



## The Impact of Digital Transformation on Managerial Accounting Systems in Startups: A Case Study of Tabib Baghdad

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### :Abstract

**Purpose:** This study examines the impact of digital transformation on managerial accounting systems in startups, specifically focusing on Tabib Baghdad healthcare startup. The research aims to identify how digital technologies including artificial intelligence, cloud computing, and big data analytics affect financial reporting, budgeting, and cost control processes. **Methodology:** The study employs a descriptive-analytical approach using quantitative methodology. A structured questionnaire was distributed to 150 employees from accounting, IT, and finance departments at Tabib Baghdad. Data was analyzed using SPSS software, employing descriptive statistics including frequencies, means, and standard deviations. Cronbach's Alpha was used to test reliability( $\alpha = 0.85-0.86$ )

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**Key Findings:** Results demonstrate that digital transformation significantly enhances managerial accounting effectiveness. Specifically, automation reduces human errors (89% agreement), cloud-based systems improve security (87% agreement), and digital tools enhance efficiency (85% agreement). However, challenges include initial implementation costs (75% agreement) and employee resistance to change (86% agreement).

**Conclusions:** Digital transformation positively impacts managerial accounting systems in startups through improved accuracy, enhanced real-time decision-making capabilities, and better regulatory compliance. Despite short-term costs and implementation challenges, the long-term strategic benefits justify digital adoption for startup sustainability and growth.

**Keywords:** Digital Transformation, Managerial Accounting Systems, Startups, Financial Reporting, Budgeting, Cost Control

## **1. Introduction:**

Digital transformation has revolutionized business processes across industries, with managerial accounting experiencing significant changes due to technological advancement. Over the past decade, organizations have increasingly adopted digital solutions to enhance operational efficiency, data transparency, and financial decision-making (Brynjolfsson & McAfee, 2017, p. 45). Managerial accounting systems, which provide essential financial insights and support strategic decision-making, have particularly benefited from this digital evolution.

The integration of artificial intelligence (AI), cloud computing, and big data analytics into accounting systems has transformed the speed and quality of financial reporting (Dai & Vasarhelyi, 2017, p. 8). Startups face unique challenges in adapting to digitalization due to resource constraints, limited financial capacity for technology investment, and the pressure for rapid growth (Nambisan, 2017, p. 1035). Unlike established corporations with mature digital infrastructure, startups must navigate uncertainties regarding adoption costs, implementation complexity, and regulatory compliance.

Nevertheless, digital accounting tools can help startups gain access to immediate information about their finances, automatic reporting automation, and better cost control that informs decision-making and financial stability (Granlund 2018, p. 230). Recent research suggests that startups by digitalizing the accounting process experience a 40% shorter financial reporting cycle and 35% higher budget accuracy than companies, which practice accounting in traditional fashion (Schmidt et al., 2020, p. 100715). This article examines them in the context of emerging healthcare (Ashour, 2013; Ouertani et al., 2017) startup company Tabib Baghdad targeting the digital new era in Iraq. This study is expected to be among the first body of knowledge to empirically it illustrates how digital transformation influences managerial accounting effectiveness and thereby contribute in idea development toward academic community as well as guideline for practice by organization with similar characteristic.

## **2. Literature Review**

## **2.1 Digital Transformation in Managerial Accounting**

There has been a growing awareness of the impact on digital transformation to the practices of managerial accounting. It refers to modern digital technologies, such as AI, big data analytics and cloud computing along with blockchain which have been operationalized in the accounting system (Dai & Vasarhelyi, 2017 p. 12). They are a set of tools that help companies process financial data automatically, improving the bottomline and strategic choices.

The shift from traditional accounting to computerized tactics has, as expected, lessened human error and simplifies the financial analysis process by making it more efficient, while also allowing for easier compliance with regulations (Granlund, 2018). According to a study By Brynjolfsson & McAfee (2017, p. 89), digital transformation makes it possible for the companies to transform their traditional data analysis into pervasive and advanced data science analytics so as to move from reactive decision-making towards proactive decision making. Startups seeking financial agility and data visibility to ensure their startup can continue growing will notice the difference.

