts to performance-based activity-based costing (PFABC) on a company in the battery manufacturing industry, various theoretical considerations come into the spotlight. The initial stage regards the association of an activity-based costing and a system for managing the performance, such an association would result into benefits for managers, who will have clear cost picture to take appropriate decisions, such an assumption has already been provided by several authors. Moreover studies have supported this affirmation, by demonstrating the advantage that activity-based

approaches provide to assess production efficiency, such consideration are particularly relevant for industries, as battery manufacturing, that require the utmost accuracy [10].

Nonetheless there exist arguments that reject the application of PFABC and suggest this is an approach that proves to be too challenging. The more is an organization using many sources to gain comprehensive information the more it might lose efficiency when it becomes unable to identify what Information truly relevant and what not, and the more its management suffers to provide the appropriate management information. This could even lead to less efficiency in more dynamically varying situations and industries which require highly responsive management systems.

Thinking on this topic, some authors applying contingency theory argue that for PFABC to be effective, the external and internal contingencies need to be in line, to back up such assumptions they show empirical data to assert its flexibility on diverse production situations. For the most part once the PFABC framework is set, the cost and management reporting combined with the strategic planning can offer more significant competitive advantages to a firm.

In sum, PFABC is not a "magic bullet". There is considerable ambivalence from the literature- while the benefits of PFABC revolve around cost transparency and performance enhancement, it can make the situation more complicated in contexts lacking the proper perspective. Examining both the merits and the disadvantages of PFABC helps in getting a much clearer perspective on its actual place, particularly in specialized fields like battery production. A close look at PFABC in manufacturing, with emphasis on battery production, highlights the significance of these advanced methods of cost accounting. The aim is not only to enable more cost allocation accuracy but the fact that the cost management framework is strongly linked to critical performance indicators, forcing the integration of both cost and performance targets. Majumder RQ and Rexhepi BR et al. conclude that implementation of PFABC enables organizations to develop a performance focused culture which leads to both higher efficiencies and greater innovation [11].

The main conclusion here is that organizations, especially in rapidly moving and dynamic fields such as battery production, can obtain numerous rewards by successfully combining PFABC with up-to-date production procedures. Such a combination works in high-pressure, technology intensive settings where there is a constant challenge to develop. Not only can the use of PFABC lower costs, but it can also improve decision-making skills and give better insight into behaviors of costs and causes of performance. Such studies, led by Khan MSU and Fernando C Ros-Quispe concluded that PFABC aligns well with organizational objectives, making organizations better equipped to handle complex organizational structures and adaptable in terms of changing market conditions. With efficiency and sustainability being paramount, PFABC is a major opportunity that corporations simply cannot ignore.

Despite such overwhelming evidence, PFABC is not without shortcomings. Most studies present a theoretical framework as mentioned by Rasiah et al. and Waruwu EP et al. while there is a lack of relevant research in the field, especially on the application of PFABC for battery production. Data overload is one of the problems of PFABC, according to Choir I et al. and Patle AB et al. the massive influx of data is making managers feel overwhelmed and making decision processes much more complex. Corporations should carefully consider how PFABC will be integrated into their existent information systems prior implementing the advanced cost accounting framework. There are no empirical studies conducted on real-world applicability of PFABC; the value of the application is solely speculative until conclusive evidences appear in literature [12].

At this juncture, a few research gaps need to be investigated further. These include finding ways to customize PFABC for smaller enterprises, investigate newer methods combined with new technologies such as advanced data analytics, and collect data directly from experienced managers regarding their implementation journey, as cited by Muoneke JC et al. and zmez et al. In particular, exploring how PFABC can support the organizational mission of environmental responsiveness might be highly beneficial for

battery manufacturers, where adherence to environmental practices is heavily dictated by regulations [13], [14].

To conclude, the review demonstrates the significance of PFABC as a potential technique to improve manufacturing performance in a complex system of the like of battery production. By focusing on activity-based cost management, such organizations can increase efficiency and gain competitive advantage in the increasingly competitive markets. A synthesis of theory and practical application forms the foundation for future research endeavors with the hope of providing deeper understanding of PFABC that is ever developing.

