

## **M-commerce – Facts and Forecasts. A Comparative Analysis within a Triad Framework: India, Romania, and the United States**

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**Abstract.** *The present article aims to advance a comparative analysis among three countries - India, Romania and the United States - placing mobile devices, internet infrastructure and m-commerce at the core of the investigation. The scope of the study simultaneously covers the landscape and dynamics of m-commerce and of related objective indicators, bringing to the fore figures, facts and forecasts corroborated from the latest reports, statistics and articles. In this respect, it adds up to the extant literature by systematizing report outputs in a unitary comparative framework and by generating inputs for further research endeavours on the subjected factors associated with m-commerce evolution.*

**Keywords:** *impact of digitization, m-commerce, mobile devices, wireless networks.*

### **Introduction**

Mobile devices are increasingly popular around the world. The evolution of technology permits their use in many contexts, leading to complex consequences on society and economy, on the way people communicate, relate and consume. M-commerce has become the latest hit in buying. A pertinent response to the underlying factors of the development of m-commerce may be provided, but each intent and effort to clarify the dynamics and primacy of mobile payments should start from a clear perspective on facts and trends of mobile technology. The state-of-the-art is

of primary importance in order to step further and dig deeper into the prospective psychological, social, cultural and economic catalysts.

Any comparative analysis on mobile usage among different countries should consider that both geographical and cultural factors are of importance. For example, “in some parts of the world such as parts of Africa, the basic applications are used, whereas in some parts of Asia and Europe, mobile use is much more sophisticated and advanced than in the US” (Shankar, Venkatesh, Hofacker & Naik, 2010). Still, in spite of the undeniable diversity and country-related particularities, the establishment of objective criteria for comparative studies would consistently reduce a biased outlook. Moreover, the analysis of facts and forecasts in an integrative framework marks a step forward, as such endeavours are still in an embryonic stage in the extant literature.

We posit that a proper assessment of the underlying factors and catalysts of m-commerce from a comparative standpoint would benefit from a preliminary study of facts and figures related to the analysed entities. As a consequence, the present work focuses on the m-commerce landscape in three countries – two of them being indicative of emerging markets (India and Romania) and the third serving as a developed country benchmark (the US).

The choice for the three countries may be argued in various ways. On the one hand, India is the world’s second biggest mobile market and fourth largest Internet market, showing a fulminatory growth in what mobile usage is concerned. Likewise, although the appetite for mobile technology is on an upward trend in Romania, the m-commerce exploitation still shows a moderate rate, a situation which would benefit from a better understanding in a comparative context. A common fact for both countries may be “that despite the inherent advantages of mobile payments, there is some reluctance among customers to adopt the services” (Thakur & Srivastava, 2014).

On the other hand, given the sustained development and extension of wireless networks and the incremental welcome of mobile devices and applications, “m-commerce is currently the hottest trend in the US”, a fact which calls for a more thorough approach. Which is more, the US has settled itself up as a leader with regard to “mature telecommunication networks”, liable to ensure proper support for e-commerce processes (Lu, 2014). Nevertheless, the leading position of the US in terms of well-developed wired connectivity has not affected the technological enthusiasm and

openness of other countries towards leveraging cost-effective and far-reaching mobile infrastructure.

Against this backdrop, the present paper aims at bringing to the fore a series of comparative analyses among the three countries, placing mobile devices, connectivity, and m-commerce at the core of the study. The current approach adds up to the extant literature by aggregating multiple statistics, reports, and articles within a unitary framework. More than 70 sources are systematized on purpose to provide a pertinent insight into the investigated phenomena. Hence, the paper addresses the status of the Internet infrastructure, mobile usage and the m-commerce dimensions as an organic expression of the facts, figures, and forecasts that are indicative of the corresponding countries. Implications for further studies on the issue are highlighted consistently.