In addition, cloud-based accounting systems can offer immediate information access for financial transactions and hence improve financial planning and risk management (Nambisan, 2017, p. 1045). Adoption of these digital solutions have proven measurable efficiency and strategic planning improvements for growing businesses.”.

## 2.2 Digital Technologies in Management Accounting

There are a number of Digital Technologies which have been having an impact on Managerial accounting and each of the technology has something to offer as well:

**AI and Machine Learning** – AI-based accounting solutions are capable of automating mundane tasks like day-to-day data entry, expense tracking, trend prediction. Detecting anomalies in financial transactions is another area where AI algorithms contribute to fraud risk reduction and financial security (Pizzi et al., 2021, p. 465). Solutions such as these can then be enhanced over time by virtue of machine learning capabilities: pattern recognition and predictive modeling.

**Big Data Analytics:** Advanced data analytics allow organizations to process large volumes of financial data, identify trends, and make data-driven strategic decisions. Predictive analytics specifically enables management accountants to forecast revenues, optimize pricing strategies, and enhance budget analysis accuracy (Schmidt et al., 2020, p. 100720). These capabilities are particularly valuable for startups operating in dynamic market conditions.

**Cloud Computing:** Cloud-based accounting platforms such as QuickBooks, Xero, and SAP provide instantaneous access to financial data and enhance collaboration between accounting teams and management. Cloud solutions also offer improved scalability, making them suitable for startups with varying and evolving financial demands (Romney & Steinbart, 2021, p. 156).

The flexibility of cloud infrastructure allows startups to scale their accounting capabilities as they grow.

**Blockchain Technology:** Blockchain provides a decentralized, tamper-proof ledger system for recording financial transactions, offering enhanced transparency and security. This technology can help startups build trust with investors and financial institutions by ensuring the authenticity and integrity of financial data (Dai & Vasarhelyi, 2017, p. 15).

### **2.3 Challenges of Digital Transformation in Startups**

While digital transformation offers significant benefits, startups face several challenges in implementing digital accounting systems:

**Financial Constraints:** Many startups operate with limited capital resources, making investment in expensive digital accounting software and comprehensive training programs financially challenging (Nambisan, 2017, p. 1048). The initial cost of implementation often creates barriers for resource-constrained organizations.

**Technological Complexity:** The integration of AI, big data analytics and blockchain is associated with complicated application processes that are not necessarily straight-forward to realize without specific knowledge in a area such as a startup environment (Granlund 2018, p. 245). It is this complicity that may cause you to have implementation delays or extra costs.

**Data Security and Privacy Risks:** A move to online accounting systems brings security risks as clouds created by cyberattacks

are on the rise, such as data leakage and unauthorized access to financial data (Schmidt et al., 2020, p. 100718). Startups need to equally invest in strong security solutions for financial data.

Risk: In a traditional process, established human personnel and management will not be subjected to digital solutions where they may have knowledge or experience of existing modes of operation and fear the loss or displacement of their job (Pizzi et al., 2021, p. 468). Frustration is that resistance; we can successfully navigate it with good change management strategies and training processes in place.

## **2.4 Impact of Digital Transformation on Startup Performance**

It's been proven empirically that the implementation of digital transformation has effectively improved both efficiency and efficacy managerial accounting in startups. In a study of Pizzi et al. (2021, p. 470), startups which embraced digital accounting tools realised 30% and 25% in financial reporting accuracy and operational costs improvement respectively, as compared to their counterparts using manual methods.

Nambisan (2017, p. 1050) also argued that the cloud accounting facilitates scaling of financial operations for startups compared to on premised system, and allows scalability in tune with dynamic business demand. Digital solutions make it easier for startup-management to take strategic decisions with immediate access to data and instant report generators.

Brown et al. The comparative study performed by (2020, p. 85) presented the fact that the enterprises that used automation to

automate their accounting process had observed a decrease of 35 per cent in computational errors in comparison to manual traditional way. This increased accuracy is especially important to startups where financial is so critical and it can either double down on their survival or growth prospects.

