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THE CRITICAL SUCCESS FACTORS FOR MOBILE COMMERCE

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ABSTRACT

Until present, mobile commerce has not been as successful as was anticipated. This may be due to the fact that mobile services are still in their development stage. This research aims to identify the areas of key importance within m-commerce, so that those businesses that intend to make use of mobile technologies may understand these areas, and implement them to see a successful mobile commerce solution. **Testing the Data:** *The majority of the questionnaire collected and analyse data of a classificatory scale of measurement.* **Mobile Commerce:** *About 37% of the respondents are embarking on providing mobile commerce facilities to their customers. This response rate is relatively not significant being less than 40%. Further insight was gained by breaking down the responses into the seven industries. From the responses collected, not all industries were willing to provide WAP-based or GPRS-based services to their customers.*

Conclusion: This study has revealed that certain factors concerning mobile commerce are considered critical and contribute to the overall success of this new technology.

KEY WORDS: Mobile Commerce, Success, Technology Adoption

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Context of the Paper

This paper serves to inform the reader of the latest issues surrounding the rapid advancement of the 'mobile commerce' technology today. The research pays particular attention to latest trends in the industry as well as concerns that have been raised by current and potential users of mobile devices. Until present, mobile commerce has not been as successful as was anticipated. This may be due to the fact that mobile services are still in their development stage. It is likely that as mobile technology progresses and ideas are put into practice, mobile commerce will become more widely used.

Research Topic

The research topic for this paper is distinctly stated as **"The Critical Success Factors for Mobile Commerce"**. The paper aims to determine those aspects that, if fulfilled, will ensure that mobile commerce is lucrative and profitable.

Necessity for Research

Mobile technology is very much in its development phase, and consequently there is a fair amount of improvement in the technology necessary before m-commerce will contribute significantly to the online trading sector. This research aims to identify the areas of key importance within m-commerce, so that those businesses that intend to make use of mobile technologies may understand these areas, and implement them to see a successful mobile commerce solution.

Value of Research

Many businesses and business analysts see mobile commerce as the future of online trading. Prominent industry players are taking a keen interest in developing this technology further, and seeing its successful adoption by consumers. Mobile commerce is currently considered to hold many drawbacks as well as many benefits. However, consumers are not going to take full advantage of a technology that is of not much benefit to them.

This paper addresses those issues that are considered to be critical to the successful implementation and practice of mobile commerce. It takes into consideration the opinions and views of industry participants. The paper focuses specifically on the security issues related to m-commerce, as research proved this to be an important aspect of mobile transactions. Finally, the paper seeks to determine a comprehensive set of critical success factors for mobile commerce.

Mobile Technologies

The advent of mobile commerce has been made possible by the various mobile technologies that have recently become available. It is vital to gain an understanding of these technologies in order to fully understand their application in a business environment.

Testing the Data

The majority of the questionnaire collected data of a classificatory scale of measurement. Two of the questions (questions 7 and 8) were designed to collect data of an ordinal (or ranked) scale.

As the data collected from the questionnaire did not fit the normal distribution, it was decided that nonparametric tests should be used for the analysis.

The use of nonparametric tests holds several benefits:

- The assumptions required are few and are easily met.
- The tests are "safer", as they can be used when parametric tests are inapplicable, or the validity of their assumptions is uncertain.
- Nonparametric tests are more general in that they allow for different levels of measurement.

The nonparametric test that fitted the majority of the data was the Kruskal-Wallis H Test, which tests the null hypothesis that several population means are equal, against the alternative that some of the population means tend to be greater (or smaller) than others.

If the population means are normally distributed and have similar variances, this problem can be handled by analysis of variance (ANOVA).

The data was also broken down by industry, in order to provide a more detailed insight into the various applications of mobile commerce from the perspectives of organisations within each industry.

The data collected was analysed to address various issues relevant to companies, from the above named industries, while embarking on mobile commerce. These issues, with direct relevance to the responses collected, are discussed as follows.

Mobile Commerce

About 37% of the respondents are embarking on providing mobile commerce facilities to their customers. This response rate is relatively not significant being less than 40%.

Further insight was gained by breaking down the responses into the seven industries. From the responses collected, not all industries were willing to provide WAP-based or GPRS-based services to their customers. All respondents from the Insurance industry and about 67% from the Banking industry were (80%) on providing such services. On the other hand, respondents from

the Service Provider (60%), Entertainment (90%) industries are in the process of providing services pertaining to this new technology.

It can be seen clearly, from the above figures, that companies in the Insurance and

Banking industries are contemplating, at this point in time, the providing of mobile services to their customers.

5.2. Security

71.4% of the respondents (100% from Entertainment group and 80% from Service Provider group) across all industries believe that the current existing methods of cryptography and authentication are adequate to fully support mobile commerce.