### **The landscape of mobile devices – an economic perspective**

Digitization has greatly influenced the economy, in many aspects (Chandy & Kharas, 2012; Hossain, 2015; Kurti & Haftor, 2015; Loebbeckke & Picot, 2015; Merisalo, 2016; Rieple & Pisano, 2015; Weill & Woerner, 2013). Managerial practices have changed in several ways. For instance, there is a different approach to decision-making processes and problem solving (Hossain, 2015; Kurti & Haftor, 2015; Loebbeckke & Picot, 2015). Networking has become a keyword in many business strategies. Most of the changes are related to marketing strategies and framework. The relationship with consumers has greatly modified, as well as the way consumers behave (Hossain, 2015; Weill & Woerner, 2013) and the consumer culture (Marisalo, 2016). Digital business strategies and digital business models are emerging (Bärenfänger & Otto, 2015; Haftor, 2015). Mobile devices are some of the most relevant enablers of the previously mentioned developments.

Mobile devices have majorly influenced the lifestyles and behavioural patterns worldwide, leading researchers to the conclusion that their paramount impact goes beyond any expectation. The mobile phone-driven environments have altered the daily routine (both in terms of spare time and work activities), giving way to “the fastest rate and to the deepest level of any consumer-level technology in history” (Thakur & Srivastava, 2014, p.370). In this sense, Thakur and Srivastava (2013, p.52) posit that “mobile device usage is witnessing a new paradigm by enhancing its application from mere connectivity to a lifestyle device”. In the past ten years, researchers around the world have studied the impact of mobile phone and

mobile devices on society, as well as on individuals and economies, from different perspectives – especially cultural, social and political (see for instance Baym, 2010; Clayton, Leshner & Almond, 2015; Levitas, 2013; Ling, 2004; Srivastava, 2005). Besides positive implications, mobile devices, especially mobile phones, also have some disadvantages and might negatively affect users (Haftor, 2015; Nath & Mukherje, 2015).

The overarching impact of mobile devices (e.g., mobile phones, handheld Internet access devices, laptops, PDAs, etc.) is mainly derived from their omnipresence, as an increasing number of subscribers and adopters becomes evidence, pointing out to “an emerging mobile lifestyle, a popular channel for delivering mobile electronic services, and a mass market for executing mobile transactions” (Shankar, Venkatesh, Hofacker, & Naik, 2010, p.111). By adopting a market-oriented position, individuals are exponentially exploiting their mobile devices to make purchases, to learn and compare products and services, to identify stores and promotions, to manage their accounts. At this level, the advent and proliferation of wireless and mobile technologies have simultaneously reconfigured the ways people, organizations, and corporations communicate, interact and deal with one another in varied business frameworks (Mishra, 2015).

Studies suggest a positive influence of the mobile phones on the economy. For instance, in the case of India, higher mobile penetration is associated with economic development (Kathuria, Uppal, & Mamta, 2009). Some studies on rural area, also document positive implications (Mehta & Meht, 2014; Mittal, Gandhi, & Tripathi, 2010).

**Table 1. Economic impact of mobile devices – an academic perspective**

Author	Aspects identified
Lara Srivastava (2005, pp.115-116)	Digital wallets, mobile ticketing, “commercial” identity for mobile users, mobile banking, online payments Big-data stored and used for commercial use
Venkatesh Shankar et al. (2010)	Mobile marketing, leading to a new paradigm of retailing Continuous learning about the behaviour of the customers, big-data use
McKinsey (2015)	New payment behaviour, leading to new business approaches and solutions.
Marco Iansiti and Karim R. Lakhani (2014)	New business models, optimized assets and operations, performance improvements, low costs associated with cloud computing, switching from product to service revenues, rethinking value creation, digital networks, customer engagement is more complex

The economic impact of the mobile revolution is diverse, as shown in Table 1. In the digital & mobile landscape, business has other points of reference. New business models emerged and they are necessary for effective companies. Mobile changed the way businesses related to consumers and the way consumers related to business. Many of the aspects mentioned above are connected with the way payments and retailing practices are influenced by digital and mobile devices.

