



# A Critical Study of Cost Approaches in the Accounting Thought: Conceptual Study

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## ABSTRACT

This article has aimed to show such theoretical cost approach in accounting thought. The article has divided the cost approach into two groups, the traditional approach that includes the volume based costing, French cost accounting approach and grenzplankosterechuning approach and contemporary cost approaches which include four approaches activity-based costing (ABC), time-driven ABC, resources consumption accounting and lean accounting. As result of the debate that led to the existence of pros and cons of each approach and no one can declare to say preferential approach on the last absolute.

**Keywords:** Cost Approaches, Traditional Cost Approaches, Contemporary Cost Approaches

**JEL Classifications:** M40, M41

## 1. INTRODUCTION

Traditional cost approaches provided information suitable for the managers of yesterday's static environment in which markets were dominated by sellers. However, global competition, economic instability and successive developments of manufacturing technology not only pushed cost structure forward in favor of indirect costs at the expense of direct costs (which decreased, especially direct labor, as labor hours became considered as a cost driver and the basis for allocation) but also stimulated organizations' managers and management accounting professionals and academics to search for and adopt cost approaches suitable for the modern, customer-oriented business strategies. Eventually, this gave rise to new cost approaches, such as activity-based costing (ABC), time driven ABC, resources consumption accounting (RCA), and lean accounting (LA), which - given their advantages and disadvantages - caused a sort of confusion for managers and management accountants and even pushed many of them to hold on to the traditional approaches known to them despite flaws and lack of suitability to today's dynamic environment. Consequently, researchers found it imperative to assess cost approaches in order to determine the best ones available based on the investigation of the pros and cons of each cost approach.

## 2. TRADITIONAL COST APPROACHES

Traditional cost approaches and their philosophy originated in the first half of the 20<sup>th</sup> century as a basis for the allocation of indirect costs. These approaches converged into a set of foundations that made up the general framework of allocation. Of course, they differed in terms of the procedural processes of allocation resulting from the differences in approach's philosophy, production environment and the administration culture in the countries where these approaches developed. These approaches are discussed in brief below.

### 2.1. Volume Based Costing (VBC)

According to this approach, indirect costs are aggregated in cost pools classified in terms of their relationship to the final product unit into production centers and production support centers. The costs of production support centers are distributed among production centers as a preliminary step for allocation of the costs of production centers to the various cost purposes according to allocation rates that regard volume as the only cost driver (Putteman, 2009). Therefore, the philosophy of cost allocation according to this approach is based on finding a relationship between indirect costs and cost purposes as interpreted by

production volume. Eventually, product share-cost purpose - of the indirect costs is determined on the basis of the volume of allocation rate consumed by this product.

Baxendale and Foster (2010) that the use of a single allocation rate at the enterprise level was acceptable in the early years of cost accounting: i.e., when inventory assessment and financial statements were the main purpose to determine product cost. Perkins and Stovall (2011) add that the simplicity of production processes, the intensity of manual labor, and the decrease of indirect cost rates compared to total cost, have supported the spread of this approach in US and other international industrial companies. In addition, simplicity of the allocation methodology and seller's control of market during low levels of competition have made cost figures (resulting from cost systems based on this approach) acceptable under the pricing freedom enjoyed by companies.

Successive developments in the manufacturing and production practices, enterprises' adoption of strategic thought in business management, and intense competition both locally and globally have led business organizations to rethink the adoption of this approach. Womack and Jones (2003) believe that the success of this approach depends on the availability of a set of circumstances, the most important of which are stability of production processes, direct cost control over cost structure, products compatibility, low product diversity, and length of product life cycle. These circumstances, however, have become difficult to obtain in many industries of today's business environment. Perkins and Storall (2011) confirm that VBA approach is suitable only when cost purposes consume enterprise's resources almost equally so that the likelihood of product cost distortions resulting from industrial processing variations reduced. Contrastively, under differing resource consumption rates, the information provided by such approach will be insufficient and ineffective for decision-makers.

