
DOI: <https://doi.org/10.53555/eijbms.v6i1.94>

EMPLOYEES' PERCEPTION OF THE IMPLEMENTATION OF ACTIVITY-BASED COSTING IN CATTLE FEEDLOT COMPANY

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Abstract:-

This paper reports the result study of the employees' perception about implementing of Activity-Based Costing (ABC) system in PT XYZ Cattle Company. The findings suggest that ABC system implementing has several objectives that were: (1) performance measurement in each department, (2) produce the reporting easily, (3) appropriate or better allocation for overhead, (4) better cost control, and (5) support produce financial reporting. Impeding factors of implementation of ABC system that were (1) technical support availability, (2) management support availability, (3) qualified staff availability, (5) sufficient knowledge about ABC system, and (6) availability of communication within company. Suggesting further finding of contribute success factors of ABC system implementation that were (1) high level management support, (2) qualified human resources, (3) collaboration and communication within company, (4) adequate training and (5) continuously consistency from management. Overall all employees' perception has positive view and highly recommendation to implement the ABC system in company.

INTRODUCTION

Activity Based-Costing System

Traditional accounting approach, calculated the cost of goods sold by allocated the cost based on labor hours or machine hours. Calculation by traditional method, often not precisely correct to allocate the cost to the product. Today, business is facing intense competition with others, reducing the cost the one of solution to compete this competition. Activity-Based Costing (ABC) is the solution to helping companies allocate the cost with more accurate. Activity-based costing (ABC) is an approach for allocating overhead costs (Weygandt *et al.*, 2015:105). Specifically, ABC allocates overhead to multiple activity cost pools and then assigns the activity costs pools to product and services by means of cost drivers (Weygandt *et al.*, 2015:105). Sohal and Chung (1998) found that the ABC largely adopted might the reason is result from the economic crisis, which had subjected firm to increasing the competition and cost, Company seek innovation cost system which is could increasing their efficiency of operation and profitability, miscalculation of product cost by existing cost system, insufficiency to provide relevant information in the new business environment, and incapacity to adapt to increased automation in production/service process. The ABC system as an important tool in order to reduce cost and to improve the process (Majid and Sulaiman, 2008) and can estimate product costs more accurately because it uses both volume-based and non-volume-based (complexity) driver (Duh *et al.*, 2009). Increasing the effective cost management, increasing the better-cost control, and increasing accurate cost information (Chong and Cable, 2002). The ABC System widely implement because increasing the proportion of overhead cost, growing cost including product cost and administrative cost and currently the increasing number of product variants (Nassar *et al.*, 2009).

Even the ABC systems is the better-cost control, but from Previous studies about implementing ABC in developing countries indicate the low adoption rate. Developing countries that as sample for previous research were Hong Kong or China, Thailand and India. As an example, Chen *et al.* (2001) survey 90 companies which were as the selected as the sample from selected non-listed firm of membership list of the Hong Kong branch of the Chartered Institute of Management Accountants (CIMA) found adoption rate about 15.5 per cent. Chongruksut and Brooks (2006) studied amongst the 101 companies are listed on the Thailand Stock Exchange (SET) found the ABC system adoption rate exactly 19.35 per cent. Joshi (2001) and Lai *et al.* (2005) studied 60 manufacturing companies and 82 logistic companies in India and China slightly better adoption rates about 20 and 20.7 per cent. We can see the data from table 1 below.

Table 1

ABC adoption rate in developing countries

Study	Sample	Countries	ABC adoption rate (Per cent)
Chen <i>et al.</i> (2001)	90 companies of non-listed membership of the Hong Kong branch of the Chartered Institute of Management Accountant (CIMA)	China	15.5
Joshi (2001)	60 manufacturing companies	India	20
Lai <i>et al.</i> (2005)	82 logistic companies	Hong Kong China	20.7
Chongruksut <i>et al.</i> (2006)	101 companies, listed on the Thailand Stock Exchange (SET)	Thailand	19.35

There are several reason as based for companies to adopted the ABC system are more effective cost management (Chong and Cable, 2002), The ABC system as an important tool in order to reduce cost and to improve the process (Majid and Sulaiman, 2008), the ABC system can estimate product costs more accurately (Ruey Duh *et al.*, 2009) and more accurate information on costs and pricing and hence competitive positioning of the company in the marketplace (Sohal and Chung, 1998).