Important economic aspects in connection with the evolution of mobile devices are m-commerce and mobile payments. Whether understood as “as an extension of e-commerce” (Lu, 2014, p.136) or as “a broad term used for mobile banking, mobile ticketing, mobile coupons, purchasing of goods and services using mobile phones” (Thakur & Srivastava, 2013), m-commerce has set itself up as a breakthrough innovation in terms of mobile technology capitalization with a view to make transactions wirelessly. Thus, the imperative to pay heed to the m-commerce dynamics comes as a natural endeavour due to the fact that in contrast to e-commerce, there is limited academic research on m-commerce. For instance, there are few corresponding investigations in developing countries (especially in India), as m-commerce has not fully come in and, consequently, individuals have not consistently leveraged the inherent technological benefits (Mishra, 2015). As Thakur and Srivastava (2014) highlight, “research into mobile payments is still in its infancy; however there is a need for better understanding of the factors affecting the adoption of mobile payments”.

Pursuant to de Albuquerque, Diniz, and Cernev (2014), in spite of its promising potential, the proper capitalization of mobile devices - in terms of payment transactions - is yet to reach its peak. Only a few countries have ensured solid mobile payment services, indicating that “the reasons for the successful cases are not yet fully understood, and as a result, cannot be easily replicated” (de Albuquerque et al., 2015, p.1). In 2010, other authors have urged that despite a large number of mobile payment endeavours and projects carried out in different emerging markets (120 projects in 70 countries), the mobile payment status was still in a germinal phase (Beshouri, Chaia, Cober, & Gravrak, 2010). In May 2015, McKinsey evaluated that digital payments need a fast infrastructure, as well as new business models. The mentioned issue of McKinsey (2015) on Payments referred to the banking industry, but the provision is valid for all online / mobile payments. The trends presented for 2016 by McKinsey agree on the move to real-time payments and fast complex evolutions in this domain leading to the integration of payments into the online activity of consumers and organizations and technological innovation in the financial sector

(Higginson, Krieger & Zhang, 2015). The most relevant trends provided by Gregg et al. (2015) are the intense financial support of innovation from dynamic non-bank players leading to enhanced customer experience and engagement, the abundant information influencing the decision and buying journey, as well as the usage of big data enabling players to promptly react to the markets.

### **An insight into Internet infrastructure and mobile devices usage in India, Romania and the United States**

With a view to understanding better the advent, advancement, and capitalization of m-commerce in the studied countries, a closer look into the Internet infrastructure and mobile devices usage becomes of primary importance. Here, a general overview is liable to bring forward preliminary country specificities.

As the results indicate, the Internet penetration rate varies between the three countries (Table 2). The most rapid growth rate of the three is registered by India, but in all cases, the growth rate is lower from year to year (Internetlivestats.com).

**Table 2. General information on the Internet access in the analysed countries (internetworldstats.com, 2015)**

Indicators	2014	2015 (estimated)	2016 (estimated)
<b>INDIA</b>			
No. of internet users	250 mil.	354 mil.	462 mil.
Internet penetration	18%	27%	34.8%
<b>ROMANIA</b>			
No. of internet users	10.6 mil.	11.1 mil.	11.2%
Internet penetration	54.1%	56.8%	58%
<b>UNITED STATES</b>			
No. of internet users	279 mil.	283 mil.	287 mil.
Internet penetration	87.4%	88.2%	88.5%

Many of the connected people access the internet on almost daily basis, in all the countries considered - exploiting several connected devices in many cases. For instance, in Romania, 27% of the population use at least 3 devices – the average for 2014 was 1.7 registering a slight increase from the previous year (Statista.com, 2016); Romanians are also open to innovation and to trying new technologies, more than in other countries in the region, as presented by a Google survey in 2014 (BR, 2014). Moreover, traffic online via mobile is credited with an annual increase of 30% (Ericsson, 2015). The increase of the mobile traffic is credited to be by far the largest compared to mobile PCs and tablets (Ericsson, 2016, p.2)