The main problem in this approach is not only the fact that the accuracy of cost data is influenced by the availability of a range of conditions, but also in the allocation methodology itself, which is based on a set of irrational assumptions and practices that involve many measurement errors in aggregating heterogeneous costs into cost pools, and the use of wrong drives to explain the relationship between cost and final product. This problem has led to the limited use of this approach to support administrative decisions due to the confused understanding of the origin of cost.

## 2.2. Comptabilité Analytique Exploitation

According to French cost accounting approach (FCA), the methodology of indirect cost allocation is based on dividing the enterprise into a set of main sections and sub-sections according to their relationship to the final product. A section considered a main section when its outputs constitute a major part or play a major role in the composition of the final product; otherwise such section is classified as a sub-section. A measurement unit is determined to represent the basis for allocation - i.e., shipping in FCA terms - of costs of sub-sections to the main sections and of main sections to the final product. It is presumed that all activities and functions performed within a section are homogeneous in relation to the measurement unit (Neumann and Cauvin, 2007).

This approach relies on the same traditional approach methodology in dividing the cost pools into main sections (production centers) and sub-sections (support centers), and distribution - i.e., allocation according to FCA approach - of costs of sub-sections among main sections; however, the procedural steps of the allocation process differ on the mechanism of designing cost pools which characterize enterprise hierarchically as a set of functions combined in terms of homogeneity and relation to measurement unit or allocation basis. In terms of using measurement units, these cost pools are considered as cost drivers of sections, instead of using a single cost driver for the plant, and added more accuracy and reliability to the information provided by this approach.

Nonetheless, a critical investigation of this approach would highlight several shortcomings, which can be summed up as follows:

- This approach is unable to generate information needed for decision-making in a competitive environment characterized by dynamism. On the one hand, it structures the enterprise in a way that makes it difficult to explain the new processes and activities necessary to fulfill customers' requirements of new products; on the other hand, the competitive business environment requires accurate tracking of all costs to the final consumed products instead of allocating costs of some sections to other sections.
- The need for homogeneity of activities and functions within section according to section's measurement unit - cost drive - is fraught with many practical problems, notably the huge expansion in the number of cost pools and the consequent complexity of allocation processes.
- The lack of an objective basis for the identification of sections measurement units has made volume- asin VBC - the basic cost drive of main sections and sub-sections and, in many cases, volume does not reflect the factual resource consumption of these sections.
- It is difficult to prove the assumption that forms the basis of this approach, i.e., the full utilization of available resources.

## 2.3. Grenzplankosterechnung (GPK) (Planned Marginal Cost Accounting)

The philosophy of this approaches based on the idea that resources are the real cause of cost. So, the correct understanding of cost allocation is obtained through tracing and modeling of resource flow in all units of enterprise. Costs are classified according to resource's intrinsic nature and behavior within the resource pool, which is based on the relationship of costs to the outputs of the pool. In addition, it also emphasizes the importance to define each consumption relation based on quantities, given that the amounts of costs follow these quantities but are not included in the determination of the consumption relations (Ahmed and Moosa, 2011; White, 2009; Clinton and Webber, 2004a).

The basic components of the GPK approach are represented by Grenzkosten (marginal costing, which classifies costs into fixed costs and proportional costs) and Plankosten (planned costing, which forms the basis of cost control in the resource pools) (Krumwiede, 2005). Resources are allocated to cost purposes by dividing the firm into a number of resource pools classified

on the basis of the nature of their outputs into production centers and support centers (Portz and Lere, 2009; Grasso, 2005). Besides, costs within each pool are classified into fixed costs and proportional costs. Fixed costs are so-called due to the intrinsic nature of the resource and its lack of relationship with the pool outputs represented by measurement unit which is the cost driver. Proportional costs are costs associated with a quantitative relationship with the outputs of resource pools, and are allocated according to a specific standard rate of the real amount of used outputs. Contrastively, fixed costs - only which can be justified - are allocated at a specific standard rate by the theoretical capacity of obligated resources. In addition, costs (whether proportional or fixed) in production resource pools - production centers - are classified first into basic costs (i.e., costs arising in the same resource pool) and secondary costs (i.e., costs received from another resource pools) (Weaver et al., 2011; Ports and Lere, 2009; White, 2009; Clinton and Merwe, 2008).