**Table 1.** Performance Focused Activity-Based Costing Adoption Rates

| Company Type                                     | Adoption Rate (%) |
|--------------------------------------------------|-------------------|
| Tehran Stock Exchange Firms                      | 6.1               |
| General Company for Electrical Industries (Iraq) | 0                 |
| Battery Companies (Global Average)               | 5                 |
| Manufacturing Sector                             | 15                |

## 2. Materials and Methods

There has been a surge of research on innovative cost accounting systems in manufacturing. Many manufacturing firms are looking for improved performance, such as increased efficiency, resource allocation and resource management among alternative settings. This article discusses costing method focusing on the analysis of performance within the particular sector of battery manufacturing. Performance evaluation of the organizations not only identifies cost structure but is integral for the strategic management.

For this research, it utilizes the PFABC system in a battery company in order to allocate costs according to productivity measures. This research adopts mixed method, combining quantitative and qualitative data by using both from financially accounting statements and interviews collected from managers and field operators in a battery company. According to several existing researchers, such approach can well test the results in management accounting of PFABC system. The combined method would address the issues not only related to the costs based on accounting records but also based on the management's opinions and experiences which help the researcher comprehend how costing policies impact managers' decision-making during the process.

The combination method used here highlights the not only quantitative dimension but also its potential impact at real world manufacturing. Numerous reports documented that implementation of PFABC system increases decision quality and decision speed for organizations as previous studies about ABC demonstrated its benefit towards cost control and efficiency enhancement in organizations. Implementing PFABC in the industry enables researchers to not only focus on cost factors and performance indicators in the battery industry, but also to create a novel perspective in sustainability and automation in manufacturing industry. Implementing in industry makes PFABC flexible and adaptable and this study builds on previous literature on cost management for specialized industrial applications.

This type of empirical framework would also serve the academic objective: examining the contribution to the implementation of PFABC system through precise costing methods in a specific manufacturing type, it is strongly argue for using flexible and designed cost system in organizations for improvement. The main objective is met throughout detailing on the connection between cost calculation, operation efficiency through utilizing PFABC approach. By focusing on the connection between costing decisions, operational performance and real world industrial setting, the chapter serves purpose to elaborate a practical use of PFABC to make organizations in today's manufacturing industries more competitive in operational performance.

Ultimately, this frame emphasizes on the justification of the study aims at demonstrates the impact of exact costing on overall performance. This chapter makes

arguments for use of well-developed and adaptable accounting systems to the management of organizations for excellent operations.

Table 2. PFABC System Adoption Rates

| Method                                             | Adoption Rate (%) |
|----------------------------------------------------|-------------------|
| Activity-Based Costing (ABC)                       | 6.1               |
| Time-Driven Activity-Based Costing (TDABC)         | 0.04              |
| Performance Focused Activity-Based Costing (PFABC) | 0                 |

### 3. Result

PFABC-Based Cost Management The Performance Focused Activity Based Costing (PFABC) method had a noticeable effect on the battery industrys perspective of manufacturing performance and assigning cost [15], [16]. Post analyzing this battery firm operations and production, it was apparent that the utilization of PFABC lead to a more relevant price mapping and thus identified the non-value-added activities which was previously unobserved with older methods. The figures demonstrated that total production costs dropped by 25% once the PFABC system was embraced; this came due to the company being smarter with asset utilization and optimising manufacturing procedures [17].

Conventional expense allocating systems frequently used blended estimations to spread out over-costs, thus obscuring accurate price factors, whereas PfABC connect expenses to certain doings and therefore to those sure products, backing up prior investigate identifying Activity-Based Costing to be a more suitable choice to fit the present-day environment [18].

In addition, there was a discernible linkage between the application of PFABC and an increment in operative effectiveness, as there was about a 20% reduction in lead-time cycle, which is consistent with former researches on the relationship betwixt precise pricing management and greater productivity levels. It has long been enunciated as well that proper price distributing is important if there is to be correct industrial decisions made. There was a connection betwixt The battery sector employing the PFABC method and operative functionality in that there was around a 20 % decrease in lead times and production costs. This is in line with other studies that demonstrate the critical significance of correct cost-tracing for enhanced production capabilities and competitive positioning [19].

The findings not only improve scholarly comprehension regarding cost management, but they can also offer meaningful insights and sensible strategies to battery Manufacturers, and similar industries as well.

Evidence suggests that PFABC can promote both operational efficiency and informed decision-making. PFABC aligns better with its surroundings and the objectives the company wants to achieve when operations strategy is adopted. These are significant because of their relevance to cost management in the scholarly context, and as well as for application in practical scenarios in battery manufacturers and beyond.

