



E-payment Challenges: The Genesis and Remedies to the Problem

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Switching between internet solutions in an organization can be challenging, mainly if it affects the core operations and running of the organizations, such as e-payment. It becomes problematic when the role of e-government is not properly considered in an organization. In this study, the school fees e-payment project of a Nigerian University and the losses incurred due to the lack of incorporation of ICT- government into the e-payment process was evaluated. This study recommends good outsourcing, corporate and ICT governance practices such as the incorporation of frameworks like the Control Objectives for Information and Related Technology (COBIT) and IT Infrastructure Library (ITIL), can be integrated to minimize such problems. This would help any University to avert likely losses.

Keywords: E-business; e-payment; outsourcing; ICT governance.

1. INTRODUCTION

E-business relates to all forms of business conducted online mediated by the use of

Information and Communication Technologies (ICTs) in an ever-growing global community. In the same vein, e-commerce involves exchanging goods and services with the help of the internet.

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A vital part of E-business is e-payment which seems to pose threats to both customers and business owners due to online fraud. The consumer and retailer find e-commerce or e-payment a convenient alternative to being physically present, thereby saving operation costs, amongst other advantages of e-commerce. With E-payment arrangements, there will be no need to carry a large volume of cash or keeping a large volume of cash at home or office. Imagine how untidy it would be to embark on multi-million-dollar projects without an online payment's platform for goods and services. A well-planned e-payment method would be significantly flexible and secured over the conventional payments methods [1] [2]. A few authors have defined online payments based on their experience and expertise; one of such is [3]. The authors considered online payment system as an electronic method for making payments for goods or services obtained on the web or in markets and shopping centres through the Point of Sales Machine (POS). [3] defined "online payment" as payments made through the automated clearinghouse, commercial card systems, and electronic transfers. [4] consider that the definition of online payments cannot be complete without adding "the use of electronic signals connected debit or credit accounts.

As good as e-commerce or e-payment can be, the understanding and effective management of the dynamics associated with the different models enhances its success [5]. The electronic payment method is popular today and has proven to be a compelling, flexible, and convenient way of paying for goods and services. However, it is left with challenges to both retailers and consumers alike. [6] mentioned that the successful operation of e-business would determine if the organization would survive in the long run. According to [6], an organization must carefully consider how each potential e-commerce initiative would enhance business strategy before embarking on such a precarious path. Hence, the senior management Staff of an organization should assess whether or not the organization has an adequate workforce, and sufficient experience culture necessary to succeed in its e-commerce enterprises.

E-business operations involve maintenance and the overall management of e-business activities. [7] defined e-operations as the development of systems for handling the business that e-marketing and e-commerce generate. [7] mentioned that having e-operations tools in place

to handle e-commerce will differentiate between a successful and failed online initiative. [6] stated that the two critical decisions that must be established before considering running e-commerce are: (i) who builds the site and (ii) who operates the site or who hosts the site. The two vital points raised by [6] are centered on the site developer's skills, experience, integrity, and the site host. Inability to diligently consider the two vital points raised by [6] can lead to business collapse. In the light of this, this study considers the problem that a Nigerian University experienced while using the fees e-payment system for school as a case study, and it is discussed in section 3.

There are various types of online payments; some are contained in the study by [8]; the online payment was classified into electronic currency and account-based systems. Users make payments using their bank accounts in account-based systems, while in the case of electronic money, consumers pay only with the aid of some electronic cash. The payments methods provided by both systems include electronic payment cards (credit/debit and charge cards), mobile payments, e-wallets, smart and loyalty cards, virtual credit cards, stored value card payment, and e-cash [9]. [10] gave several features of online payment methods, and the most popular and widely used is the credit/debit card payment.

Following the challenges associated with e-payment, the study by [9] showed that an e-commerce Payment Gateway (PG) provides a secure way of making a payment with assurances that there would be no problems associated with electronic payments. A PG gives an access point to the national banking system, and every single online exchange must go through a Payment Gateway (PG); details on Payment Gateway can be found in the study by [9]. Fig. 1 shows the process involved in online payment via Payment Gateway. The remaining part of this study is sectionalized as follows; section 2 discusses the information systems management issue, Section 3 is the discussion and argument using a Nigerian University e-payment project as a case study, and section 4 concludes the study.