Traditional Costing System in XYZ Company

This study examines the employee perception about the success of ABC implementation by cattle companies (hereinafter called XYZ Company). XYZ Company main businesses are importing the cattle from Australia, feeding and selling the cattle in especially abattoirs in around Jakarta.

Costs allocation at PT. XYZ not according to specific departmental expenditure, but recorded in accounting department as feedlot overhead. This system lead to difficulty to identify the cost of budgeted unused capacity and the cost of unexpected capacity utilization. To reduce the cost overruns, PT XYZ will identify and classify the activities related to the feedlot & feed mill process. Table L.01 shown the activities per-department at PT. XYZ Production cost in PT XYZ consists of raw material, which is the value of cattle, and feed mill raw material, direct labor and manufacturing overhead. When the product already completed, the raw material, direct labor and manufacturing, which is related to finishing the product assigned cost to product and become Cost of Goods Sold (COGS). To increase the profit, related costs, the company has to running their business in efficiency cost, the result is company have to decrease the cost incurred during period.

Table 2 Overhead Rumpin Feedlot

From 2012 to 2018 (In Millions Rupiah)

Notes	Year							Total
	2012	2013	2014	2015	2016	2017	2018	
Total Overhead	2.527	4.819	13.534	17.257	19.103	17.773	15.309	90.320

Source: Authors' Calculation from Company Data

Manufacturing overhead (or we called Feedlot overhead) in PT XYZ consist of freight and unloading costs, contract employees wages, feedlot staff salaries, and feedlot operational costs. Form the data above we found that feedlot overhead started from 2012 to 2016 increased even next two year decreased and the total of overhead costs is about 90 billion. With traditional cost system, which is already adopted in company, all feedlot overhead costs assigned as overhead cost and are a responsibility of feedlot department. The needs and urgency of implementing the ABC system in PT XYZ because in traditional cost system, the cost incurred in during period, is not appropriate costing because all feedlot overhead cost assigned to feedlot department responsibility. Correctly, the feedlot overhead cost assigned is each department where the cost incurred. If the company could find which department responsible is, running business efficiency with decreasing the cost, will be more easy.

ABC system project time

Here is the ABC System time line for company:

Table 3 ABC SYSTEM PROJECT TIME LINE

NO	NAME	DURATION	2018											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Developing ABC System	3												
2	ABC System Introduction	4												
3	ABC System Training	2												
4	ABC System Implementing	3												

Source: Company Data

ABC System developed start from January 2018, gathering all financial data related with company cost. Developing the ABC system should be finished 3 month after, but there are some problem to solve, then extended one month later. After developed the system, Finance and Accounting Department has responsible to introducing the system to employee, which is related to manufacturing activity especially. Starting 1st of April 2018, we held the meeting to share general information about ABC system. Continuously meeting to give more information ABC system when the system adopted in their department.

To develop ABC system, PT. XYZ need to determine the cost of goods and service.

There is four steps are used to determine the cost of goods and services using ABC:

1. *Identify and classify the activities related to the company's products.*
2. *Estimate the cost of activities identified in step 1.*
3. *Calculate a cost-driver rate for each activity.*
4. *Assign activity costs to products.*

From the company business process shown at Table L.01, the activities can be identify and classify as shown at Table.4.