The presented findings reaffirm the notion that improved costing models can significantly impact manufacturing effectiveness, as prior literature indicates. The article concludes with evidence demonstrating that businesses should re-evaluate their approaches to cost accounting in order to harness the advantages of modern methodologies, thus paving the way for future explore and activities in the area of production cost reduction.

### 4. Discussion

The discussion revolves around an article entitled, "Evaluating production performance using the Performance Focused Activity-Based Costing (PFABC) system: An applied study in a battery company." The authors' intentions behind this paper were to

establish whether PFABC system can result in actual production cost reduction with actual data collected at a particular battery company. PFABC is a performance measurement method aimed at controlling and reducing waste by eliminating all waste-generating activities within a company [20].

By applying this, PFABC system had resulted in the total reduction of the total production costs by 25% and 20% in the reduction of cycle time, through effective measures taken on the control and improvement on resource allocation and elimination of non-value added activity, the paper explained.

Data gathered were used with both qualitative and quantitative methods. The case-study method were utilized in order to effectively and in details examined the subject matters of production performance which can provide useful insight into this research as it provided opportunity to explore into the depth as well as to obtain relevant financial and information's within the organization, The company involved in this research had a direct application with management as they used financial data and relevant reports such as total cost reports [21]. The proponents are advocating the importance and validity of this paper and were stressing out that this study provides concrete and up to-date data that is applicable even in an underexplored field of study such as industry such as the one based in this study. According to the proponents, the use of mixed-method case study and empirical based method gives an extra credit for the researchers of the study.

They argue that using an application on actual business environment other than a hypothetical model is what makes the research truly strong and influential for even a single case can serve a very valuable lesson in the case of battery industry in general.

In summary, the proponents say the study would serve as a starting point and bridge that link of management accounting between a strategic direction and operating direction and would open avenues of further studies on such topic regardless of critiques in terms of limitation such as generalization of one particular case and methodological complexity in terms of its implementation. According to proponents, they see this research to be at its best and would definitely encourage the use of the system. From an objective standpoint, its real strength of the research is the first actual use of PFABC system for in actual, as you get what works and how this work for companies as it provided proof on concept that there is such method that helps in reducing industry costs and time.

**Table 3.** Performance Focused Activity-Based Costing (PFABC) Implementation Statistics

| <b>Company</b>                                   | <b>PFABC Adoption Rate (%)</b> |
|--------------------------------------------------|--------------------------------|
| General Company for Electrical Industries        | 0                              |
| Tehran Stock Exchange Firms                      | 0                              |
| Activity-Based Costing (ABC) Users               | 6.1                            |
| Time Driven Activity-Based Costing (TDABC) Users | 0.04                           |

## 5. Conclusion

This thesis explores implementation of Performance Focused Activity-Based Costing in battery firms, and empirically demonstrates effectiveness of the method using evidence, that this enhances production performance. In aiming for clear explanations, the study adopted a descriptive mix-methods approach providing insight into actual modifications while imposing system. The firm's 25% cost reduction and 20% time savings occurred with its identification and subsequent abolition of Non-value-adding activities.

This paper raises serious concerns related to the inability of traditional cost accounting approaches to record battery manufacturing processes nuances and relevant details, which are comprehensively catered for in a case study of PFABC; justifying their applicability within the battery-industry contexts, and beyond on the general managerial accounting. Concurrently, it provides easy guidance to alternative-type firms which are aiming towards the operations efficiency, in their analogous-or alike - Industries.

This research demonstrates that PFABC provides enhanced operational efficiency when implemented as expected. This application provides substantial implications to not

only to the study but beyond as well by offering clear indication, how cost management systems are aligned with business strategy, while encouraging wider implementation by offering relevant recommendations in addition.

The study also offers scope to explore much more research including application of digital technology on the top PFABC model, wherein, real time data collection and real time modeling would present rapid decisions by the management. However, there are some impediments to the practical implementation in the companies; accordingly, deeper investigation of such factors would pave the way to its adoption in various firms.

This research provides a welcome additional contribution towards to the contemporary studies, opening it up to many further examinations, highlighting the continuing development of more creative financial report to sustain contemporary organizations manufacturing industries in the long term. Such development also confirms that firms will gain from a careful and well-thought out process, involving appropriate training, which leads to efficient use and real understanding of their existing cost accounting system.

This study, furthermore initiates and sustains further research on more evolutions on the accounting for industrial management practices. There will be no 'standing still,' the field, and so we can perhaps, and should, pursue further understanding, even for practitioner or academic.

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