Depending on the flow of resources between resource pools, the classification of costs (into proportional and fixed) in cost modeling's based on two principles: Causality and Responsiveness. The principle of causality stipulates that the flow of resources and all resource-related costs must reflect an effect-cause relationship that controls the flow through the value chain in the enterprise. The principle of responsiveness determines the cost behavior according to the principle of causality, i.e., responsiveness complements and explains causality. In other words, responsiveness controls fixed and proportional relations in the flow of resources, which must be quantitative. Therefore, this principle makes it possible to clarify the reciprocal relations between total cost and overall volume when the degree of production complexity is high (Ahmed and Moosa, 2011; White, 2009).

Ahmed and Moosa (2011) emphasize that the classification of costs according to the flow of resources among resource pools as fixed and proportional costs provides a detailed model, measures operations accurately, and effectively integrates the concepts of operational costs and decision cost by means of (what white describes as) resources divisibility and classify ability in a way that makes it easy to identify the effects of complexities on potential decisions without having to re-model cost in accordance with the concept of the decision. That is because this procedure provides detailed information on cost behavior according to the resource nature, which is not affected by the decision, and also because of its responsiveness to the amount of outputs of the resource pool that managers deal with in most of their decisions (White, 2009). In addition, the process of fixed costs separation and allocation rates determination in accordance with the theoretical capacity of resources reveals the idle capacity of these resources, guides the decisions concerning capacity supplies and utilization, and also realizes high levels of controls and accountability through the analyses it provides of flexible budget deviations and multiple measures at the level of each resource (Weaver et al., 2011; Krumweide and Suessmair, 2007; Offenbacker, 2004).

Despite the advantages offered by this approach, there are many short coming sand practical difficulties encountered in the application of its methodology, notably:

- It is difficult to interpret cost behavior in case of multiple cost-center outputs and multiple output consumers without a large number of resource consumption relations on the one hand (Clinton and Webber, 2004b), and on the other hand the different nature and lack of homogeneity of resources can force cost system to work with a large number of resource pools, which in turn makes questionable the feasibility of this approach in practice (Grasso, 2005).
- It is not easy to determine allocation rates of fixed costs in accordance with the theoretical capacity of resources - which is often difficult to realize - instead of practical capacity. Adding to that, all fixed costs who seal location to cost purposes cannot be justified logically are excluded. Besides, with the increase in fixed costs and the lack of logicity of allocation, the processing of these costs as period costs makes this approach inappropriate when decision maker has to think beyond the short-term (Perkins and Stovall, 2011; Grasso, 2005; Clinton and Webber, 2004a). Moreover, the determination of standard rate for fixed costs allocation depending on planned theoretical capacity and allocation according to the mixture volume planned at the beginning of the period is not appropriate in light of the short life cycle of the product, especially in high-technology products who reproductive life cycle may be no less than a few months of the financial period (Zimmermann and Sedgley, 2010). In addition, the data provided by this allocation do not support reporting requirements which stipulate for full absorption of cost (Arthur, 2008).
- Operational control, accountability, and continuous improvement efforts depend on analysis of the flexible budget deviations inherent in the managerial accounting thinking known as "Expost control." Despite the fact that the ability of this approach to provide such indicators in detail has led to the provision of information on the amount of resources consumed, GPK nonetheless failed to provide information about the mechanism and methods of resource consumption and prompted managers to cope with symptoms rather than focusing on causes. In addition, successive developments in business environment have supported the transition from the concept of control to the concept of idealism and on to simulation (Zimmermann and Sedgley, 2010). Further, Malmi and Brown (2008) confirm that flexible budget deviations represent a kind of static diagnostic control that aims exclusively at adherence to standards, and thus discourage initiative, circumscribe creativity and innovation, are inappropriate to continuous improvement efforts that depend on worker empowerment, and are incompatible with the concept of interactive and strategic control.