**Table 4 ABC COST FLOW
Identify & Classify Activities**

NO .	ACTIVITIES	ACTIVITIES POOL
1	Arrangement document/permit to authorities for unloading at Tanjung Priok Port	Legal Support
2	Unloading from ship into local trucks in Tanjung Priok Port.	Logistic
3	Transporting livestock to the PT. XYZ quarantine yards	Logistic
4	At the feedlot, cattle are unloaded into receiving yards and all documentation should be checked again	Legal Support
5	Vaccinations, blood testing are performed	Health & Welfare
6	Placing sick/injured cattle at cattle hospital	Health & Welfare
7	Retrieval of cattle weigh data	Health & Welfare
8	Recovery of cattle healthy & weight condition	Health & Welfare
9	Ear tag & RFID installation to facilitate identification & tracking data of individual cattle.	Feedlot
10	the daily feeding process with the target of fattening cattle with food	Feedmill
11	daily intake of concentrates and vitamins.	Feedmill
12	controlling daily nutrition of livestock with the aim of reducing fat in cattle	Health & Welfare
13	Daily feedlot & cattle cleaning process	Feedlot
14	Feedlot Weight & Health condition check before selection	Health & Welfare
15	Cattle Selection	Marketing
16	Transporting selecting ready to sell cattle to market	Logistic
17	Cattle waste management	Engineer & Environment
18	Daily maintenance	Engineer & Environment

Different from traditional costing which only assign the whole COGS to feedlot overhead, with ABC Costing, later PT. XYZ will classified the cost into 7 cost pool based on activities : legal support, logistic, health & welfare, feedlot, feedmill, marketing, engineering & environment.

The next step in the ABC process is to estimate the cost of the activities identified. It can be done by asking all employees to indicate how much time they spent on each activity in an average week and then identified the physical resources that supported various activities.

Based on the time line, it should already implement for the system, but until now, it is still introduction for ABC System. This research is to examine the employee perception based on introduction session when ABC system will implement in their department.

LITERATURE REVIEW

Activity-based costing (ABC) is an approach for allocating overhead costs (Weygandt *et al.*, 2015:105). Specifically, ABC allocates overhead to multiple activity cost pools and then assigns the activity costs pools to product and services by means of cost drivers (Weygandt *et al.*, 2015:105).

Ruey Duh *et al.*, 2009 concluded that the ABC system could estimate product cost more accurately because it uses both volume-based and non-volume-based (complexity) drivers. Based on cases of Australian Oil and Gas Company the result shows that the most important objectives of implementing an ABC system were more effective cost management, better-cost control and more accurate costing information (Chong and Cable, 2002).

Even though the ABC system is better costing system but when companies adopt the ABC system, they will face the successful or failure factor. Many previous research in Hong Kong, Australia and Thailand examines the factor which is became critical success or failure. Researching about implementing of ABC systems in chemicals companies in Hong Kong are found as the most key factors for successful implementation of ABC is total commitment from top management and the most potential reasons for failure is employee resistance or scepticism (Sohal and Chung, 1998), meanwhile in

Australian Oil and Gas Company (Chong and Cable, 2002) shows that project team were well organized and advised is the most important factors that contributed to the success of the ABC implementation process, research in Malaysia and Thailand from Majid and Sulaiman (2008), Chongruksut and Brooks (2006) and Intakhan (2014) result is the top management support is the most key success factor.

Table 5 Successful and Failure Factors on Implementing ABC System

Study	Success Factors	Failure Factors
Sohal and Chung (1998)	<ol style="list-style-type: none"> 1. Total commitment from top management; 2. The establishment of a multi-disciplinary project team to introduce and implement the ABC system in the organization; 3. Education and training of all people in the organization; 4. Adequate resource allocation to the ABC project; 5. Access to outside expertise, particularly when new concepts and software are being developed; 6. On-going feedback to top management and lower level employees on the progress of the ABC project; and 7. Keeping the implementation as simple as possible. 	<ol style="list-style-type: none"> 1. Employee resistance/skepticism, mainly where education and training has been inadequate or where other where other major organizational changes are also taking place; 2. The ABC project as an “accounting” project by other functional managers views; 3. Underestimating the cost of data gathering; and 4. Shortage of appropriate resources, particularly people skills.
Chong and Cable (2002)	<ol style="list-style-type: none"> 1. Better organized and advised team project; 2. Information flow between users and have been better prepared; 3. Adequate resources provided; 4. Level of high management support provided; 5. Sufficient training provided; and 6. No time limited. 	
Chongruksut and Brooks (2006)	<ol style="list-style-type: none"> 1. Top management support; 2. Link to performance evaluation; and 3. Top management commitment. 	
Majid and Sulaiman (2008)	<ol style="list-style-type: none"> 1. Top management support; 2. Trying simplify the ABC implementation process by working capital ; 3. Suitable ABC software; and 4. Desirable all level workers. 	