Johnson & Lee (2019, p. 42) illustrated that more than 45% of the cloud computing uptake advancement is safer, when compared to pre-clouding systems with better regulatory compliance feature due to regular upgrade and updated data confidentiality protocols in place. These security enhancements are critical also for startups that want to establish credibility with investors and customers.

## **2.5 Case Study Context: Healthcare Startups**

Healthcare startups like Tabib Baghdad face unique challenges and opportunities in implementing digital transformation initiatives. The healthcare sector's regulatory requirements necessitate robust financial tracking and reporting systems that can ensure compliance while supporting rapid growth (Smith & White, 2021, p. 52).

Digital transformation in healthcare startups offers particular advantages in cost management, given the sector's complex cost structures involving research and development, regulatory compliance, and patient care delivery. AI-driven financial analysis tools can help healthcare startups optimize resource allocation and improve financial forecasting accuracy (Deloitte, 2022, p. 25).

## **3. Research Methodology**

### **3.1 Research Problem**

Traditional managerial accounting systems in startup organizations often struggle to keep pace with dynamic business environments. Manual processes, lack of real-time financial data, and insufficient integration with other business functions can hinder decision-making and financial planning. While digital transformation promises to address these challenges through automation, improved accuracy, and real-time insights, the extent of its impact on managerial accounting in startups remains under-researched.

**Primary Research Question:** How does digital transformation affect the effectiveness of managerial accounting systems in startups?

#### **Secondary Research Questions:**

1. What is the impact of digital technologies on financial reporting accuracy in startup environments?
2. How do digital tools enhance budgeting processes and cost control mechanisms?
3. What are the main challenges and benefits of implementing digital accounting systems in startups?

### **3.2 Research Importance**

Understanding digital transformation's impact on managerial accounting is crucial for startups seeking to enhance financial performance and competitive advantage. This research contributes to academic literature by providing empirical insights into how digital technologies strengthen:

- **Financial Reporting:** Through automated data processing, real-time reporting capabilities, and enhanced accuracy in financial statement preparation
- **Budgeting:** Via predictive analytics, scenario planning tools, and dynamic budget adjustments based on real-time data
- **Cost Control:** Through automated expense tracking, variance analysis, and activity-based costing systems

The study also provides practical guidance for startups like Tabib Baghdad to optimize their accounting systems and achieve better financial control and strategic decision-making.

### **3.3 Research Objectives**

The primary objective is to examine how digital transformation influences managerial accounting practices in startups. Specifically, the study aims to:

1. Evaluate the impact of digital systems on financial reporting accuracy and timeliness
2. Assess how digital tools enhance budgeting processes and cost control mechanisms
3. Identify challenges and benefits of implementing digital accounting systems
4. Provide recommendations for Tabib Baghdad to improve its managerial accounting systems through digital transformation

### **3.4 Research Hypotheses**

**Null Hypothesis ( $H_0$ ):** Digital transformation does not significantly impact the effectiveness and efficiency of managerial accounting systems in startups.

**Alternative Hypothesis ( $H_1$ ):** Digital transformation significantly improves the effectiveness and efficiency of managerial accounting systems in startups.

### **3.5 Research Approach and Methodology**

#### **3.5.1 Research Design**

This study adopts a descriptive-analytical approach utilizing quantitative methodology to gather and analyze numerical data concerning managerial accounting systems and digital transformation impact.

#### **3.5.2 Population and Sample**

**Target Population:** Employees working in managerial accounting, IT, and finance departments at Tabib Baghdad startup.

**Sample:** 150 employees randomly selected from a total population of 200 employees, including:

- Accounting Department employees
- IT Department employees

*Finance and Operations employees*

#### **3.5.3 Data Collection Tools**

**Primary Data Collection:** Structured questionnaire using 5-point Likert scale to measure employees' attitudes and perceptions regarding digital transformation impact on managerial accounting systems.

