

Barriers to Implementing Activity-Based Costing (ABC) in Technical and Vocational Education and Training (TVET) Colleges: Insights From Senior Finance Staff in South African Higher Education Institutions

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Abstract:

This research explores the barriers to activity-based costing (ABC) adoption and implementation in South African technical and vocation education and training (TVET) colleges and proposes a multi-dimensional conceptual framework to address these barriers. The objective is to investigate behavioural, organisational and technical factors hindering the ABC adoption and implementation, with a focus on senior finance personnel experiences in technical and vocational education and training (TVET) colleges in KwaZulu-Natal. A qualitative method was employed, involving semi-structured interviews with finance staff from five TVET colleges. The results indicate that resistance to change and technical issues are critical barriers to ABC adoption and implementation, while senior management support, resource availability and specialised training are essential enablers. Furthermore, the research reveals that product diversity, cost structure and institutional size are insufficient for successful ABC adoption and implementation without effective leadership, technical readiness and resource alignment. The findings underscore the need for institutions to prioritise leadership-driven change management, targeted training, and effective resource allocation to improve costing systems and contribute to sustainable development goal 4 (SDG 4) of inclusive and equitable quality education. The implication of this research suggests that addressing ABC barriers can significantly improve financial decision-making in HEIs, ultimately advancing educational inclusivity and quality.

Keywords:

Activity-Based Costing, Higher Education Institutions, Cost Management, Technical and Vocational Education and Training Colleges, Sustainable Development Goal 4.

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Introduction

The financial burden on state-funded higher education institutions (HEIs) in South Africa has deepened, due to fee freezes, government-obligatory limits on tuition hikes, and restricted public fundings (Aislinn, 2015; Su, Chen, Pi & Feng, 2021; Kudanga, Nzuza & Stainbank, 2023). These financial pressures have made HEIs increasingly inaccessible and exclusive, eroding the sustainable development Goal 4 (SDG 4) of ensuring inclusive and quality education for all. Limited research has been conducted on the implementation of ABC in TVET colleges and public universities, despite their important role in the higher education sector. These institutions face severe financial constraints, aggravated by fundings shortages and government-imposed tuition caps, which prevent their ability to offer quality education and maintain operational efficiency. The massification of higher education characterised by speedy growth in student enrolment without corresponding increases in fundings further aggravates this challenge, placing significant strain on institutional resources and infrastructure. This precarious balance is challenging to attain under the current costing framework. These institutions play a crucial role in developing technical skills that are needed in addressing South Africa's high unemployment rate. Strengthening financial sustainability in TVET colleges through effective costing systems like ABC can improve their ability to equip students with job-ready skills, ultimately contributing to economic growth and workforce development. However, achieving financial stability requires a shift from conventional costing approaches to more precise and transparent methods.

To address these challenges associated with this transition, technical and vocation education and training (TVET) colleges and universities must explore innovative costing framework. Among these, activity-based costing (ABC) has gained recognition as a practical solution, providing greater accuracy in resources allocation compared to traditional costing systems (Madwe et al., 2020). ABC assigns overhead costs to activities based on the resources they consume, facilitating organisations to streamline operational and improve performance. For South African higher education institutions (HEIs), where funding challenges persist under the National Student Financial Aid Scheme (NSFAS), adopting and implementing ABC is especially crucial. NSFAS has encountered substantial strain in meeting the financial needs of students, leaving HEIs to manage funding gaps while maintaining operation efficiency. Furthermore, the increasing demand for accessible and affordable higher education in South Africa, coupled with limited funding growth and government-regulated tuition fees increases, has strengthened the need for HEIs to enhance their resources and provide cost-effective courses. ABC is widely recognised as a powerful approach for HEIs to allocate cost accurately, enhancing decision making, and ensure long-term sustainability in the resource-constrained environment.

Despite its potential, many South African HEIs continue to rely on traditional costing systems, which often fail to account for overhead costs effectively (Madwe et al. 2020; Kudanga et al., 2023). This

reliance distorts cost information and leads to suboptimal strategic decisions, such as discontinuing profitable programs or sustaining loss-making ones (Abeysekera & Sharma, 2023; Sanches, Soito & Gago-Rodriguez, 2022). These challenges are further exacerbated by limited fundings, government-regulated tuition fee caps, and the pressures of massification, highlighting the urgency for cost-effective solutions such as ABC to optimise resource utilisation and ensure financial sustainability.