Intakhan (2014)	<ol style="list-style-type: none"> 1. Supporting of top management; 2. Training of ABC system; 3. Non-accounting businesses; 4. Correlation to quality initiatives; 5. Sufficient resources; and 6. Connection to performance evaluation.
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Previous research findings related with this research as the main literature, the main topics was:

1. The traditional costing system and ABC using the calculated product cost comparing (Ruey Duh *et al.*, 2009; Rahmaji, 2013; Rotikan, 2013; Setiawan *et al.*, 2013).
2. The implementation of ABC system in various business sectors in many countries (Sohal and Chung, 1998; Chong and Cable, 2002; Chongruksut and Brooks, 2006; Sartorius *et al.*, 2007; Majid and Sulaiman, 2008; Nassar *et al.*, 2009; Ruey Duh *et al.*, 2009).
3. The success factors contributed of an ABC system implementation (Sohal and Chung, 1998; Chong and Cable, 2002; Chongruksut and Brooks, 2006; Majid and Sulaiman, 2008; Intakhan, 2014).

The first topic of research often result case-studies comparing between calculating the cost of product in company using the existing costing system and making the calculation from proposed ABC system. Most of the research form Rahmaji (2013), Rotikan (2013) and Setiawan *et al.* (2009) found the difference result between existing costing system and ABC system in Indonesia companies, as well as in the textile companies in Taiwan (Ruey Duh *et al.*, 2009).

The second topic of research is survey studies of Implementing of ABC in different industries and countries. The research study looked to find implementing of ABC system in Malaysia, Australian oil and gas companies, Jordanian industrial sectors, Thailand and South Africa. These studies given result the reason of companies adopt the ABC system, all level organization support, and related to decision of companies cost.

Finally, the research examines the critical factor that influence the successful and failure of ABC implementation. Sohal and Chung (1998) founds that total commitment from top management is the success factor, Chong and Cable (2002) has different about the success factor that project team well organized and advised and Chongruksut and Brooks (2006), Majid and Sulaiman (2008) and Intakhan (2014) result research is top management support is the success factor of implementing the ABC system.

MATERIALS AND METHODS

The research we have attempted to do is to find the employees' perception when XYZ Company implementing the ABC system. Research about ABC system in different industry will more diverse. Broaden prior research by using cattle feedlot industry especially in Indonesia to be based main research site and combine all result of previous research become one study especially about the employees' perception about ABC system implementation and to identify the factors will influence the success or failure of ABC implementation. Bhatti *et al.* (2011) previous research about employees' perspective found training and development has significant positive impact with service quality performance in employees' perception.

Chong and Cable (2002) made paper about study on the implementation of an Activity-Based Costing (ABC) system in an Australian Oil and Gas Company. The research question from Chong and Cable (2002) are about the important objectives of implementing, the extent of objectives system have been achieved, the impeded factors, and the success factor of ABC Implementation and rate the success factors. And the answer from the question are more effective cost management is the key important objectives of implementing ABC system, better allocation of overheads is the next level of achievement of important objectives of ABC system implementation, lack of understanding of the ABC methodology is the most factors impeded the implementation of ABC system, project team well organized and advised is the most factors would effect to the success of the ABC system implementation process and 67% or good of success of ABC system implementation from respondent answer.

From Chong and Cable (2002) research, as the based research, this study examines the employees' perception about the implementation of ABC system in XYZ Company.

The research question is developing from previous research question from Cong and Cable (2002) research. This study looking to exercise and finding answers to particularly research questions:

1. What is employees' perception about the most important objectives of implementing an ABC system?
2. What is employees' perception about the factors that impeded the implementation of an ABC system?

3. What is employees' perception about the factors that contributed to the success of an ABC system implementation?
4. How would employees' rate the success of an ABC system implementation based on employees' perception?