Another relevant aspect is that many of the Internet users are accessing it (exclusively) mobile. In Romania, 90% has a mobile phone in 2016 and 53% - a smartphone (statista.com, 2016). Data from 2014 shows that more than 60% use mobile phones to access the internet and 22% of the Google searches are from mobile (Vîrtopeanu, 2014). The number of mobile connections also grew with an accelerated pace of 25% in 2014 (ANCOM, 2014, p.23) and 13% in 2015 (ANCOM, 2015, p.8). The penetration of internet mobile connections reached 74% in 2015 (ANCOM, 2015, p.8). In India, 60-70% of the internet users are also mobile (BCG, 2014), for some groups, the smartphone is their only connection to the internet. The figures above increased in the past year. A study of Ericsson (2016, p.4) specifies that the average global growth of mobile subscription is 3% but large variations among countries occur. India was in the first semester of 2016 the largest growing country, followed by Myanmar, Indonesia, the US and Pakistan (Ericsson, 2016, p.3-4).

At this level, a large and effective infrastructure supports traffic development. The mobile traffic increased significantly in the last 2 years. For instance, in Romania in January 2013 the mobile traffic was of 3% of the Internet traffic, while a year later it was more than double (Gemius, 2014a, p.25). More than 32% of this traffic is generated on tablets (BR, 2014).

As figures back (Table 2), the number of mobile phone users is high: 97% of the population in the US, 81% in India<sup>17</sup> and 114.9% in Romania (the figure is related to the use of several devices by the same owner) (Vasilache, 2015). Further, India is the country with the greatest percentage of smartphone first-time users (92%) and Romania is credited with 80% (Arthur, 2014).

**Table 3. Smartphones usage in the analysed countries: facts and forecasts**

	India	Romania	United States
No .of persons using smartphones			
- forecast 2015	167.9 mil.	8 mil.	190.5 mil.
- forecast 2018	279.2 mil.	-	229 mil.
Usage rate	20% (2015)	34% (2014)	64% (2015)
% of smartphone users from mobile users	25% (forecast 2015)	-	70.1% (forecast 2015)
% of owners of several mobile devices	11% (2012)	-	17% (2012)

Source: Authors' compilation from eMarketer, Inmobi, Statista.com, Virtopeanu, Nielsen, Pew Research Center.

Smartphones are part of the daily life of their owners. 46% of the American smartphone owners consider they could not live without it (Pew Research Center, 2015). The increased usage of smartphones is due not only to their facilities but also to declining prices and increased competition, at least in some markets such as the Indian one (Zinnov, 2015). In addition, the improved and more ergonomic design influences the way smartphones are used (Mason & IAMAI, 2011). In this front, the usage rate of smartphones differs in relation to the location. Smartphone adoption is of 4% in rural India, compared with 29% in urban India (Zinnov, 2015). Smaller differences exist in Romania and especially in the US.

The evolution of the smartphones and tablets markets in India confirms the study of Mason and IAMAI (2015), predicting their accelerated development (see also Table 4). The forecast for 2018 India is of 60.2 mils. users (statista.com, 2016). In the context of increased use of various devices, m-Portals are necessary to create connected experiences across various platforms, mediated by cloud-based software platforms and infrastructure. A significant part of the smartphone users have tablets: 58.8% in the US (forecast 2015) (eMarketer, 2014). The tablet users increased amongst affluent people, households with minor children, as well as college graduates (Zickuhr, 2013). Similar findings are available for India and Romania.



**Table 4. Tablets usage in the analysed countries**

	India	Romania	United States
No. of persons using tablets	40.4 mil. (2015)	2.7 mil. (2014)	133.5 mil. (2015)
Usage rate	3% (2015)	13% (2014)	20% (2015)

Source: Statista.com, Vîrtopeanu.