While the global determinants of adoption and implementation of ABC has been researched extensively (Lutisky & Dragija, 2012; Sorros, Karagiogos & Mpelesis, 2017; Hoang, Pham, Nguyen & Nguyen, 2020; Declerck & Swaak, 2021; Abeysekera & Sharma, 2023; Borges, do Ceu Alves & Silva, 2024), research within the South African context remains limited. Notable contribution by Madwe et al. (2020) and Kudanga et al. (2023) have explored barriers to ABC adoption and implementation in South African HEIs, but significant gaps persist. For example, there is limited research examining the experiences of senior finance staff in TVET colleges concerning the challenges of adopting and implementing ABC. Prior research has profoundly employed quantitative methods, such as surveys, to identify determinants of ABC adoption and implementation, but qualitative insights into the behavioural and organisational variables remain limited.

One critical oversight in existing literature is the neglect of mediating factors, such as employee training and top management support, which play pivotal roles in the successful adoption and implementation of ABC. These mediating factors are essential for understanding how internal resources interact to facilitate effective adoption and implementation of ABC. Without addressing these factors, HEIs may develop incomplete or ineffective strategies for adopting and implementing ABC, further exacerbating financial and operational challenges. By including mediating roles of employee training and top management support, this study aims to develop a comprehensive conceptual framework for ABC adoption and implementation. This framework builds on the existing model by Made et al. (2020), offering tailored strategies for improving financial sustainability and operational efficiency in South African public colleges. This study also aims to achieve SDG 4, which focuses on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. Particularly, this study contributes to Target 4.5, which emphasises equal access to affordable, quality higher education, and Target 4.5 which aims to eliminates disparities and ensure equitable education for vulnerable groups. By addressing the financial sustainability of HEIs using ABC, the research aligns with the broader mission of SDG 4 to make higher education more accessible and equitable.

The results of this study will provide empirical insights into the determinants to the successful adoption and implementation of ABC. The study guides policymakers and HEIs leaders in crafting targeted interventions, the proposed framework aims to improve cost calculation per student and per program in HEIs.

Literature Review

The implementation of ABC has been widely investigated, yet there remains a gap in understanding how human and organisational variables affect its implementation within South African higher education institutions (HEIs), especially from the perspective of finance staff as key stakeholders in this process. ABC is a costing approach that assigns costs to activities based on resource consumption, allowing HEIs to allocate cost more accurately across academic courses, faculties/schools, departments and activities such as teaching, research and community engagement (Kudanga et al., 2023; Borges et al., 2024). Its relevance in HEIs lies in mitigating challenges like funding constraints, rising operational costs, and the need for accountability, while providing a clear understanding of cost structures to support strategic objectives (Naidoo, 2011; Moyo & McKenna, 2021; Ahmed & Opoku, 2022). Despite its benefits, variables such as complexity of implementation, lack of expertise and resistance to change continue to inhibit ABC implementation (Kudanga et al., 2023).

Theoretical Framework

This study is grounded in contingency theory, which posits that organizational practices are influenced by contextual factors such as structure, culture, and resources. This theory suggests that the adoption and implementation of ABC depends on situational factors (Madwe et al., 2020; Shala, Prebreza & Ramosaj, 2021). The core principles approach is that the successful implementation of ABC depends on a combination of behavioural, organisational and technical variables (Madwe et al., 2020). Organisations differ in their structural intricacy, leadership styles and resource availability, leading to differences in how ABC is embraced and operationalised. Contingency theory predicts that barriers to the implementation of new systems will exist in certain environments due to variables such as resource availability, leadership support and resistance to change.

In the context of higher education institutions (HEIs), the implementation of ABC may be contingent on contingent factors such as leadership commitment, technical expertise, cost structure, organisation size and resistance to change. This theory provides a theoretical lens to investigate how these factors interact to shape the success or failure of ABC implementation.

Factors Influencing the Adoption and Implementation of ABC

Prior research has extensively investigated factors affecting the implementation and adoption of ABC (Aldukhil, 2012; Madwe, 2017; Sorros et al, 2017; Hoang et al, 2020; Declerck & Swaak, 2021; Kudanga et al. 2023). Kudanga et al. (2023) reveal that behavioural and organisational factors are especially important in shaping the adoption and implementation of ABC. Similarly, Hoang et al. (2020) and Madwe et al. (2020) classified these factors as behavioural, organisational, and technical variables.

Each of these factors is discussed in detail in the next section to offer a nuanced understanding of their impact for ABC adoption and implementation.