Gathering data for this research is by questionnaires. Interviews conduct by face to face with 8 respondents. Respondent are the key employee and mostly they are manager and supervisor in each department. The area of responsibilities of respondents were 2 from feedlot department, 2 from feed mill department, 2 from administration department and 2 from animal welfare or purchasing or sales department. Based on level of management, we divided into 2 categories are middle level management or manager with 4 employee and low-level management or supervisor with 2 employee and beside the management level, we engaged 2 staff employee. All respondent had been employed by XYZ Company 4 years.

The paper is organized by 5 section as follows. In section 1, describing introduction about ABC system. In section 2, reviewing the literature review on Activity-Based Costing. In section 3, describing the materials and methods. In section 4, presenting results and discussions of employees' perception of the implementation of ABC costing. Concluding the result in section 5.

RESULT AND DISCUSSIONS

What employees' perception about the most important objectives of implementing an ABC system?

The result from employees' for this question has varies answer. From middle level management we have the answer, first answer said that "ABC System have to measure effectiveness and efficiencies per department", costs incurred in each department is responsible of each department. Second answer said that "This ABC system as tools to employee to produce the report easily". Third answer said that "Effectiveness and efficiencies each department can helping to calculate which cost should be assigned to AWO or Marketing Department". Fourth or the last answer said that "This system could be the best method to allocate as appropriate costing because in many years, in company, all cost which in incurred in feed mill doesn't related with feed mill responsible".

Low level management answer the question that "This an ABC system as tools to control all cost which incurred in Rumpin Feedlot because many year with traditional costing just focus to reduce the cost of contract employee". The other supervisor answer "This an ABC system have to give information cost per department and could measure the efficiency and effectiveness per department based on cost incurred".

From staff perception, they give opinion that "ABC system should support financial reporting in finance department" and "As tools to measure performances in each department".

From the answer above, we can found conclusion that the employees' perception about the most important purposes of implementing an ABC system are performance measurement in each department, produce the reporting easily, appropriate or better allocation for overhead, better cost control, and support produce financial reporting. Performance measurement, better allocation for overhead, better cost control consistent with the research from Chong and Cable (2002).

What is employees' perception about the factors that impeded the implementation of an ABC system?

The first answer from middle level management said, "If we want implement the ABC system, technical support is the main important things to make this system running". The second answer said, "If management not support for availability of qualified staff would become barrier to implement this system". The third answer similar with second answer said, "knowledge about ABC system and qualified staff is better way to support this system". For the fourth answer give opinion besides about the management support communication between head office and feedlot have to built in better way.

Perception from 2 low-level management employees has same answer that "If we don't have technical support and knowledge about ABC system support, would be hard for us to implement this system".

The impeded factors from 2 staff perception are knowledge support and communication between head office and feedlot staff would be impeded factor when we implement the system.

Conclusion for the second question about what is employees' perception about the factors that would impede the implementation of an ABC system are technical support availability, management support availability, qualified staff availability, sufficient knowledge about ABC system, and availability of communication within company. Related with previous research from Chong and Cable (2002), the answer about technical support, management support, and ABC knowledge or methodology, has similar finding.

What is employees' perception about the factors that contributed to the success of an ABC system implementation?

Contribution factors that would effect the success of an ABC system implementation and the impeded factors from employees' perception from the answer we collect that has almost similar answer but there is another answer, which is different from the impeded factor. The most factor that can contribute the success of implement the ABC system from middle level management view were "Supporting from high level management for resources which are human resource,

technical and training”, as similar as the first opinion, the second answer said that “Qualified human resources is the important”, “Collaboration and communication between head office and Rumpin feedlot is the important” from other manager opinion, and the last answer said that “Training about ABC system have to held for all employee”. “Adequate and routine training about ABC system is will be the key for success factor” is the answer from 2 supervisors in middle management. Staff perception are “Training and continuously consistency from management when implement this system”.

The employees’ perception about the factors that contributed to the success of an ABC system implementation are high level management support, qualified human resources, collaboration and communication within company, adequate training and continuously consistency from management. The result about high level support and adequate training has same result from research Chong and Cable (2002).

How would employees’ rate the success of an ABC system implementation based on employees’ perception?

Most of employee agreed to implement ABC system and replaced the traditional system if this system can improve the employee performance. The system would be success to implement in PT XYZ with some note that the all aspect that mention before in impeded factor and success factor fulfill by high level management. Even this result can figure in number, but the conclusion that highly recommended implementing.