Staying connected and using the latest facilities offered by mobile devices is relevant for contemporary consumers (Table 5). For instance, 30% of the American smartphone owners and 8% of the tablet owners intend to upgrade their phone in the next six months (Nielsen, 2014, p.7). The figures are even higher in the case of young persons. Accenture (2016) identifies a multiplier effect of the development of smart devices – leading to more consumers, more devices, more experiences and more opportunities for business. Generally, in all three countries, young persons use their smartphones and tablets more intensively and in a wider variety of forms.

Accenture (2016) report reveals that 81% watch online movies and series on a frequent basis, and 69% play online games. The most popular activity worldwide on a smartphone by 2020 will be video streaming (60% of the mobile data traffic) followed by social media (15%) (Ericsson, 2014). Romanians prefer to use phones and tablets for social media, while online searches are done mostly on laptops and PCs (BR, 2014). The US citizens use tablets mainly for gaming, weather apps and social media (MC, 2014). These activities might change over time, giving way to new priorities and routines.

Smartphone owners around the globe use it while doing some other activities, such as watching TV. 1 out of 2 smartphone owners and 2 out of 3 tablet owners in the US browse the internet while watching TV (Nielsen, 2014). 6 out of 10 Romanians browse the internet while watching TV (iSense Solutions, 2015). 44% of the tablet owners and 24% of the smartphone owners in the US use them to shop while in front of TVs. In the same context, 14% use their tablets to buy products that are advertised on TV, and 7% use their smartphones for this specific activity (MC, 2014).

**Table 5. Main applications accessed on the smartphone**

Indicators	India	Romania	United States
% of smartphone users who use it	61% <sup>42</sup> (2015)	57% (2012)	75% <sup>43</sup> (2015)

for social networking			
% of smartphone users who play mobile games	95% (forecast 2015)	68% (2014)	70.5% (forecast 2015)
% of smartphone users who listen to music	40% (2014)	57% (2014)	52.3% (forecast 2015)
% of smartphone users who view videos	40% (2014)	-	55.5% (forecast 2015)
% of smartphone users who browse, research or compare products/services	91% (2015)	83% (2014)	82% (forecast 2015)
% of smartphone users who purchase	17% (2014)	34% (2014)	43% (forecast 2015)

Source: Authors' compilation from Ericsson India, Ericsson North America, eMarketer, BR, Zinnov, iSense Solutions.

### **Dimensions of m-commerce. A focus on India, Romania and the United States**

A study of Nielsen in January 2016 shows that online retailing is an opportunity for business, both in the case of durable and consumable goods (Nielsen, 2016). For some goods, such as Fashion-related products, Travel, Beauty and personal care, Non-food & household, and Packaged grocery food, India is in top 5 around the world in terms of percentage of consumers who have bought them online. Many of the online shoppers buy from overseas retailers. Nevertheless, figures greatly vary by country. For instance, this is the case for 74% of the online Indian shoppers, but only 29% of the American online buyers do this (Nielsen, 2016, p.16).

#### ***Mobile payments***

Credit cards are the most popular payment method for online acquisitions (Nielsen, 2016, p.17). Nevertheless, variations exist around the world. In the case of the three countries in our sample, we have the following situation. In

India, 83% of the online shoppers prefer cash on delivery, 71% - debit card, 61% - direct debit. From those using cash at delivery, 23% do not have credit/debit card to buy online and 54% do not trust using cards online. In the US, 66% prefer credit cards and 38% - debit cards. No specific data for Romania is offered, but for Eastern Europe (Poland, Russia, and Turkey) the situation is as follows: 57% - cash at delivery, 55% - direct debit, and 46% - credit card (Nielsen, 2016, p.18). For some markets, such as for Saudi Arabia, India, Mexico among others, the mobile devices determined the growth of e-commerce (Nielsen, 2016, p.32).