**Validity and Reliability Testing:** Cronbach's Alpha coefficient was used to test internal consistency, achieving reliability scores between 0.85-0.86.

### 3.5.4 Data Analysis Methods

Data analysis was conducted using SPSS software, employing descriptive statistics including frequencies, means, and standard deviations to evaluate managerial accounting system effectiveness in the digital transformation context.

## 4. Results and Discussion

### 4.1 Demographic Analysis

**Table 1: Demographic Data Distribution**

| Category  | Options      | Frequency | Percentage (%) |
|-----------|--------------|-----------|----------------|
| Age Group | 18-25        | 30        | 20%            |
|           | 26-35        | 45        | 30%            |
|           | 36-45        | 35        | 23.3%          |
|           | 46-55        | 25        | 16.7%          |
|           | 56 and above | 15        | 10%            |
| Gender    | Male         | 90        | 60%            |
|           | Female       | 55        | 36.7%          |

|                        |                     |    |       |
|------------------------|---------------------|----|-------|
|                        | Prefer not to say   | 5  | 3.3%  |
| <b>Education Level</b> | High School Diploma | 20 | 13.3% |
|                        | Associate Degree    | 25 | 16.7% |
|                        | Bachelor's Degree   | 60 | 40%   |
|                        | Master's Degree     | 35 | 23.3% |
|                        | Ph.D. or higher     | 10 | 6.7%  |
|                        |                     |    |       |

*Source: Primary data analysis using SPSS, 2024*

## 4.2 Digital Transformation Impact Analysis

**Table 2: Likert Scale Responses Analysis**

| <b>Statement</b>                                               | <b>Mean</b> | <b>Standard Deviation</b> | <b>Agreement (%)</b> |
|----------------------------------------------------------------|-------------|---------------------------|----------------------|
| Digital transformation enhances financial reporting efficiency | 4.5         | 0.65                      | 85%                  |
| Digital tools improve budgeting accuracy                       | 4.4         | 0.68                      | 82%                  |
| Cloud-based systems enhance cost control mechanisms            | 4.6         | 0.62                      | 87%                  |
| Automation reduces human errors in financial reporting         | 4.7         | 0.60                      | 89%                  |
| Digital transformation enables real-time budget monitoring     | 4.3         | 0.70                      | 80%                  |
| AI enhances financial                                          | 4.2         | 0.75                      | 78%                  |

|                                                   |     |      |     |
|---------------------------------------------------|-----|------|-----|
| forecasting for cost control                      |     |      |     |
| Employees need training for digital tools         | 4.8 | 0.55 | 91% |
| Digital transformation increases short-term costs | 4.1 | 0.80 | 75% |
| Digital tools improve regulatory compliance       | 4.5 | 0.65 | 85% |
| Resistance to change is a significant barrier     | 4.6 | 0.67 | 86% |

*Source: Primary data analysis using SPSS, 2024*

### 4.3 Reliability Analysis

**Table 3: Cronbach's Alpha Coefficients**

| Item        | Cronbach's Alpha (if Item Deleted) |
|-------------|------------------------------------|
| Question 1  | 0.853                              |
| Question 2  | 0.854                              |
| Question 3  | 0.855                              |
| Question 4  | 0.854                              |
| Question 5  | 0.856                              |
| Question 6  | 0.853                              |
| Question 7  | 0.855                              |
| Question 8  | 0.857                              |
| Question 9  | 0.852                              |
| Question 10 | 0.850                              |

*Source: SPSS reliability analysis*

#### 4.4 Hypothesis Testing Results

Based on the consistently high mean scores (4.1-4.8) and strong agreement percentages (75-91%), **the null hypothesis ( $H_0$ ) is rejected**. The data confirms that digital transformation significantly and positively influences the effectiveness and efficiency of managerial accounting systems in startups.

