Factors Affecting the Adoption of Mobile Payment Systems: A review

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Abstract- Wide acceptance and adoption of E-commerce significantly contributes to the global acceptance of various mobile payment systems. On the basis of research, previously done by various authors, this review paper provides profound insights regarding the widespread adoption of mobile payment systems by the consumer. Researcher has tried to find out the factors determining the adoption of mobile payment systems, by accumulation and compilation of numerous research articles. From reviews, it has analysed that several factors like perceived ease of use, mobile payment knowledge, perceived mobility, perceived usefulness, perceived expressiveness, perceived trust, compatibility, and attitude positively affects the adoption of mobile payment systems; whereas, perceived costs and environmental risks negatively affects the adoption of mobile payment systems by the consumer. Furthermore, perceived trust is directly related to the perceived reputation and perceived ease of use has a great influence on the perceived usefulness of the mobile payment systems.

Keywords: mobile payment systems, affects, adoption, factors, perceived ease of use, perceived usefulness, perceived trust

I. INTRODUCTION
Mobile technologies are rapidly growing and also attaining a large number of users. It is widely used and is globally accepted because of its outstanding features and various advantages which make it different from the other technologies. In the era of digitalization, acceptance of technology depicts an upward trend in the economy. It has been observed that people are willingly accepting new technologies and are becoming more conscious towards their adoption and usage. This emerging trend led to a gradual increase in percentage of world’s total population using mobile phones.

II. LITERATURE REVIEW
From the collected articles, following dimensions or factors of adoption of MPS have been identified:

<table>
<thead>
<tr>
<th>Author/s Years</th>
<th>Dimensions</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Van der Heijden (2002); Apanasevic et al. (2016); Gefen et al. (2003); Viehland &amp; Leong (2010); Deveraj et al. (2002); Kim, Shin &amp; Lee (2009); Gefen and Straub (2000); Venkatesh (2000); Sellitto and Fong (2015); Davis (1989); Chen (2008); Dahlberg et al. (2008); Schierz et al. (2010); Peng et al. (2012); Zarmi et al. (2012); Özer et al. (2010); Childers et al. (2001); Szymanski and Hise (2000); Kim et al. (2010); Chau (1996); Amoroso and Wantabe (2011); Duane et al. (2014); Shankar &amp; Kumari (2016)</td>
<td>Perceived ease of use</td>
<td>MPS is relatively easy to use as compared to the other payment technologies. ‘Ease of use’ influences user’s behaviour, which channels the intention of an individual and leads to its acceptance. This factor satisfies the user and also increases his intention to use it. The clear and understandable process of carrying out various monetary transactions through MPS, positively affects its adoption by the consumers. This factor also has a strong influence on the perceived usefulness factor.</td>
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<tr>
<td>Hong et al. (2001/2002); Pikkarainen et al. (2004); Duane et al. (2014); Van der Heijden (2002); Kim et al. (2010); Peng, Xiong &amp; Yang (2012); Sellitto and Fong (2015); Cheong &amp; Park (2005); Davis (1989); Apanasevic et al. (2016); Davis (1993); Amoroso and Watanabe (2011); Tan et al. (2011); Arvidsson</td>
<td>Perceived usefulness</td>
<td>‘Perceived Usefulness’ is the degree of opinion and belief of a consumer that adoption of a particular technology will help him/her to enhance his/her performance. (Davis, 1989). Before adoption of any technology, which is new to the consumers, they critically evaluate its advantages and usefulness. MPS enables the consumers</td>
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Perceived cost

| **Perceived cost** | **Phonthanukitithaworn, Sellitto and Fong (2015); Wei et al. (2009); Van der Heijden, 2002; Wu and Wang (2005)** |

Perceived cost significantly influences adoption intention of the consumer. The dimension perceived costs considers transparency (cost per minutes, tariff models), monetary costs (purchasing costs, usage costs, basic rates) and health concern (dangerous radiations). This factor negatively affects the adoption of MPS by the consumer.

M-payment knowledge

| **M-payment knowledge** | **Szymanski and Hise (2000); Kim et al. (2010); Murthy and Mani (2013); Chau (1996); Childers et al. (2001)** |

The knowledge of using MPS directly affects its adoption in the economy. Consumer’s inadequate knowledge about the functioning and usage of MPS, is considered an obstacle in its adoption.

Behavioural intentions to use

| **Behavioural intentions to use** | **Szymanski and Hise (2000); Kim et al.(2010); Wu and Wang (2005); Childers et al. (2001);** |

Ease of use has a direct and positive impact on consumer’s intention to use. It is an important factor which directly affects the adoption of m-payment system in the economy. Trust, perceived ease of use, mobility and perceived usefulness directly affects the attitude of consumer, which further affects the consumer’s intention to use and adopt that technology.

Mobility

| **Mobility** | **Schierz et al. (2010); Zmijewska et al. (2004); Karnouskos et al. (2004); Kaba and Osei-Bryson (2009); Kim et al. (2010);** |

Mobility has a significant impact on the adoption of MPS as it enables the consumers to make their payments independently, i.e.- without the constraints of place and time. Mobility positively affects the adoption of MPS. Traditional payment systems can be distinguished from MPS, primarily, on the basis of mobility. Perceived mobility creates positive attitude of consumers towards usage of MPS and leads to increase in intensions to use it. The dimensions which perceived mobility considers are: accessibility, network coverage and technological infrastructure.