However, about 66.7% from the Banking industry believe otherwise. This is probably one of the main reasons why most banking institutions are willing to embark on providing WAP-based or GPRS based-services to their customers.

Critical Success Factors

In determining whether respondents across all industries showed a similar concern for the factors identified as critical for the success of mobile commerce, a Kruskal-Wallis H

Test was used. This statistical method is based on the formulation hypotheses H0 and H1. These two hypotheses are set below.

H0: All factors are equally important as critical success factors

H1: Not all factors are equally important as critical success factors

This method also uses as another statistical method to test the data to determine which of the two hypotheses is true.

P-values for the critical success factors [Statistica Output]

Statistically significant factors are identified if their P-value (a probability value) is greater than 0.05. In this case, Security (P-value of 0.0235) is the only significant factor, which implies that not all factors can be considered as of equal significance (importance). We thus reject the H0 hypothesis and conclude that not all of the above factors are equally important as critical success factors for the respondents. Security was indeed the major concern of the respondents.

Interface

A similar test (Kruskal-Wallis H Test) was used to determine whether the respondents agreed on the interface features that would make WAP-enabled devices easy to use.

The two hypotheses are set below.

H0: All interface features are equally important in making mobile devices easy to use

H1: All interface features are not equally important in making mobile devices easy to use

Values for Interface Features [Statistica Output]

We can thus accept H0 and conclude that all interface features are equally important in making mobile devices easy to use. It is also worth noting that all P-values are greater than 0.05. Moreover, all the means, of the respondents' ratings, for the different Interface Features seem to tend towards 3 and 4, which are both in the middle of the scale (1: Most Important to 6: Least Important). This may well indicate that the respondents were also quite unsure about the importance of these Interface Features in making WAP-enabled devices easy to use. This can well be attributed to the fact that the technology is fairly new and companies lack knowledge about these features and their relevance in making devices easy to use.

Resources

Most respondents (about 73.7%), with a 100% response rate from most individual industries, believe that their organisations have the necessary capital, financial and human resources to implement and maintain a WAP-enabled or GPRS-enabled service.

The only industry that seems to lack the adequate resources for its organisations to explore this new commerce channel is that of Insurance. 55% of the respondents from that industry release that they do not have the resources to embark on such technology.

Business Enhancement

Views as to whether mobile commerce will provide customers with more detailed product information to enable more intelligent buying decisions were rather different between respondents from different industries. All the respondents from the Banking and Auction industries believed that mobile commerce would pertain to more intelligent buying decisions, while 70.3% and 55% of respondents from the Retail and Insurance industries respectively disagreed.

This can probably be explained by the fact that those two groups of industries would have different types of information displayed to their clients. Limited visual displays of mobile devices can be a potential problem for the Retail and Insurance but not Banking industries.

Future Success

Only 35.7% of respondents believe that mobile commerce will play a critical role in the success of their organisations in the future. This response rate is mostly accountable for by 63.7% of the respondents in the Service Provider industries.

On the other hand, respondents from the Entertainment (85%), Retail (69.7%) and

Banking (60.2%) industries believe that the future success of their organisations will depend on other market drivers.

Conclusion:

This study has revealed that certain factors concerning mobile commerce are considered critical and contribute to the overall success of this new technology. A survey has been conducted in various industries, and each industry has given their own view on the need and effect of such a technology.

From the results of the analysis, more than half of the respondents are likely to provide the facility of mobile commerce. This already shows that industry has identified that a competitive advantage can be gained by making information more easily and readily available to its consumers. This can only be performed with the appropriate technology. At present, those who are embarking on mobile commerce believe that current security standards are sufficient. However, those industries that require a totally secure environment, see mobile commerce as not being secure enough. It is for this reason that they prefer not to embark on implementing this technology at this stage. Respondents from the Banking sectors believed that mobile commerce would see the consumer having more buying power. Whereas, those from the Retail and Insurance sectors do not believe the customer will have greater buying power. The results of the survey show that mobile commerce can be seen as a means of allowing organisations to be introduced to new markets and new channels within that industry. In order for this to be a success, certain factors need to be addressed. The most prominent factor is that being of security. Security plays an important role and is seen by many industries as a key factor for the adoption of mobile commerce. At the moment, wireless commerce needs to develop stricter security controls if it is to be considered as a reliable means of trading with the consumer. Once this occurs, the growth and success of mobile commerce will be extremely fruitful.

Areas for Further Research

As most respondents found security critical to the success of mobile commerce, further research should be conducted in this area, in order to determine methods of making mobile transactions

more secure. If the WAP protocol is to be used extensively in mobile commerce, further research will need to be conducted into the efficiency of this protocol. The bandwidth available would need to be increased (to a greater extent than that of the GPRS technology), or its use optimised for more efficient performance.

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