#### 4.5 Key Findings

**Financial Reporting Enhancement:** Digital transformation significantly improves financial reporting efficiency (Mean = 4.5, 85% agreement) and accuracy through automation (Mean = 4.7, 89% agreement). These findings align with Smith & White (2021, p. 52), who found that implementing digital tools such as AI and real-time data analysis increases accounting system efficiency and reduces manual errors by 40%.

**Budgeting and Cost Control:** Digital tools enhance budgeting accuracy (Mean = 4.4, 82% agreement) and cost control mechanisms (Mean = 4.6, 87% agreement) through real-time monitoring and AI-driven forecasting. This corresponds with findings by Brown et al. (2020, p. 85), who demonstrated that organizations implementing automation in accounting experienced a 35% reduction in computational errors compared to traditional methods.

**Implementation Challenges:** While beneficial, digital transformation presents challenges including initial costs (Mean = 4.1, 75% agreement) and employee resistance (Mean = 4.6, 86% agreement). These results are consistent with Deloitte's (2022, p.

18) finding that 65% of firms face challenges managing initial costs of digital transformation, although they ultimately achieve 30% savings in operational costs over the long term.

#### **4.6 Comparison with Previous Studies**

The findings of this study demonstrate strong alignment with numerous previous research investigations examining digital transformation's impact on managerial accounting systems.

**Efficiency and Accuracy Improvements:** This study found that digital transformation enhances efficiency (Mean = 4.5, Agreement = 85%) and improves financial reporting accuracy (Mean = 4.4, Agreement = 82%). These results correspond directly with Smith & White (2021, p. 48-55), who discovered that applying digital tools such as artificial intelligence and real-time data analysis increases accounting system efficiency and reduces manual errors by 40%. The consistency of these findings across different organizational contexts strengthens the evidence for digital transformation's positive impact.

**Role of Automation in Error Reduction:** The study revealed that automation significantly reduces human errors (Mean = 4.7, Agreement = 89%), which aligns precisely with Brown et al. (2020, p. 82-88). Their research demonstrated that businesses implementing automation in accounting experienced a 35% reduction in computational errors compared to conventional methods. This convergence of findings suggests that automation's error-reduction capabilities are consistently achievable across various startup environments.

**Security and Compliance Enhancement:** Respondents in this study emphasized the benefits of cloud-based accounting in enhancing security (Mean = 4.6, Agreement = 87%) and compliance (Mean = 4.5, Agreement = 85%). These results are consistent with Johnson & Lee (2019, p. 38-45), who claimed that cloud computing adoption increases security by 45% compared to legacy systems while improving regulatory compliance through automated updates and enhanced data encryption protocols.

**Cost and Implementation Challenges:** This study identified concerns about increased short-term costs (Mean = 4.1, Agreement = 75%) and resistance to change (Mean = 4.6, Agreement = 86%). These findings are supported by Deloitte (2022, p. 15-22), which reported that 65% of firms face challenges managing initial costs of digital transformation. However, the research also indicated that organizations ultimately achieve 30% savings in operational costs over the long term, supporting the strategic value of digital investments despite initial challenges.

## **5. Conclusions and Recommendations**

### **5.1 Conclusions**

1. Improved Speed and Accuracy: Accelerated speed and accuracy can be realized by the digital transformation of managerial accounting - automation reduces errors between financial reporting, budgeting and cost controls.
2. Better Financial Control: Real-time guidance on budgeting and cost control through the AI and cloud-based systems offers increased precision in financial monitoring.

3. Strategic Imperatives Can't avoid Increasing difficulty in adopting digital and high costs But Being digitally enabled is key Startup sustainability In competitive terms
4. Important of Training: Employee training is the most significant determinant for the successful implementation of digital transformation.

## 5.2 Recommendations

1. Digital Implementation in Phases: Roll out digital tools in a phased approach - initially across core financial reporting systems and then budgeting and cost control modules.
2. Detailed Training Material: Provide comprehensive training material to facilitate the effective use of digital accounting systems and potential aversion for change.
3. Invest in Cloud Accounting Solutions: Cloud accounting software are at the top of your list, not only for their security and scalability but because they also give you an ability to check financial updates in real time.

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