Perceived compatibility

| **Perceived compatibility** | **Kim et al. (2010); Mallat (2007); Keramati, Taeb, Larijani and Mojir (2012); Phonthanukitithaworn,** |

Compatibility between the user and MPS technology leads to increase in consumer’s intention to use it. It has a
<table>
<thead>
<tr>
<th>Authors (Year)</th>
<th>Factors</th>
<th>Impact on Adoption of MPS</th>
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<tbody>
<tr>
<td>Sellitto and Fong (2015); Oliveira et al. (2016); Schierzet al. (2010)</td>
<td>Behavioural beliefs, Social influence and Personal traits</td>
<td>Significant, direct and positive impact on adoption of MPS.</td>
</tr>
<tr>
<td>Yang et al. (2012)</td>
<td>Behavioural beliefs, Social influence and Personal traits</td>
<td>Behavioural beliefs, social influence and personal traits vary from person to person. These factors have a significant and direct impact on the adoption of MPS.</td>
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<td>Mallat(2007); Zhou(2013)</td>
<td>Environmental risks</td>
<td>Environmental risks are also an important determinant, which negatively affects the adoption of MPS by the consumer. Environmental risks negatively affect the perceived trust of the consumer, which leads to change in attitude of consumer, towards that technology. Change in attitude, further leads to change in consumer’s intention to use MPS, which finally leads to negative change in adoption of MPS by the consumer.</td>
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<td>Yang veYoo (2004); Ting, Yacob, Liew and Lau (2015); YilmazYd (2009); Küçük (2011); Davis (1989); Kalkan (2011)</td>
<td>Attitude</td>
<td>Attitude is an important indicator of behaviour and is formed just before behaviour (Kalkan 2011). Trust, Perceived Usefulness, mobility and Perceived Ease of Use are the factors which affects the attitude of a consumer towards MPS. Consumer’s intention to use MPS, directly affects the adoption of MPS, and largely depends on his/her attitude towards it.</td>
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<tr>
<td>Zmijewska et al. (2004); Srivastava et al. (2010); Mallat(2007); Chandra et al. (2007); Mui and Mohtashemi (2002); Chau et al. (2007); Cheung &amp; Lee(2003); Pavlou(2003)</td>
<td>Perceived trust and Perceived reputation</td>
<td>Environmental risk and perceived reputation are significant indicators of perceived trust. Also, quality of service positively affects the perceived flow and trust. There is a negative correlation between environmental risks and perceived reputation. Trust positively affects the consumer’s intention to use MPS, which further affects its adoption in a positive manner.</td>
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<td>Hsu, Chang &amp; Yen (2011); Agarwal &amp; Prasad (1998); Pedersen (2005);Hoon et al. (2009); Murphy et al. (1989); Lai (2008);Igbaria and Iivari (1995); Chen, Chen and Yen (2011); Lee, Hsieh and Huang (2011); Khalifa and NingShen (2008);</td>
<td>Self-efficacy</td>
<td>Self-efficacy has a positive impact on the adoption of any new technology. Also, it positively affects the intention of consumer to adopt m-commerce and MPS. Transactional Self Efficacy crucially impacts the purchase intention of consumer.</td>
</tr>
<tr>
<td>Mallat (2007); de SenaAbrahão, Moriguchi and Andrade (2016); Arvidsson (2014)</td>
<td>perceived security risk</td>
<td>Perceived security risks influences the consumer’s intention to adopt various m-payment services. It negatively affects the adoption of MPS, as higher perceived security risks may reduce the confidence of consumers in using m-commerce, in terms of losing privacy.</td>
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of their personal data.

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<tr>
<th>Author(s)</th>
<th>Factor</th>
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<tbody>
<tr>
<td>Zhou (2011)</td>
<td>perceived ubiquity</td>
<td>Perceived ubiquity has a direct impact on trust, which further has a direct impact on consumer’s intention to use. So, perceived ubiquity positively affects the adoption of MPS.</td>
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<tr>
<td>de SenaAbrahão, Moriguchi and Andrade (2016); Venkatesh et al. (2003); Amoroso &amp; Watanabe (2011)</td>
<td>performance expectation</td>
<td>Performance expectancy of a consumer directly affects the adoption of MPS. People are more likely to adopt MPS when they perceive that it will help them to make payments in an easy and convenient manner. Increase in performance expectancy leads to reduction in technology anxiety, which influences perceived usefulness of MPS.</td>
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<tr>
<td>Taylor and Todd (1995); Amin, Hamid, Lada &amp; Anis (2008); Oliveira et al. (2016); Shin (2009); Ting et al. (2015); Chong, Chan &amp; Ooi (2012); Venkatesh &amp; Davis (2000); Fishbein &amp; Ajzen (1975); Yan et al. (2012)</td>
<td>Subjective norm</td>
<td>Subjective norm is the degree by which one’s decision is influenced by the opinion of other members of society, while taking a decision about a particular thing. (Ajzen &amp; Fishbein, 1975). It positively affects the consumer’s behavioural intention for adoption of technology based services. Positive opinions of family members, friends, peers and other members of society helps an individual to perceive that technology is useful and motivates him/her to adopt it. (Schepers &amp; Wetzels, 2007).</td>
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III. CONCLUSION

There are various factors which affect the adoption of mobile payment systems (MPS), either directly or indirectly. Environmental risks and perceived reputation are negatively correlated to each other. Both of these factors combine to form perceived trust, which is a significant determinant for the continuation of usage of MPS. Perceived trust leads to perceived ease of use (PEOU), perceived usefulness (PU), and mobility, in a positive manner. The aforementioned factors positively affect the attitude of the consumer, which further leads to a positive impact on the consumer’s intention to use MPS. Impact on consumer’s intention to use results in adoption of MPS by the consumers.

IV. REFERENCE