The infrastructure development of mobile payments stimulates online shopping accordingly. In this respect, an array of options for mobile payments occurs: they could be done via SMSs, QR code scanning or mobile POS terminals. The mobile payments are credited to reach 1 trillion USD in 2015, from 240 billion USD in 2011 (mobilepaymentstoday.com, 2015). Increasingly, more companies offer a wide variety of facilities and services supporting mobile payments and m-commerce. Mobile POS, in-app billing, and contactless expenditure turn mobile devices into payment terminals. Loyalty programs are associated with mobile couponing and various reward programs valid via mobile. Mobile wallets and banking facilitate on the spot payments. Additionally, mobile money transfer stimulates and supports m-commerce and consume in general.

Scarce data is available on these aspects for the three investigated markets. Mobile POS proximity payments counted for 0.04% in 2014 from the total POS purchases in the US (Javelin, 2014). The forecast for 2018 is 0.13%. The figures might not be high in relative terms, but they reflect the fastest growth amongst the methods of payment. 25% of the Americans use the mobile wallet technology (mobilepaymentstoday.com). In India, the mobile money transfer will be significant, counting for around 20% of the world transactions in 2018 (forecast in Juniper, 2014). The web payments for Romania are not so high per each customer, but the total numbers show an interesting business opportunity. In the beginning of 2015, the monthly Average Revenue per Paying User is of 5.51 USD for web payments and 7.27 USD for in-app payment. Almost 2 out of 3 customers use desktop devices (mobilepaymentstoday.com, 2016).

Despite declaring to be the most confident in mobile payments, the Indians are using this facility the less amongst the three investigated markets (Table 6). This might be associated with the reduced development of the supporting infrastructure. This would justify the high percentage of payment on delivery. In India, the annual growth of m-payment was over 100% (Gupta, 2015).

**Table 6. Direct mobile payments**

Indicators	India	Romania	United States
Confidence in mobile payments (2014)	24% strongly agree 4% strongly disagree	9% strongly agree 17% strongly disagree	8% strongly agree 23% strongly disagree
% of mobile device owners who have used mobile payment	25% (bill payments, 2015)	32% (2015) <sup>45</sup>	42% (2015)
Preferred forms of payment (2013)	Payment on delivery – 45.6% Card – 44.4% Direct debit – 34.9%	Card – 39.3% Invoice – 27.6% PayPal – 19.1%	Card – 63% PayPal – 38.3% Pre-paid credit card/gift card – 12.1%

Source: Authors' compilation from Statista.com, Ericsson India, Google, ING.

### ***Retail mobile-facilitators***

Advertising is one of the main facilitators of m-commerce. A wide variety of approaches is observed in all countries. Local specificities and trends are also identifiable. The Romanian online advertising is characterized by increased investments, including an abundance of intrusive ad formats as well as special ones (Gemius, 2014a).

Recommendations are also a positive factor of influence of the consumers. The latest study of Monetate (2015) shows that they convince people to browse, but the click-to-cart conversion rate decreased in the last year to 7.39% compared to 8.31% a year before. Similarly, average order values have declined on smartphone and tablet too, being a bit higher on later devices (around 94 USD compared to 110 USD). Conversion and add-to-cart rates are higher in the US considering the tablets compared to smartphones (Monetate, 2015).

Amongst the mobile facilitators of m-commerce, several pillars are to be mentioned: mobile in-store marketing, mobile couponing or location-based offers. Technology trends retailers say that the following categories have the greatest impact on their business: social media (71%), mobile shopping (52%), mobile couponing (51%) and use of in-store mobile technology (42%) (www.mobilepayments.com).

Push notifications, generated by mobile apps, are received by consumers even if the app is not running. These notifications could be info and alerts, calls to action, coupons, etc. They increase the interaction with the brand with 50%. The most popular types of push notifications are social (65%), weather (60%), games (48%) and news (46%) (www.mobilepayments.com).