2. INFORMATION SYSTEMS MANAGEMENT ISSUE

The information systems management issue to be focused on is the operation and management

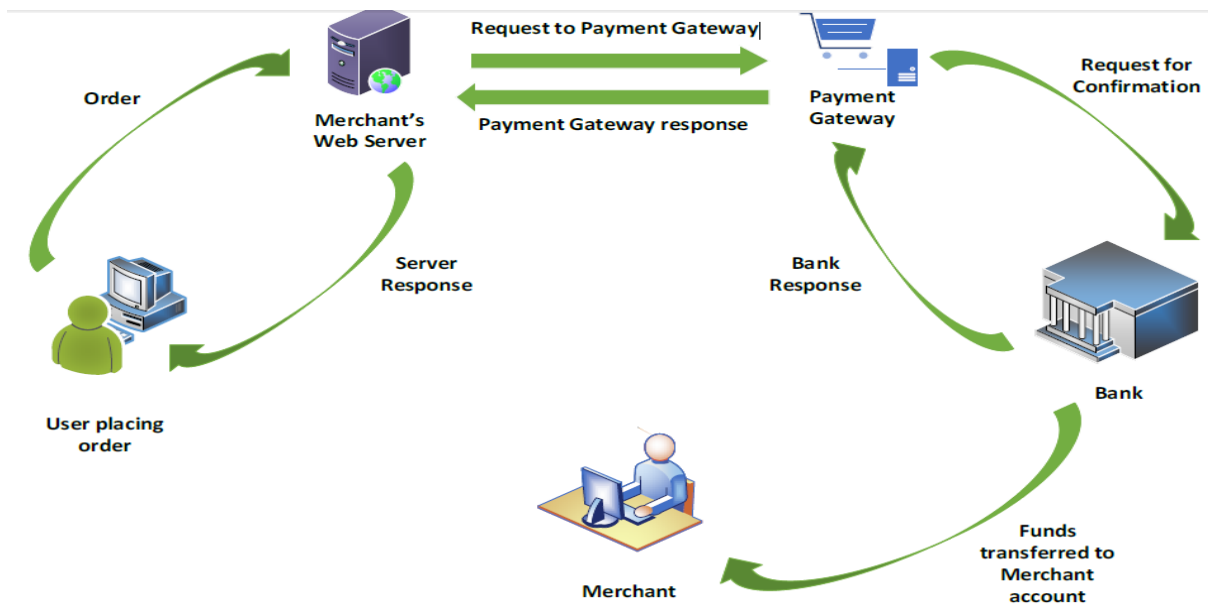


Fig. 1. Online payment process

Source: [9]

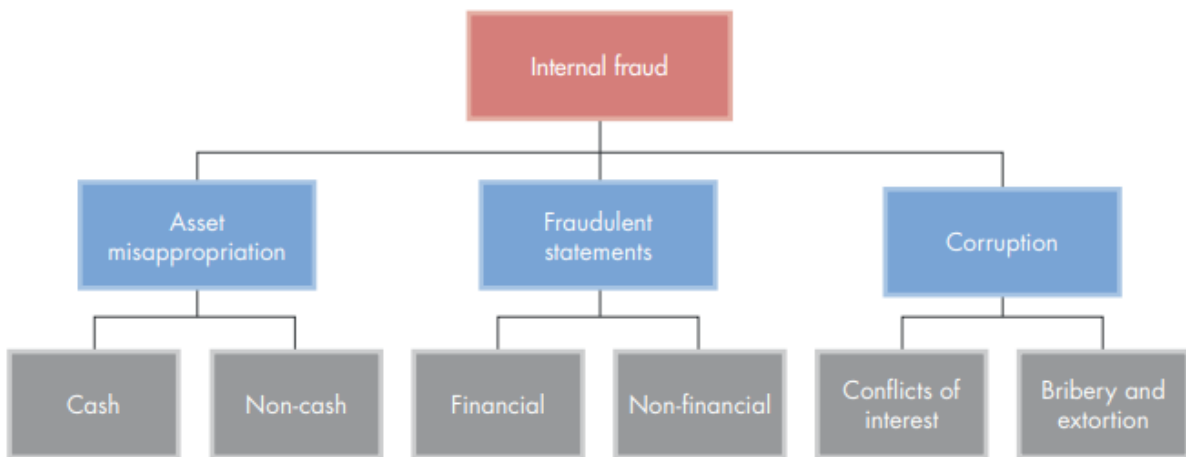


Fig. 2. Types of internal fraud

Source: [17]

challenges of e-commerce associated with online payment projects. If e-business is not adequately managed, it can result in the collapse of an organization; therefore, it is the duty of senior managers of businesses to design an effective and efficient operations model that suitably fits the organization [11]. An essential and most often ignored is internal fraud, in which organizations, corporations, and Small and Medium Enterprises (SMEs) have been faced with internal scams. This study looks at the e-payment project of a Nigerian University and the internal e-fraud. A brief review of employee fraud is looked into before going into details of the e-

business project case and how the Management of the University has successfully managed the project.

2.1 Employee's E-fraud

This study cannot be complete without looking at employee fraud because the case study relates to e-fraud in the project occasioned by administrative lapses or lack of proper ICT governance in the University. Investopedia defines fraud as a "deliberately deceptive action designed to provide the perpetrator with an unlawful gain or to deny a right to a victim."