It could be argued that the positive aspect of GPK approach (which emerged through the provision of detailed information on resource consumption and cost at the level of cost centers) is limited by the difficulty and feasibility of application in many cases. Besides, the causality principle (which this approach depends upon to interpret cost behavior) is no different from the principle of variable in the previous two approaches - particularly as the principle of Responsiveness still depends on volume as the cost drive -except in determining both ends of the causal relationship.

That is, instead of focusing on the final production volume in the principle of variable, the outputs of cost centers are considered the hub, according to the principle of causality.

The discussion above of the traditional cost approaches reveals that these approaches concur upon dual allocation methodology, and differ in allocation philosophy and procedural steps. While VBC depends on a single measure to allocate cost, or several volume-based measures to interpret cost, FCA makes a step forward by means of some incremental improvements in terms of the use of special measures for the various sections in order to enhance cost measurement accuracy, but without providing a clear and logical framework of the selection mechanism of these measures. Obviously, GPK produced this framework, which supported accurate and detailed cost information system on one hand and on the other hand created many practical difficulties and maintained volumes as the cost driver.

The criticisms and shortcomings of the traditional approaches prompted practitioners and academics to reconsider and develop these approaches, or introduce new approaches that could address these criticisms and fit in with the characteristics of the modern business environment which requires accurate and detailed information on the real cost drives. As a result, new approaches emerged, such as ABC, consumed resources accounting and LA, discussed below.

### 3. CONTEMPORARY COST APPROACHES

Intense competition in global markets since the early sixties of 20<sup>th</sup> century prompted business organizations to increase automation of production means and to shift from mass production strategies to customer-driven strategies, adopting several management philosophies that aimed at creating value and loyalty among customers. These, in turn, required accurate and detailed information on cost which traditional cost approaches were no longer able to provide in the light of modern productive environment and competitive strategies. It was incumbent on organizations to come up with new and improved cost approaches able to meet the managers' needs for information. The most notable and practically useful of these approaches include the following.

#### 3.1. ABC

The philosophy of this approach is based on the idea that enterprise consumes resources and incurs costs in order to perform a set of activities necessary to generate products and services. So, proper cost allocation should begin by allocating resource costs to activities either by direct attribution or by using resource drivers. Then, the share of the products and services of the cost of these activities can be determined depending on the amount of activity drivers consumed by these products or services (Kaplan and Cooper, 1988).

Kaplan and Cooper (1991) emphasize that the importance of this approach is not limited to accurate cost measurement resulting from the precise tracking of cost according to cause-effect relations interlinking resources and final cost purposes, but also appears in supporting the efficiency of production

processes through the information provided on how indirect costs are generated and the factors effected in that costs. This, in turn, contributed to the transition of this approach from cost measurement to cost management through what Grasso (2005) described as "two-dimensional ABC," which - in addition to the cost dimension related to the assignment of cost for the purposes of measurement - includes also the dimension of operations analysis which focuses on cost reduction and performance improvement.

Despite the theoretical superiority of ABC and the logical foundations and assumptions that underlie its practice, the practical application of ABC has revealed many difficulties and shortcomings, including:

- Accuracy is associated with detail levels of activity analysis: The deeper the analysis, the more complex and difficult the application becomes, and the higher the cost of developing model is. Basically, adopting analysis models that provide fewer details generates many mistakes that deprive ABC of its most important features (Putteman, 2009).
- Environment dynamics and update problems: Business organizations operating under dynamic environment require constant adjustments in operational processes which lead to the addition or exclusion of some activities, which in turn - according to the methodology of this approach - could lead to the rebuilding of the model or one of its components. Even with assuming stability of productivity processes, there are many factors that make it necessary to review the model on an ongoing basis, such as development of workers' skills, low productivity of machines over time, and adjustments for resource costs (Putteman, 2009).
- The inadequacy of the quantitative definition of the resource consumption relations (and dealing with the resources to the extent available), resulting from the focus of the efforts of Kaplan and Cooper on how to determine a mechanism that is able to provide total cost information useful to the management, has impacted negatively on the ability of the approach to provide information about non-utilized capacity (Ahmed and Mossa, 2011).
- The operational and strategic benefits - which ABC proponents endeavored so hard to confirm to have realized through the application of this approach - have not been realized in many cases. Even when the benefits were realized, they were not practically proved to be a result of the application of ABC inasmuch as they were due to other factors and practices, such as total quality and continuous improvement (Banker et al., 2008; Banker et al., 2006).

