Architecture for the Payment of Suppliers in the Supply Chain Through Web Services

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ABSTRACT

As organizations embrace globalization, procurement must assess international supply markets and secure partnerships with key suppliers from all over the world. In fact, as local companies continue to expand their operations internationally, they remain bound to local financial institutions and their fees. This article proposes a model aimed at minimizing transaction fees by introducing an architecture and a prototype enabling “low-fee” transaction processing between customers and suppliers across the entire supply chain. The notion of web services is proposed as a communications method to open up options to new and international financial institutions. Vendors can now negotiate fees with financial institutions from all over the world. Both the literature review and the prototype clearly demonstrate that a more efficient and cost-effective solution and technology is on the horizon to support globalization and minimize supply chain transaction costs.

KEYWORDS

Architecture, E-Procurement, Internet Payment Systems, Supply Chain Finance, Web Services

1. INTRODUCTION

This research delivers an architecture, primarily fueled by web services, to facilitate communications between businesses operating in a (B2B) environment. The architecture extends to include financial institutions from all across the work who can potentially cater to these organizations. Transaction fees imposed by local financial institutions vary and can sometimes be excessively high. Negotiating fees may be not always be the most cost-effective option. Instead, this paper proposes an entirely different and innovative architecture to reduce transaction fees across the global supply chain.

The methodology described in the next section of this article will focus on current supply chain payment systems, web services and architecture frameworks. This section will also discuss current limitations. The approach utilized to define, implement, test and refine the prototype payment technology will also be discussed. Finally, as the prototype is implemented and tested, limitations as well as potential areas to explore, as part of future research, will also be recommended.

2. RESEARCH METHODOLOGY

To investigate the applicability of the proposed payment system, the Burstein and Gregor (1999), information system research approach will be selected as the primary research approach given its flexibility in being able to alternate amongst various research methods. Burstein and Gregor (1999) demonstrated the importance of recognizing the “System Development” approach and relevant
criteria for guiding the validity and worth of such work. Figure 1 demonstrates the three-step process whereby exchanges occur between theory building and system development. As experimentations are recorded through observations, further work is performed around theory building and hence, supports the further development of the system bringing it to its desired state.

There are two key interesting features with the “Systems Development” approach - its simplicity and its ability to adapt quickly to rapidly changing environments. The approach is simple and iterative allowing “action learning” to take place in “real time.” A “rapid response” approach also compresses the cycle time between observations and further systems development and/or refinements. Burstein and Gregor (1999) also suggest that action research is usually associated with the creation of knowledge about the system, while at the same time attempting to change it.

The production of the prototype remains the ultimate objective of this research and as such, a thorough literature review must be performed followed by the design and architecture of “Use Cases”. Once completed, “Non-expert” users can then test the prototype and provide feedback.

3. LITERATURE REVIEW

3.1. Introduction

Stephens and Valverde (2013) suggest that, as globalization takes place, there’s an increasing need to re-engineer legacy systems to address future technology requirements in terms of communications, including payment processing. However, the main concern is that security is often times overlooked in the process. In fact, it is now becoming a growing concern in most e-commerce and procurement solutions and platforms. To address this growing concern, the authors suggest that secure transactions are essential if organizations wish to fully realize the benefits of e-procurement. This idea would extend to include transaction costs which is ultimately the focal point in this research.

Figure 1. Information system research to phenomenon of interest (source: Burstein and Gregor, 1999)
Dr. Query: A Predictive Mobile-Based Healthcare Tool for Querying Drug
www.igi-global.com/article/dr-query/240629?camid=4v1a

Performance-Enhancing Techniques
E. Parsopoulos Konstantinos and N. Vrahatis Michael (2010). *Particle Swarm Optimization and Intelligence: Advances and Applications* (pp. 133-148).
www.igi-global.com/chapter/performance-enhancing-techniques/40632?camid=4v1a