Size of Organisations

Prior research reveals that larger organisation, characterised by greater operational complexity, are more likely to implement sophisticated costing approaches such as activity-based costing (ABC), leveraging their access to specialised staff for effective implementation (Pokorna, 2016; Schoute & Budding, 2017; Nair and Yee, 2017; Madwe et al. 2020; Soras & Christopoulos, 2024).

While larger organisations possess greater financial and managerial resource, facilitating them to develop and sustain advanced costing systems like ABC (Naranjo-Gil, 2009; Elagili, 2015), some studies challenge the notion that size alone guarantee successful implementation. Prior research reveals that larger organisation may face internal barriers such as bureaucratic inertia and resistance to change, potentially hindering ABC implementation (Alexopoulou, Balios & Kounadeas, 2024). Conversely, smaller firms may benefit from structural flexibility and quicker decision-making, enabling implementation. Furthermore, variables such as organisational culture, management support and strategic priorities often prove more critical than size in influencing ABC implementation.

Resistance to Change

Resistance to change is a common barrier in organisational change processes, including the implementation of ABC. Prior research indicates that employee's resistance, often caused by fears of job insecurity, complexity, or workflow disruptions can significantly prevent ABC implementation (Bvumbi, 2017; Pietzak, Wnuk-Pel & Christauska, 2020; Hoang et al., 2020). Conversely, studies indicate that firms with a culture of innovation experience less resistance, as personnel are more receptive to change (Quesado & Silva, 2021). However, limited research exists on how this dynamic applies within South African HEIs, especially in TVET colleges, which this paper aims to explore by examining finance staff's perceptions of resistance to ABC implementation.

Internal Resources Availability

Adoption and implementation of ABC resource-intensive, demanding extensive investment in time, expertise, and management commitment (Scott & Manning, 2024). Literature suggest that sufficient resource not only reduce resistance to change but also foster a sense of ownership and understanding among employees, facilitating successful and smoother transitions to more effective adoption and implementation (Reynolds & van der Poll, 2015).

Conversely, resources limitations pose a substantial obstacle to ABC adoption and implementation, with Tandiono (2024) highlighting that the demands of information collection and activity identification can

overwhelm firms with scarce resources. This is especially pertinent in the context of South African TVET college, where financial personnel often face significant resource constraints, yet their experiences and responses to these changes remain unknown.

Mediating Role of Training

Research has consistently noted critical role of employee training in successful adoption and implementation of ABC. Udeh, Eze and Enujioke (2024) indicate that training equip employees with necessary skills and knowledge to navigate the complexities of ABC system, fostering positive attitudes and improving organisational capacity. Bvumbi (2017) emphasised that effective training not only enables the transition to ABC but also reduces resistance by demonstrating the tangible benefits of the new system.

Additionally, tailored training programs have been shown to be especially effective in addressing the specific needs of organisation, such as HEIs, which face unique operational challenges. Prior research has recommended that workshops, on-the job-training, and digital learning modules are practical approaches for building employee expertise in ABC implementation (A-Saidi & Gowda, 2014).

However, the availability of resources often dictates the scope and effectiveness of these training programs. For instance, Wahab et al. (2018) found that organisation with sufficient funding for comprehensive training initiatives experienced smoother ABC adoption and implementation compared to those with limited budgets. This highlights the importance of financial investment and strategic planning by top management to ensure successful employee upskilling.

Mediating Role of Top Management Support

Top management support plays a pivotal role in mediating the relationship between resource availability and successful implementation of ABC approaches (Wahab et al., 2018; Majid & Sulaiman, 2008). Active participation from senior management not only aligns ABC with firm objectives but also ensures the allocation of necessary resources, motivates staff, attracts and retains skilled employees, and facilitates training initiatives (Aldukhil, 2012; Intakhan, 2014; Wahab et al., 2018; Tandiono, 2024). Research consistently indicates that lack of senior management support is a major cause of ABC failure, especially in resource-constrained environments (Al-Saidi & Gowda, 2014). This paper explores how senior management support impact ABC implementation in South Africa TEVT colleges, where limited expertise and resource present distinct challenges.

Cost Structure

The structure of costs, particularly the proportion of overheads relative to direct costs, is another critical factor influencing ABC adoption. Research indicates that firms with higher indirect costs are more likely

to adopt ABC due to its ability to allocate cost accurately (Elagili, 2015; Tu Tran & Thi Tran, 2022). Al-Halabi and Shaqqour (2018) assert that as overhead costs constitute a larger share of total costs, traditional costing systems become increasingly prone to distortion. This distortion often necessitates the adoption of more accurate costing methods like ABC. Research by Majid and Sulaiman (2008) and Tu Tran and Thi Tran (2022) identify higher overhead costs as a motivating factor for organizations to transition to ABC.