Earlier criticism prompted Kaplan and Anderson (2007) to assert that the shortcomings of ABC are basically due to the method of allocating resources to activities, which is often based on surveys and interviews. The accuracy of these information collection methods is subject to individuals' biases and cognitive restrictions in case they have many activities to perform. In addition, ABC suffers from inability to integrate with modern information systems in organizations. Villarmois and Levant (2009) see in Kaplan and Anderson's criticism one fact, i.e., ABC is no longer - and never was - able to provide accurate data that can adequately justify exerted efforts.

It could be argued that the problems highlighted by practice are mainly attributed to the assumption of ABC that all costs within the cost pool must be traceable based on the same driver, and thus there is a need for a high level of activity interconnection with each other and with the drivers. This it is difficult to achieve by defining a limited number of cost pools, on the one hand. On the other hand, the assumption that all costs would have a linear relationship with cost drivers illogical because costs include a fixed part that is difficult to link with cost driver. Even if such relationship did sometimes exist in the long term, it would remain controversial and doubtful in the short term.

In addition, ABC did not really provide a new methodology, because this approach depends on duple allocation methodology just as in the traditional approaches. Furthermore, cost drivers continue to use volume to interpret the causal relationship between resources and cost purposes even though in a more detailed and logical manner. Here, just as in the traditional approaches, the difference is also still confined to the procedural operations of allocation.

### 3.2. Time-driven ABC (TDABC)

The philosophy of TDABC is based on the direct allocation of resources on final products and services and the integration of the two phases of allocation in the traditional and contemporary cost approaches into one stage that eliminates the need for interviews and surveys related to resources allocation. This is done by a time measurement of the capacities of all resources, and framing the role of activity as a criterion for the quantities of these capacities consumed by the final cost purposes in preparation to get to the share of the final cost purposes of the indirect costs which are simply defined according to two measures i.e., cost rate of a unit of the resource, and the consumed quantity of this resource (Kaplan and Anderson, 2007a). Consequently, the general philosophy of this approach is based on the structure of the amount of capacity, which means that all consumption relations will be defined on basis of the amount of capacity, and that cost dollars will follow this amount without being covered by this definition.

Based on this philosophy, this approach has fully changed ABC's conceptualization of cost, activity and cost drivers. In terms of TDABC considers cost as amount of resources consumed in the accomplishment of the various cost purposes in a way that is somehow similar to the idea of driver-based allocation with integrating of resources capacity in these drivers and converting consumption path from cost to capacity in a way that simplifies the allocation process and makes it more accurate (Weirich, 2010; Dejnega, 2011). With respect to activity, the fundamental change is not in the definition of activity but rather the level of activity definition. TDABC defines activity at the highest level at which it becomes possible to explain how the various cost purposes withdraw sources capacity and how activity is used to determine the method and amount of capacity drawn only (Gremco and Yves, 2007; Tse, 2007). In this way, TDABC redefines processes as primary activities, and indicates that all operation activities should be dealt with as subordinate activities which can be framed in the main activity. As for cost drivers, TDABC presents the concept of time drivers in line with the view of cost as capacity measured

by time, and defines such drivers as variables or characteristics that determine the time needed to carry out a particular activity. Thus, it provides a double conceptualization of cost drivers which integrates the philosophy of uni-driver of traditional cost approaches and that of multiple drivers employed by ABC by dealing with time as a sole cost driver and determining the various consumption causes of time (which are themselves drivers of time).