Organizations globally are confronted with various forms of fraud, and the common form of fraud is e-fraud due to internal information at the employee's fingertips. The e-payment platform, a globally preferred mode of payment, has led to a dramatic increase in e-fraud occurrences [12]. The study by [13] showed that seventy-seven percent (77%) of fraud cases in banks were traced to employees of the banks (insider), while twenty-three percent (23%) were traced to outsiders.

The study by [14] shows that some information system flaws occasion internal frauds. [15] noted that internal fraud could occur after the Information Technology (IT) administrator leaves an organization or is fired. The survey conducted in the study showed that eighty-eight percent (88%) of IT administrators confessed that they would steal the company's secrets with them when they left the job. The study by [16] contains a data mining approach to reduce the risk of internal fraud. Fig. 2 shows the types of internal frauds. Detailed description of 'Asset misappropriation', 'fraudulent statements', and 'Corruption' is contained in CGMA report [17].

3. DISCUSSION

This session contains the discussion about the University's e-payment project and the problem associated with the project. As of the time of admitting the first set of students, the payment procedure was bank by deposit. The payer pays into one of the designated banks, issues a teller, and later converts the teller to receipt at the University Financial Services Department. The payer considers the process cumbersome. As a result of the challenges posed by the bank deposit method, a sophisticated IT solution was adopted. Therefore, the University outsourced payments and receipts of school fees for four consecutive academic sessions. The IT solution provider was responsible for the management of student's school fees. However, the University was not satisfied by the services of the IT solution company due to some challenges such as loss of funds, and high percent charged per transaction. Hence, the Centre for Systems and Information Services (CSIS) developed an application (APP) that requires PIN for payment completion. With PIN method, a payer pays a certain amount to the designated bank, and the bank would issue a PIN that the student would use to pay from their portal to the University's account. Generating PIN from a bank does not imply payment until the PIN is supplied into the

student's account online. This method was found to be effective in paying school fees online. However, in 2018 a Technical Support Staff advised the Vice-Chancellor on the use of an alternative payment method. Consequently, he created a payment platform to facilitate online school fees payment and was made the host (which was a vital consideration in [6]). Unknown to the Vice-Chancellor and the University Management, the site host (the IT staff) duplicated the payment platform and diverted one hundred and eighty million naira (₦180m) into his personal account within a short time. Details relating to the case can be found in [18] and [19]. The e-fraud was carried out successfully because the University Management entrusted such a massive project to the IT Support Staff alone without a well-organized ICT government to ratify the project.

Since 2019 when the fraud occurred, the University has resorted back to using the internally generated payment platform developed by the ICT team of the University. The project is considered an effective and efficient method of e-payment.

4. CONCLUSION

The problem of Management and operations of e-business/e-payment was considered in this study, a case study of a Nigerian University school fees e-payment project. The e-business and difficulty associated with an e-payment project were highlighted, and what the University Management did to mitigate against such occurrence in the future project was identified. In conclusion, senior Management of organizations should be actively involved in e-business operations to avoid the collapse of the business.

The University started receiving student's school fees by bank deposit and had little or no challenges until the University Management was advised to outsource to the financial IT solution company. Outsourcing, which involved engaging experts to optimise business processes, resulted in cost savings for the University if properly managed, but the University recorded a loss. The challenge faced by the outsourcer (The University) is outsourcing the school fees' e-payment to the financial IT Solution Company, which resulted to loss of funds, and not lower quality of services per se mentioned by [20]. The University did not lose students to competitors, and as a result of the challenges, they only internalize the challenges and moved on. There

should have been an internal structured approach to evaluate appropriately and assess contracting the online payment of school fees to the company. In total, outsourcing the school fees' payment did not threaten the University's business operations as the application did. However, there should have been a proper integration, and an excellent synergic relationship of the outsourcer with the financial IT solution company as contained in [19].

[6] provides detailed information on Corporate and ICT governance as a framework that ensures that information technology decisions are made while taking into account the goals and objectives of the business. It can be deduced that there was no excellent ICT governance framework or practices in place in the University as of that time. Frameworks such as the Control Objectives for Information and Related Technology (COBIT) and IT Infrastructure Library (ITIL) are frameworks that can be integrated to minimize such flaws. The ITIL solutions [6] contain five significant phases of an IT service life cycle: strategy, design, transition, operations, and continual service improvement. Following the responsible, accountable, consulted, and informed (RACI) charts [6], no single person would be held responsible for the overall outcome of a given organization's project relative to the model adopted at Nigerian University, which led to the diversion of funds into personal accounts. It is therefore recommended that frameworks such as COBIT and ITIL frameworks should be integrated when developing IT solutions for organizations so as to avoid diversion of funds and to minimize flaws.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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