This study investigates whether finance staff perceive that institutions with a cost structure characterized by a significant proportion of overheads are more likely to adopt ABC than those with a lower overhead proportion.

Product Diversity

Product diversity, referring to the range and complexity of an institutional' s offerings is recognised as key driver for ABC implementation, as conventional costing systems struggle to allocate costs accurately in such environments (Chongruksut & Brooks, 2006; Schoute, 2011; Akinyomi, 2014; Elagili, 2015). This research assumes institutions with greater product diversity are more inclined to adopt ABC and explores whether personnel perceive this factor similarly.

Technical Variables

Adoption and implementation of ABC cannot be fully explained by organisational, contextual, and behavioural variables alone (Tan & Tuan, 2020). Technical variables which comprise of identification, definition and description of activities conducted by the firm to produce products or render services, play a critical role, and must be also considered in investigating factors influencing ABC adoption and implementation (Yi Fei & Isa, 2010; Madwe et al., 2020). According to Tan and Tuan (2020), technical factors include software packages, and data collection on cost drivers, activity identification, and knowledge of data requirements. Yi Fei and Isa (2010) further accentuate that describing and defining activities are the central to the effective design of ABC systems. Kudanga et al. (2023) investigated factors hindering the adoption and implementation of ABC in South African university, underscoring technical challenges in identifying cost drivers for assigning overhead cost to cost objects.

This study therefore examined whether the finance staff in TVET colleges in South Africa perceived those technical issues as a reason for rejecting ABC.

Methods and Data

This study employed a qualitative research approach grounded in the interpretivism paradigm, which emphasizes understanding the subjective meanings and experiences of participants. The qualitative method was chosen to explore and interpret the perceptions and experiences of finance staff regarding

the factors influencing the adoption of Activity-Based Costing (ABC) at Technical and Vocational Education and Training (TVET) colleges in KwaZulu-Natal.

The study population comprised ten (10) senior finance staff holding the positions of Deputy Principal (Chief Financial Officer, CFO) and Assistant Director (Finance Manager) from five (5) public TVET colleges in KwaZulu-Natal. A purposive sampling approach was used to select These individuals were selected due to their expertise in budgeting and costing systems and their key roles in decision-making processes related to ABC implementation. Their experiences of factors hindering ABC integration in TVET colleges and possible strategies to address provided rich and relevant data for the study. The purposive sampling technique was selected due to its ability to facilitate the collection of focused data from the participants who possess specialised knowledge of the topic under research (Kaliisa et al., 2022).

Two senior finance staff participate were unable to participate due to personal commitment. Despite this, the data gathered from the eight (8) participants were sufficient to reach data saturation point, which was reached by the eight interviews (Vasileiou, Barnett, Thorpe & Young, 2018). At this point, 80% of the critical themes and insights had already emerged from the data, while the incremental contribution of interviews nine and ten accounted for only 32% of additional information (Fusch & Ness, 2015). This aligns with the principle of data saturation, where further data collection yields minimal or no new information, thereby affirming the adequacy of the sample size (Guest, Bunce & Johnson, 2006; Fusch & Ness, 2015). The results from the eight (8) semi-structured interviews were thus considered adequate to support robust analysis and conclusion in this paper.

Ethical considerations were paramount, and respondents were provided with the detailed information about the study to ensure informed consent. To enable ease of participation, interviews were conducted either at the respondents' office or at conveniently located TVET colleges within KwaZulu-Natal.

Data collection was carried out via face-to-face semi-structured interviews with eight (8) senior finance staff from five TVET colleges in the KwaZulu-Natal. The semi-structured interview was chosen due to its ability to allows for an in-depth investigation of participants' perspectives while maintaining a structured method to deal with the research objectives. Semi-structured interviews provide the flexibility to adapt to arising themes during the interview while guaranteeing consistency in obtaining information relevant to the research questions (Sanchez-Guardioka Paredes, Ameuaded Ramirez & Rodriguez-Sabiote, 2021). An interview guide was developed, consisting open-ended questions designed to capture senior finance staff' perceptions and experiences on the factors affecting the adoption and implementation of ABC at TVET colleges in South Africa.

Data were audio-recorded using a digital voice recorder to ensure the accuracy and reliability of data gathered. This approach enabled for a thorough analysis of the respondents' responses without the risk

of missing details during notetaking. Furthermore, recording interviews aligns with research practices, provided respondents consent to being recorded, as it improves the credibility and replicability of the findings (Rutakunma, Mugisha, Bernays, Kabunga, Tumwekwase, Mbonye & Seeley, 2019).