In spite of the improvements introduced by TDABC into ABC - particularly with regard to simplicity of structure, update and maintenance on the one hand, and the measurement of idle capacity on the other hand - TDABC has neglected issues that have a significant impact on the construction of time equations. These issues include the acute disparities in operations and activities, especially when it comes to the industrial sector, thus confining the practice to the service sector in several cases. In addition, the issue of viewing capacities in terms of time scale may not be objective with regard to many resources. If multiple measures of capacity resources are used, there may be a problem in constructing multiple capacity equations for different resources consumed by the same cost purposes, and such equations require information systems to supply the consumed quantity of capacity according to each measure. This issue may make the approach more expensive approach, and affect its positive aspect of simple update. It can also bring into question the accuracy of TDABC, considering that the measurements of the consumed resource capacities can be inaccurate for many cost purposes.

### 3.3. RCA

RCA integrates both GKP principles and ABC formula in order to obtain detailed information on operations (Ahmed and Moosa, 2011). Cost behavior is interpreted depending on the principles of causality and responsiveness inherent in GKP in addition to the work principle, which rationalizes and directs ABC, with a high level of austerity, though. Activities are used only when resource drivers are inadequate, or when there is need for additional information about the reasons for resource consumption in resource pools. Activity drives used should be defined quantitatively in a way that is able to provide information on the capacity utilization rates (White, 2009; Wong et al., 2009; Clinton and Webber, 2004a).

In addition to deriving advantages from both GKP and ABC, RCA has the following additional advantages:

- RCA imposes control of the complexity level of cost model in accordance with the requirements of the need for information. The model works through the resource pools relations to provide effective measures for control and monitoring operations. In case of inadequacy of these relations, activity drivers are added to resource flows to get deeper analysis and more accurate information (White, 2009).
- RCA can help get rid of the problem of asymmetry of cost allocation of similar products that have consumed similar support resources and activities by use of depreciation of replacement cost for the purpose of preparing internal reports (Ahmed and Moosa, 2011).
- RCA integrates effectively and simply with modern information systems that support project operations, and take advantage of these systems to track and collect more detailed

information to make the cost system capable of providing information in line with the needs of different management levels (Grasso, 2005).

However, the above-mentioned advantages may be limited by several factors. The degree of complexity of accost model can be limited by the levels of elaboration in light of the needs of modern environment for accurate and detailed information, leading very often to more complex and less controllable models. Besides, the lack of using activity drivers does not ensure simplicity of cost model, given the practical difficulties associated with the methodology of GKP (discussed above). The depreciation of replacement cost also faces many problems associated with the different ways to identify such cost that leads to different values, resulting in disparate information that affects the quality of internal reporting. Moreover, these reports will always reveal high cost figures. As for the integration with firm's information systems, they require technological investment that may not be easily justified.

### 3.4. LA

Kocakulah et al. (2008) defined "lean" as a description of the process of providing exactly what customers need, as required, on time, without defects, and with minimum waste in the process. Lean manufacturing is based on several principles, of which the most important to and most influential on cost may be production according to value stream. Value stream involves a cell or a group of cells of production meant to produce a specific product or set of similar products, and includes all activities related to the creation of value for the customer from the moment of receipt of the request until the product is delivered to the customer (Kennedy and Huntzinger, 2005).

Basically, LA appeared to guide cost information in accordance with the principles of lean manufacturing, adopting value stream as a guiding concept for cost approach and an essential prerequisite for cost information system. Kennedy and Huntzinger (2005) emphasize that the effects of the principles of lean manufacturing on cost approach have been manifest in three directions which made LA fundamentally different from other cost approaches, i.e.:

- Content: Value stream is the cost measurement subject, and therefore all resources consumed by stream activities will be dealt with as direct costs. Indirect costs are related only to overhead costs, which must be allocated on a value stream according to foundations that support continuous improvement and reduction of resource consumption. Product costs, however, will be determined by dividing stream costs on the number of units produced in the stream.
- Shape: Reports should be prepared in accordance with the value stream and in the form of concepts, not only for managers, but also for individuals, who have become the main targets of reporting. These reports should include only what is required, at the right time.
- Impact: Cost reports must move from mere reporting to creation of impact by stimulating positive behavior of individuals towards the eradication of all forms of waste and creation of continuous improvements. This can be achieved when presented reports are understandable and cost is

translated in a form that reflects the results of efforts and their direct impact on profitability in advance and in a simple way.