It is estimated that around 10% of apps worldwide are developed by Indians, based in the country or abroad. The increase of app industry has an impact not only on the way businesses are conducted and on consumer experience but also has profound effects on the structure of the job market. For instance, in India, the direct employment is of more than 76.000 jobs (IAMAI, 2015a). To this figure, additional jobs could be counted in related industries: marketing, communication and such. In India, in 2012, 13% of the smartphone owners used apps (Nielsen, 2013), the average number of apps being of 17/user (Deloitte, 2015). 11% of the smartphone owners in India reported in 2012 using a shopping/retail app (Nielsen, 2013).

The figures are much higher for the US, where more than 90% of the smartphone owners use apps – shows a forecast for 2015 (eMarketer, 2014); 62% in 2012 (Nielsen, 2013). The average number of apps used in 2014 was of 27 in the US (Statista.com, 2016). More than 1 out of 3 persons buy apps in the US (35.8% - forecast for 2015 –eMarketer 2014), while 1 out of 5 Romanians - 18% - do the same (iSense Solutions, 2015). The most popular apps amongst Romanians are the alarm, the clock and the camera (BR, 2014).

M-commerce app instalment increased 75% during 2014 (Inmobi, 2015), while entertainment raised with 275%. In 2014, 64% of global smartphone shoppers had purchased goods or services through an app in the previous year (Statista.com, 2016). Considering the increase of the m-commerce and forecasted trends, businesses change their approach to the markets and consumers. Important e-commerce companies such as Flipkart and Quikr intend to become largely m-commerce businesses in the following years (Zinnov, 2015). Some companies even shut down their websites, to become exclusive mobile app-only retailers, such as Myntha in India (Jain, 2015; Natanson, 2015).

### ***Mobile retail***

The increase of m-commerce, as well as e-commerce, is facilitated not only by technological development and the changing behaviour of customers. It is also influenced by legal business practices, by facilities provided by

governments. For instance in India, the elimination of some inter-state taxes might lead to exponential grow (IAMAI, 2015b). In addition, online payment services have a significant impact on mobile sales (Table 6).

The main barriers for mobile purchase are somewhat similar in the countries investigated (Google, 2013). Focusing on India, the main issues covered are: the lack of trust on credit card security on mobile device (40.2%), the difficulty to compare prices and options (29.5%), the small size of the screen (25.1%), the time to open the website page (24%), and the difficulty to visualize detailed product/ service information (23.7%). As far as the US is concerned, the situation may be described as follows: there is a lack of trust on credit card security on mobile device (39.8%), screen size is too small (39.6%), it is difficult to see detailed product/ service information (27.2%), to type (24.7%) and to compare prices and options (22.1%). The Romanian case is quite similar, giving heed to analogous concerns: scepticism towards credit card security on mobile device (39.6%), screen size is too small (29.8%), it is hard to see detailed product/service information (28.8%), it takes too much time to open the website page (21%), and it is hard to type (20.2%).

As some of the highlighted issues are device-related, the manufacturers already considered them in the development process of new designs. Some others are to be considered by retailers when designing their platforms. Therefore, they could be more customer-friendly and provided needed information and facilities.

**Table 6. Mobile retail figures**

Indicators	India	Romania	United States
% of internet users who have made a purchase via mobile device	15% (2013)	20% <sup>46</sup> (2013)	8% (2013)
% of users of mobile device who have made at least a purchase in the past year	40% (2013)	62% (2015) / 26% (2013)	58% (2015) / 42% (2013)
Mobile purchase via smartphone ever	54% (2013)	34% (2013)	46% (2013)
Mobile retail	2 billion USD	-	56.67 billion

revenue	(2015)		USD (2014)
m-commerce as % of retail commerce	11% (2014)	25% (2014) <sup>47</sup>	-
Frequency of m-commerce (2013)	38.6%	18.9%	19.7%
- At least once a day	61.4%	81.1%	80.3%
- At least once a week			

Source: Authors' compilation from Statista.com, Google, ING, Gemius, Radu.