CONCLUSIONS

ABC system has known as the best accurate costing system when allocate the manufacturing overhead. The opposite thing is that the rate of ABC system implementation especially in Asia countries was lower rate. There are several factor can contributed as the success factors or failure factors when company implement the ABC system.

The result from this research was found the employees’ perception in aspect of objectives of ABC system, factor that impeded and factors that could contribute the ABC system implementation successful and successful rate of ABC system implementation.

As discussed earlier, the objectives based on employees’ perception of ABC system implementation was *performance measurement in each department, produce the reporting easily, appropriate or better allocation for overhead, better cost control, and support produce financial reporting. Technical support availability, management support availability, qualified staff availability, sufficient knowledge about ABC system, and availability of communication within company* was the most factors could be impeded the implementation of ABC system. Mostly employees’ perception though that ABC system will success to implement and the factors that support were *high level management support, qualified human resources, collaboration and communication within company, adequate training and continuously consistency from management*.

Several limitation of current research should be expanding. Firstly, the relatively small sample size (n = 8) and small company can get the depth result from big sample company. The future research may extend until the implementation of ABC and Asses the success factors and failure factors of ABC implementation. Second, this research is based on employees’ perception on ABC system implementation and to get result the research have to compare with the others company with the same main industry. Limited question from replicated question from previous research cannot reflect the same situation in different industry. For the future research have to developed own questioner based on previous interview. Even though has several limitations, this research can use as the primary result to company when they are seeking to get information about ABC system implementation.

ACKNOWLEDGMENT

Grateful thanks are to Dr. Asnan Furinto, ST, MM, Dr. Ir. Dewi Tamara, MM., MS and Binus Business School that contributed to the successful completion of this research.

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TABLE L.01

DEPARTEMENT	SUB-DEPARTMENT	PROCESS	Description	FLOWCHART	
FEEDLOT	Animal Welfare		Once the ship is alongside the wharf, authorities from local customs, immigration and quarantine board the ship to check all documentation relating to the vessel, its cargo and the health of the livestock. Cattle cannot be unloaded until all these aspects are accepted.	SHIPMENT ARRIVED	
	Feedlot Officer	Unloading From Tj. Priok Port	Unloading from ship into local trucks in Tanjung Priok Port.	UNLOADING FROM SHIP	
		Transport	Transporting livestock to the PT. XYZ quarantine yards	DELIVERED TO CATTLE	
	Handling Officer	Unloading to Quarantine Yards	At the feedlot, cattle are unloaded into receiving yards and all documentation should be checked again	UNLOADING TO CATTLE	
	Animal Health Officer	Quarantine	Vaccinations, blood testing are performed. Cattle are vaccinated for Haemorrhagic Septicaemia and blood-tested for Brucellosis. Any sick or injured animals should be placed in a hospital pen and decisions made about their treatment or salvage for slaughter.	QUARANTINE	
	Feedlot Officer	Cattle Selection	Retrieval of cattle weigh data	CATTLE SELECTION	
		Recondition	Recovery of cattle healthy & weight condition	RECONDITION	
		Identification	ear-tag & RFID installation to facilitate identification & tracking data of individual cattle.	EAR-TAGGING & RFID	
	FEEDMILL	Feedmill Officer	Daily Intake - Grower	the daily feeding process with the target of fattening cattle with food, concentrates and vitamins.	DAILY INTAKE - GROWER
			Daily Intake - Finisher	controlling daily nutrition of livestock with the aim of reducing fat in cattle	DAILY INTAKE - FINISHER
FEEDLOT	Feedlot Officer	Cleaning	To maintain cattle welfare, daily cleaning process needed to ensure pens cleanliness, feed handling, water and cleaning of livestock needs to be done every day and before the selection of cows.	CLEANING	
	Marketing Feedlot	Cattle Selection	the process of selecting cattle which worthy for sale. Decide based on cattle health condition, weight and consider the costs if cattle is keep on feedlot.	CATTLE SELECTION	
	Marketing Feedlot	Cattle Sales	Cattle Sales	CATTLE SALES	