The data gathered were analysed through thematic analysis, this approach offers both flexibility and accessibility in handling qualitative data (Dawadi, 2020). The thematic analysis was selected to systematically identify and interpret patterns or themes within the data, guaranteeing alignment with research aim and research questions. This study followed general procedures out (Madwe, 2017; Naeem, Ozuem, Howell & Ranfagni, 2023), which are especially effective for managing larger volumes of quantitative data, such as those generated through the multiple case studies carried out in the paper. To ensure accuracy and credibility, all interviews' recordings were transcribed verbatim into Microsoft Word. The transcripts were then return to participants for verification, allowing them to confirm that the content accurately reflected their views and experiences.

The analysis began with an iterative process of reading and re-reading the interview transcripts and field notes to achieve familiarity with the data. This step enabled the identification of meaningful patterns. The study then engaged in coding, a process of systematic categorising data into segments to capture their relevance to the study. The research adopted a structured method, and nine key themes emerged: firm size, training, cost structure, top management support, internal resources availability, resistance to change, and technical variables. Each of them was analysed within the context of the individual case study to preserve the unique perspectives and experiences of respondents. Finally, the results from all cases studied were combined to offer a nuanced understanding of the factors affecting the adoption and implementation of ABC.

Results

Demographic Overview of Participants

Interviews with senior finance staff at five TVET colleges showed that managerial position are primarily occupied by men, with male representing 60% of participants and female representation at 40%. This gender inequality is specifically pronounced in CFOs roles, where four out of five positions are held by men, highlighting a significant gender imbalance in leadership roles.

The racial composition of the participants reveals a notable lack of diversity within the finance staff at KwaZulu-Natal technical and vocational education and training (TVET). Half (50%) of participants is a White, while 30% are African, 10% are Indian, and 10% are Coloured. This demographic distribution indicates an overrepresentation of certain racial groups, potentially reflecting historically disparity in staffing practices or limited inclusivity efforts. This racial imbalance could influence the experiences shared during the interviews, especially regarding adoption and implementation of ABC. This shows the

importance of addressing diversity and equity as part of institutional development to ensure a range of views are captured in financial decision-making processes.

The age distribution of the respondents shows a trend toward older individuals holding senior management positions within KZN TVET colleges. Half (50%) of the participants are between 50 and 60 years old, 40% fall within the 35-49 age group, and only 10% are aged 60-65. This prevalence of older staff could indicate a dependence on experienced professionals, possibly as a strategy to mitigate the challenges associated with implementing new financial and costing systems like ABC. However, it may also point to potential planning issues, as the reliance on an aging labour force might prevent the integration of fresh innovations methods. Furthermore, this age distribution could indicate varying level of openness to change, with older staff hypothetically being more resistant to the adoption and acceptance of new systems due to comfort with existing systems.

The participants indicate commendable academic credentials, with 50% possessing postgraduate degrees, 30% holding undergraduate degrees, and 20% having diplomas. These qualifications indicate a labour force that is equipped with both theoretical and practical knowledge required for financial management and decision-making. Despite this educational background, none of these colleges have implemented ABC system. This underscores that academic qualifications, while important, are inadequate on their own to facilitate the adoption and implementation of new costing systems. Determinants such as resource constraints, resistance to change might play a more crucial role in determining whether ABC or similar methodologies are embraced.

Organisational and Behavioural Factors

The results from interviews indicate that product diversity and institutional size are insignificant factors are insufficient to explain the adoption and implementation of ABC in their own. Larger institutions, which provide diverse programmes, were identified as suitable candidates for ABC adoption based on their size and complexity. However, these results contradict prior research that advocating the significant impact of size and complexity on the likelihood of ABC adoption and implementation (Elagili, 2015; Tu Tran & Thi Tran, 2022).

As one participant explained:

"While our size and the diversity of our programmes might suggest we are good candidates for ABC, the reality is that we lack the expertise and resources to implement such systems."

This view highlights that size alone does not guarantee ABC adoption. Other factors, such as technical knowledge, resource availability, and management support, may be critical in the decision to implement ABC systems. The results indicate the multidimensional nature of ABC adoption and implementation, where organisational characteristics must intersect with broader structural and behavioural supports.

The findings reveal the cost structure, often perceived as critical variable, is insufficient in explaining the adoption and implementation of ABC in KwaZulu-Natal TVET colleges. The simple and labour-intensive cost structure in these colleges reduce the apparent need for advanced costing systems like ABC. One respondent stated that:

“Given our cost structure, where direct labour costs dominate, the benefits of sophisticated costing are not immediately apparent. Our existing costing methods, through conventional, appear sufficient for managing costs effectively.”