Hilker (2011) sees that the previous trends supported LA through the provision of information (needed by the cost approach clients in their various uses) in a mold that can achieve the principles of the "lean" project. However, Kennedy and Widener (2008) stresses that the organization's adoption of a set of practices that take into account past trends do not mean that it has a LA framework, because the 'lean' of a cost approach is achieved by a set of conditions, as follows (Grasso, 2005):

- Cost approach is a part of the business philosophy and must be commensurate with it.
- Cost approach should be simple and feasible.
- Cost approach should eliminate synthetic and unnecessary reporting steps.
- Cost approach should not support inventory building.
- Accounting accuracy does not mean accurate product cost, but rather a justified accuracy.
- Detailed work reports must be disposed of, and labor costs and indirect costs incorporated together in conversion costs.
- Cost approach must meet external as well as internal reporting requirements.

According to Hutchinson and Liao, the previous differences in the nature of LA can be attributed to the existence of a great deal of ambiguity that surrounds the concept of LA itself. This ambiguity emanates from two dimensions that are fundamental to LA. The first dimension, known as "accounting for lean," refers to the practices and methods appropriate for the environment of the LA project; the second dimension, known as "LA," emphasizes the need for accounting to accommodate the principles of lean management (Hutchinson and Liao, 2009). With respect to appropriateness, however, the leanness of a cost approach does not differ from that in terms of accommodation because the ideal appropriateness of the LA approach remains subject to the application of the approach in a lean project environment. In other words, "leanness" is not simply a set of administrative and accounting tools, but a general philosophy that must be reflected in all parts of the project.

## 4. CONCLUSION, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Traditional cost approaches agree on double allocation methodology and differ in the procedural steps and the allocation philosophy. VBC depends on a single measure or group of measures that explain the cost of production volume. The FCA approach emphasizes the need to identify drivers for each section specifically but without introducing a clear framework for the mechanism of the selection of these drivers, hence resulting in the preservation of volume as cost driver. This issue was overcome by GPK in its treatment of outputs of resource pools as cost drivers, and the separation of fixed costs from proportional according to these outputs and at the level of each pool. However, these foundations have made this

approach more accurate and more complicated. With respect to contemporary cost approaches, it can be observed that ABC and RCA have maintained the double allocation methodology albeit in a more logical way. ABC has put activities at the hub, and considered them the real cost drivers. RCA integrated the concept of activities in GPK philosophy to detect the causes of resource consumption. TDABC introduced a new methodology that directly allocates resources on cost purposes, but at the same time created a number of practical problems, not to mention the cost data accuracy, which depends on a number of factors that may not be available in many industries. As for LA, it focuses on value stream, being considered as the cost measurement subject, whose cost is determined according to stream rate and therefore the improvement of this rate - which is the objective of the lean project—means reduction of cost. The bottom line is that there is no cost approach that can claim absolute superiority over others. Preference remains dependent on the suitability of a cost approach, which in turn depends on many factors related to the characteristics of this cost approach on the one hand and the activity nature, the business environment and volume, the degree of sophistication and complexity of processes, and the activities on the other hand. These are the factors that may prompt users to adopt a traditional cost approach, irrespective of several inherent shortcomings, rather than a contemporary approach (despite its clear advantages).

Several difficulties it have been encountered while preparing this study and have formed limitations in the development of the most prominent of the scarcity of articles that deal with explanations and analysis of the different cost approaches as well as the educational bureaucratic professional systems in the third world (developing countries) and deliberately hidden data in the business organizations which made it difficult to confirm our theoretical opinions by survey or attempts to build applied via models that suit the organizations of manufacturing in these countries. Actually, these trends may form idea about future research by doing a survey on lecturer's universities and cost professionals in industrial organizations to attempt for building a guide to help for forming cost systems in manufacturing organizations. Moreover, another study had been tried to apply such of previous costs approaches to show on the industrial organizations in the third world countries. This article had opened up another field towards theoretical analysis of the appropriate criteria for cost approach.

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