

Application of Activity-based Costing and Time-driven Activity-based Costing for Kitchen Cabinet

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Abstract: Kitchen cabinets started to have a big historical impact on Malaysia with the advent of freestanding cabinets in western and colonial furniture in the 19th century. The drawback with traditional costing methods is that they fail to offer enough information about elements that are crucial to customers, such quality and service. Activity-based costing (ABC) was created to address traditional costing's limitations in complex product environments. However, it is not universally accepted as it overlooks unused capacity for forecasting. This work compares ABC and time-driven activity-based costing (TDABC) to assess cost sustainability in kitchen cabinet manufacturing. Data from a Johor-based furniture manufacturer was collected. The work successfully compares both methodologies, considering various factors. It concludes that both have strengths based on industry needs, but proving TDABC's efficiency is essential as it is simpler, cheaper, and more powerful than ABC. Nonetheless, neither ABC nor TDABC is well-suited for kitchen cabinets manufacturing. The process of building kitchen cabinets involves inherent complexity, such as variations in measurements, material availability, and design specifications. Based on the given factors, such as higher uncertainties, biases in assumptions and inaccurate data collection, it will draw limitations in obtaining accurate and reliable data for ABC and TDABC.

1. Introduction

The kitchen furniture sector is the largest segment in the German furniture industry, representing 22% of all furniture. Germany is the leading manufacturer of kitchen furniture in Europe, accounting for 27% of the total supply and serving as the largest consumer market. The value of kitchen output in Germany increased by 5.2% in 2007 to €3,882 million, with a focus on export markets. Kitchen furniture exports also saw significant growth, increasing by 14% to €1,379 million. This sector employs up to 17,000 people across approximately 100 companies. Germany produces kitchens for the low, medium, and upper-middle segments of the market [1].

In Japan, the demand for kitchen cabinets has steadily increased from 1.1-1.2 million units to 1.3 million units between 2013 and 2016. The construction sector's growth of 2.8% in early 2017 has contributed to this economic recovery. In both Japan and South Korea, the top four kitchen furniture manufacturers dominate 60-70% of the industry. Imports of kitchen furniture from Europe in Japan and South Korea experienced a slight increase in 2016 compared to 2015 [2].

ABC methodology was developed to enhance the accuracy of product cost data compared to traditional cost systems. It converts overhead expenses into direct costs by using activities as the basis for cost allocation [3]. Other than that, ABC improves the value of cost accounting for strategic decision-making and helps organizations achieve sustainable development and growth in a competitive global and complex business environment [4].

ABC is commonly used in healthcare institutions, primarily for cost control at the cost-centre level. This research focuses on applying ABC to calculate expenses for prostate cancer radiotherapy using intensity-modulated radiation treatment (IMRT) and volumetric arc therapy

(VMAT) in a nearby hospital's radiation oncology department. The study also compares the costs of these two strategies in terms of treatment process activities and insurance reimbursement [5].

Moreover, manufacturing businesses use ABC costing to allocate overhead costs based on capacity utilization. This technique involves identifying manufacturing processes, determining associated expenses, and linking them to specific products. It benefits businesses with diverse product variations. Unlike fixed costs, which rely on contribution margins, variable-based costing considers only variable costs like labor and materials. The ABC approach calculates the general asset term by summing all general assets for a year multiplied by the machine or hourly activity rate divided by the total rate for all such rates [6].

ABC offers various advantages and disadvantages for organizations. It helps reduce costs, identifies non-value-adding activities, provides precise cost estimation based on cause-and-effect relationships, and identifies areas for improvement [7]. However, implementing ABC can be costly [7], it may not be suitable for companies with low overhead [8], and there is a risk of misinterpretation and making incorrect decisions [7]. Overall, ABC has the potential to enhance management and business operations, but careful consideration is required.

Whereas, TDABC is a process-based approach to costing that provides comprehensive cost information through process maps [9]. It simplifies costing by eliminating the need for interviews and surveys to allocate resource costs to activities. Instead, TDABC uses time as the primary cost driver, directly allocating resource costs to objects such as transactions, orders, and products. This bypasses the challenging step of allocating costs to activities in traditional ABC, making the costing process more straightforward. Time is used as the main cost driver in TDABC, as it quantifies the