This participant claims that the simple and labour cost structure in TVET colleges reduces the need for sophisticated costing system such as ABC. However, several perspectives challenge this view, accentuating that cost structure may not always be a key factor in the decision to adopt and implement new costing systems like ABC. This perspective, while rational, is not unanimously accepted, another senior finance staff provided counterargument:

“Our cost structure may be simple, but ABC provides broader insights into resource allocation and operational efficiency. It’s not just about overhead; it’s about understanding our activities comprehensively.”

Other respondents echoed similar sentiment, underscoring ABC’s potential to improve strategic operational and management insight:

“Even with simple cost structure, ABC could identify inefficiencies in non-labour activities and ensure equitable allocation, supporting our commitment to affordable education.”

These viewpoints align with previous studies suggesting that ABC’s value lies in its ability to integrate with management decision-making and improve non-financial metrics such as quality and operation efficiency (Uyar & Kuzey, 2016). Therefore, the results challenge the conception that cost structure dictates ABC adoption and implementation, emphasizing that its benefits extend beyond traditional costing paradigms.

Resource availability includes both financial and human capital, appeared as a significant barrier to ABC adoption and implementation. Senior fiancé personnel from KwaZulu-Natal TVET colleges Indicated financial constraints tied to limited government funding, exacerbated by growing student enrolment pressure. One participant noted:

“The funding we received from the department of higher education and training barely covers operational costs, let alone additional systems like ABC. We are stretched thin due to the rising number of students.”

Another senior fiancé staff noted the lack of skilled employees:

“We don’t have staff trained in ABC. Without funds to train our current employees or recruit specialists, implementation feels impossible.”

The results indicates that resource constraints necessitate a concerted effort from both institutional and government agencies. Without sufficient financial and human resource, the implementation of ABC system remains challenging, regardless of their potential benefits.

Resistance to change emerged as a persistent barrier, with strong leadership from top management identified as key to overcoming this challenge. Participants stressed that robust, proactive management is critical factors for facilitating ABC adoption and implementation and addressing staff fears.

These results indicate the necessity for clear communication strategies that articulate ABC’s benefits, linking them to organisational goals like efficiency and quality improvement.

The results indicate that training and top management are critical mediators in addressing variables hindering ABC adoption and implementation. Senior finance staff consistently noted gaps in expertise and training, highlighting the need for top management to prioritise resource allocation for staff development.

As one of respondent noted:

“There’s a lack of expertise in ABC within our colleges. Training is absolutely necessary to build the knowledge base. But without the backing of top management to allocate resources for training, we can’t begin to think about adoption and implementing it.”

Another consistent them emerged from interviews was the need for active support from senior management in facilitating the adoption an implementation of ABC. Senior finance staff highlighted that without the involvement and commitment of senior management, particularly in terms of resource allocation and mitigating staff resistance, the adoption and implementation of ABC would be challenging.

One of respondent emphasised:

“Senior management must be the driving force behind the ABC implementation. They need to understand the value it can bring, especially when it comes to allocating resources and overcoming staff resistance. Without their support, it’s almost impossible to move forward.”

The findings reveal that resistance was compounded by the lack of understanding of how ABC would benefit TVET colleges.

Another respondent stated:

“Resistance from staff stems from a lack of understanding of how ABC benefits the college. Management needs to clearly communicate these benefits, linking them to improved efficiency and better decision-making. Without this clarity, the pushback is inevitable.”

The study identifies the Department of Higher education and Training (DHET) as a critical factor in addressing the factors hindering the adoption and implementation of ABC. Participants emphasised that DHET 's financial support and the Minister's buy-in are essential for securing the necessary resources to adopt and implement ABC successfully in these institutions.

One senior finance staff stated:

“The successful adoption and implementation of ABC in TVET colleges requires alignment between colleges and government priorities. As the main funder, the DHET and Minister's buy-in are critical. Their participation ensures that financial and human resources constraints are addressed, providing a clear mandate for implementation.”

These results align with existing literature underscoring the significance of leadership and training in successful adoption and implementation of ABC (Madwe et al., 2020; Kudanga et al., 2023).