In 2017, it is expected that 28% of the internet users in India to purchase products online (Statista.com). 54% of the Indian smartphone owners have made a mobile purchase, and the online purchase via mobile increased more than 100% in the last 2 years (Zinnov, 2015). In the US, the m-commerce represents 26.7% of the e-commerce value. 54% of the m-commerce is generated by smartphone (Statista.com, 2016). The mobile devices also register an accelerated increase. For Europe, the growth expected is of 6% for PC e-commerce, 93% for smartphone and 84% for a tablet, while the figures for the US are of 3%, 59%, respectively 68% (Ecommercenews, 2015).

As the Niesen (2016, pp.32-34) report in 2016 shows "India is one country on the leading edge of mobile trend". For some products, smartphone purchases are higher than PC/laptop ones, as in the case of restaurant/food delivery (Nielsen, 2016, p.34). Nevertheless, mobile gains field in every market. In this context, retailers should adapt and integrate their in-store marketing strategies with mobile services. Mobile becomes crucial, as a 2016 study of Accenture highlights that 60% of the respondents would switch providers due to poor mobile connections and experience (Accenture, 2016).

## **Conclusion and future perspectives**

The comparative analysis of the three countries brought to the fore the intricate dynamics of Internet infrastructure, mobile usage, and the m-commerce dimensions. The reported facts and figures indicate that the US may be perceived as a definite leader in terms of Internet penetration, smartphones and tablets usage rate, and percentage of smartphone users who purchase mobile (as depicted in the presented tables). Still, both India

and Romania are rapidly evolving towards a better capitalization of mobile devices and of m-commerce, as the forecasts for the next years support. As previously discussed, in India, the mobile money transfer is fulminatory, counting for around 20% of the world transactions (forecast for 2018 – Juniper, 2015) while, presently, 10% of apps worldwide are estimated to be developed by Indian innovators (IAMAI, 2015a).

An interesting aspect to be underscored is that despite declaring to be the most confident in mobile payments, Indians are using this facility the less amongst the three investigated markets. This situation would require a closer look into the underlying psychological, social, cultural, technological and economic factors, which may account for the overall picture.

As initially highlighted, the purpose and scope of the present paper were to illustrate the figures, facts and forecasts of the m-commerce indicators among the three countries as a prerequisite for future studies. Having in mind these objective measures, researchers should address the paradigm shifts generated by the advancement of mobile and wireless technologies, laying stress on their paramount influence on the business environments. Moreover, capturing facts in the light of a comparative analysis among different countries is liable to ensure introductive indices on how technology acceptance, adoption, and usage reshape individual and organizational profiles, through the lens of geographical and subjective particularities.

The extant literature on m-commerce would benefit from continuing the numerical mobile-supported landscape with in-depth investigations on technological and social issues which are relevant for mobile devices adoption (e.g., perceived usefulness and ease of use, intention, preferences, social pressure and catalysts, perceived exposure and risk, etc.) and on the development of information and mobile systems and platforms according to the customers' mindset, industry dynamics or regulatory forces.

Another aspect that should be investigated more is the actual impact of mobile on society and especially on economies. Figures and their evolution suggest many implications, but both quantitative/ statistical and qualitative studies are lacking, in a general framework and making reference to a specific country. Some exceptions exist, such as some studies referring to the general impact (Aker & Mbiti, 2010; James, 2015; Kefela, 2011). In addition, the sectoral investigation is scares – see a few studies mainly on the impact on agriculture (as for instance Mittal, Gandhi, & Tripathi 2010 on the impact on the Indian agriculture) or healthcare (see West, 2012 on a general evaluation). Therefore, more in-depth analysis is welcomed. It



could be also extended, in order to document the broader framework of the internet of things.

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