The results from the interviews conducted with senior finance staff from KwaZulu-Natal TVET colleges reveal that technical challenges and compatibility of ABC methodologies with current costing practices are the critical variables affecting their adoption and implementation. Consistent with the prior research (Yi Fei & Isa, 2010; Madwe et al., 2020; Tan & Tuan, 2020) that found technical factors such as defining, identifying, and describing activities, as well as the technical expertise required to design as crucial factor. The TVET colleges with more diverse and complex operations, such as those offering multiple courses, acknowledge potential benefits but face critical implementation challenges due to the technical demand of the ABC system. One participant highlighted:

“The complexity of ABC system is intimidating. They don't seem to align with the simpler cost structures we have. But I think there could be benefits, specifically in more diversified and complex areas, like the multiple programmes we offer.”

Senior finance staff also expressed concerns about the technical expertise required in system design and during the maintenance of ABC systems. This is consistent with Kudanga et al. (2023), who highlighted difficulties and challenges in identifying cost drivers and allocating indirect costs as barriers to ABC adoption and implementation in South African university. One senior finance emphasised:

“We don't have the technical skills or resources to collect and analyse the data needed for ABC. It feels like an uphill battle, and we're not sure the benefits will justify the benefits.”

Another respondent noted concerns about the software and data requirements, asserting “Even if we wanted to adopt ABC, the software packages available are complicated, and the data collection process is overwhelming. Our staff needs more training to understand how to use these new systems.

These views align with Tan and Tuan’s (2020) assertion that technical variables, including specialised software and data requirements, significantly affect ABC adoption and implementation. The evidence from this research advocates those technical variables along organisational, contextual, and behavioural factors, play a crucial role in shaping employees’ perceptions of ABC methodologies in TVET colleges.

The findings also indicate that the technical factors aligned with the findings of Kudanga et al. (2023), who identified difficulties in identifying cost drivers and allocation indirect costs as barriers to adoption in South Africa universities. These challenges are further compounded by the requirement for specialised software, data collection on cost drivers, and knowledge of data requirements, as noted by Tan and Tuan (2020). Hoang et al. (2020) similarly highlighted technical factors as a critical deterrent to ABC adoption and implementation, which was echoed by senior finance staff in this research who expressed concerns about the technical expertise required to implement and maintain ABC systems.

The participants proposed several strategies to overcome factors preventing the adoption and implementation of BC approaches, highlighting the need for strong and robust top management support, specialised employee training, ensuring system compatibility, and fostering open communication with stakeholders. These strategies highlight the importance of overcoming both technical and behavioural variables in the adoption and implementation process.

One senior finance staff indicates the pivotal role of leadership:

“The best way to overcome barriers is through top management support, leadership needs to actively involve the staff, provide proper training, ensures that ABC aligns with our own needs.”

This participant emphasises the importance of proactive and visible leadership to facilitate the adoption and implementation of ABC, specifically in addressing staff concerns and aligning system design with institutional requirements. Another respondent stated that the need for clear and consistent communication:

“We need clear communication about the long-term benefits of ABC. It’s not just a matter of implementing a new system. It’s about educating people on why we need it and how it will improve efficiency.”

This comment highlights that resistance to change is often rooted in the lack of understanding of the system’s benefits. Transparency communication can build trust and foster culture of openness, which is crucial for addressing resistance and ensuring staff buy-in. Additionally, senior finance staff identified other strategies to mitigate barriers:

Ensuring all key stakeholders, including faculty, administrative staff, and external partners, are involved early in the process. One participant suggested: *“Creating a platform for ongoing dialogue with stakeholders helps us to anticipate and address concerns before they become barriers.”*

The respondents suggested incremental implementation, where ABC is phased gradually, to minimise disruption and allow time for adaptation. A senior finance staff remarked,

“We don’t have to roll out the entire system all at once. Starting small and expanding as people gain confidence can make the process less intimidating.” Some respondents proposed incentives for early adopter and acknowledging their contributions. One participant noted, *“Recognising the efforts of staff who embrace the system can motivate others and create a positive momentum for change.”*

The views from senior finance staff highlights that the adoption and implementation of ABC system in educational institutions are affected by a complex interplay of behavioural variables and contextual variables. The proposed model synthesises these factors and underscores their interrelationship, providing a structured roadmap to understand and address barriers to adoption and implementation.

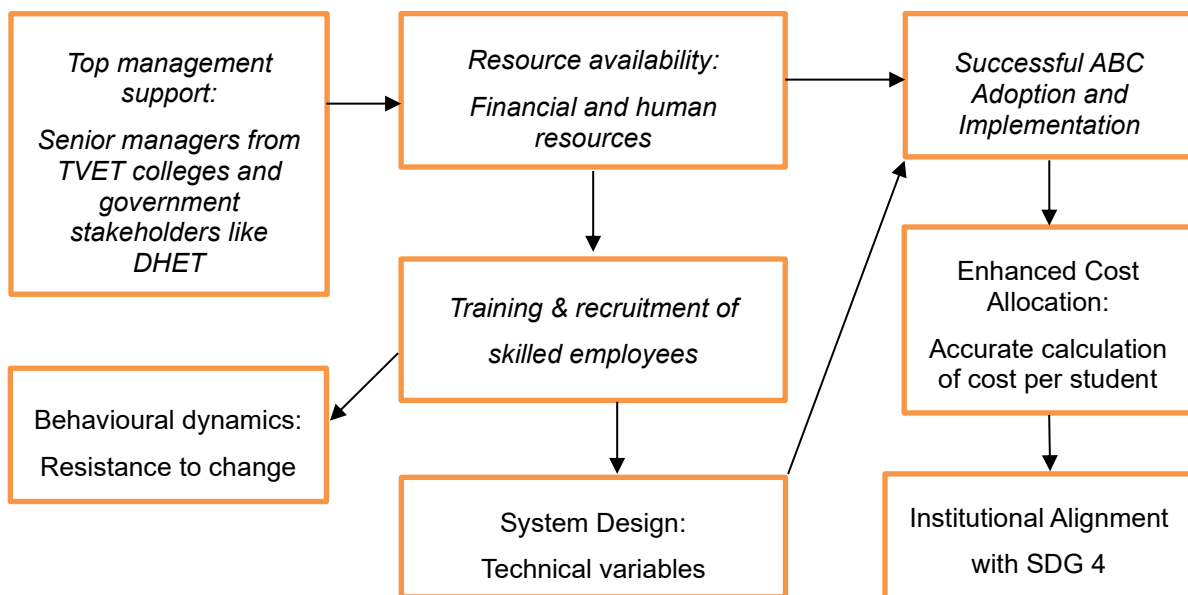


Figure 1: Conceptual framework for ABC adoption and implementation

(Source: Author’s own work)

Figure 1 indicates that the implementation of ABC in TVET colleges is influenced by the interrelated dynamics of leadership, resource availability, training and behavioural variables such as resistance to change. Strong top management plays a pivotal role by ensuring resource allocation, enabling training initiatives and fostering organisational commitment, while training equips employees with the necessary skills to address technical challenges and reduce resistance. The figure 1 underscores how these

determinants collectively facilitate successful ABC implementation, highlighting the importance of addressing both contextual and behavioural barriers.

Discussion

This study contributes to the literature of ABC implementation by exploring key barriers and enablers specific to TVET colleges in KwaZulu-Natal, South Africa, reinforcing prior results while offering context-specific insights. Consistent with existing research, the study confirms that lack of technical expertise, resistance to change and inadequate resources hinder ABC implementation, which emphasising the role of top management in addressing these challenges (Hoang et al., 2020; Tan & Taun, 2020). It also underscores the importance of targeted training in improving employees' competencies, supporting smoother implementation. Unlike prior research focused mainly on technical feasibility, this study integrates Organisational leadership, Behavioural dynamics and resource availability as equally critical variables, providing holistic framework for ABC success. Notably, it challenges existing assumption regarding product diversity, size and cost structure, highlighting that leadership effectiveness and resource allocation are more decisive in the TVET colleges context, with ABC contributing to financial transparency and advancing SDG 4. While limited by its qualitative scope and regional focus, the study recommends future research incorporate a broader, mixed methods approaches to explore additional factors such as government policies and digital transformation.

Conclusion

This study explores the implementation of ABC systems in TVET colleges in KwaZulu-Natal, South Africa. This study reveals several variables affecting the implementation and adoption of ABC. Resistance to change among personal and technical variables emerged as critical factors hindering adoption and implementation of ABC systems. Conversely, variables like institutional size, cost structure and product diversity were found to have an insignificant influence on the adoption and implementation of ABC in TVET colleges. The results underscores the significant role of top management support, and training as resource availability as enablers for ABC adoption and implementation. Training was also revealed as critical factors in building the knowledge base of existing workers with the required skills to navigate technical challenges of ABC design. By incorporating these insights into existing literature, this research advances our understanding of how education institutions can implement ABC to enhance financial decision-making and support sustainable development goals.

This study contributes to the academic discourse on ABC implementation by highlighting the critical interplay between Behavioural, organisation and technical factors in the TVET colleges. The paper offers actionable insights for institutional leaders, policymakers and financial managers within the TVET colleges.

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