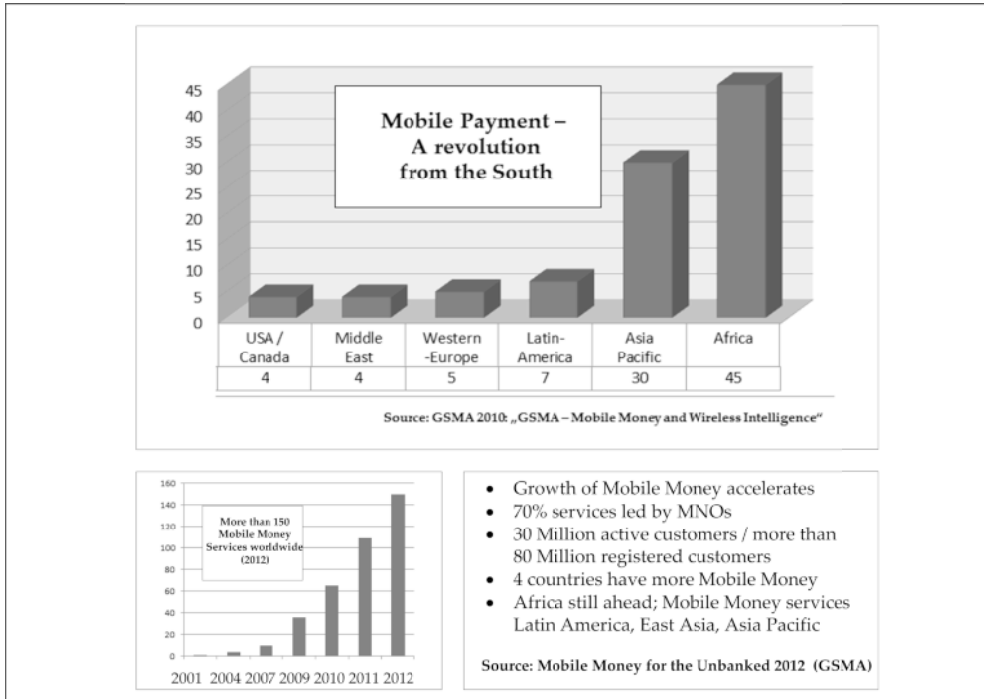


## 2 The Market

### 2.1 El Dorado in the South



**Figure 5: Overview of active mobile payment services worldwide<sup>1011</sup>, © Mobile Money for the Unbanked 2012 (GSMA), GSMA 2010: “GSMA- Mobile Money and Wireless Intelligence**

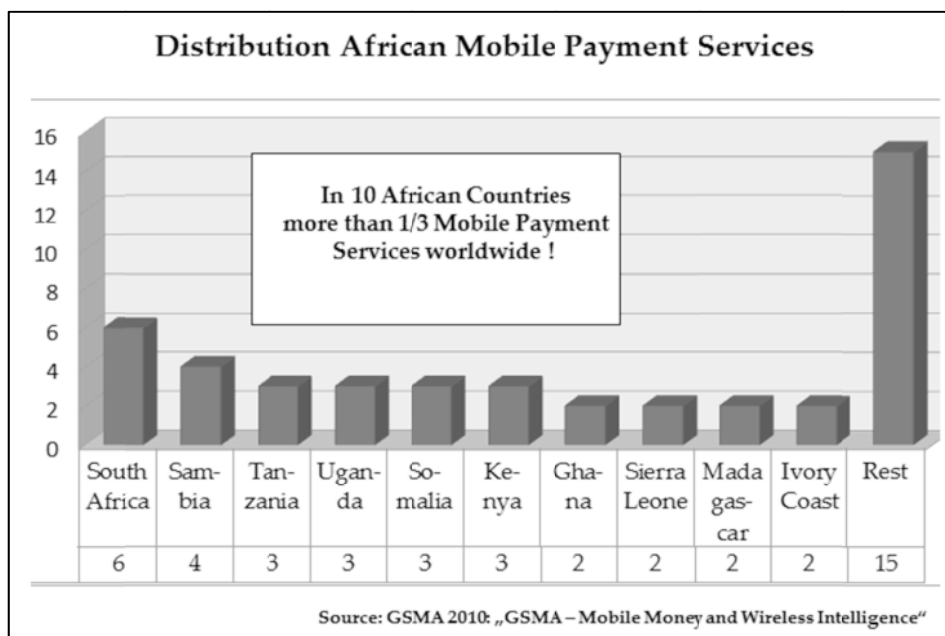
The recent success of different business models in Asia and in various developing countries has underscored the existence of opportunities to earn money for enterprises willing to venture into mobile payment services.

10 GSMA: “Mobile Money for the Unbanked – State of Industry from 2012 – Global Mobile Money Adoption,” June 2013. The survey indicates that the gap has continued to widen, with more than 90 mobile-payment services available in Africa and comparable growth in Asia. The numbers here largely reflect the development of P2P payment services.

11 Efforts to promote mobile NFC are particularly apparent in Japan, South Korea and China, with China Mobile playing the role of an up-and-coming major player that already accounts for 10 million NFC devices and 3 million users (see: Dawai, Tian: Mobile Wallet in China, June 2013, 9 Pages).

The dominant position of Africa, as evidenced by 45 African mobile payment services, followed by Asia with its various technical and economic innovators, may come as a surprise. The data for the year 2010, for instance, show that Latin America, Europe and North America lag way behind. The development of mobile money is accelerating. As of late 2012, more than 150 P2P services based in developing countries are providing services to more than 80 million people.

Moreover, when one takes a closer look, one is inclined to applaud the positive economic impact that has come from the acceptance and use of innovative services.<sup>12</sup> These services have enabled regional growth, business expansion and improved employment opportunities simply because they have facilitated the circulation of money in the countries in question. In short, they have given the many unbanked and underbanked access to convenient, secure and improved financial services. This means that the work associated with meeting daily needs can be remunerated and that individuals now have an opportunity establish a capital base.



**Figure 6: Distribution of mobile payment services in Africa, © “GSMA-Mobile Money and Wireless Intelligence”**

The successful M-PESA model has been an inspiration for others throughout the region. This is evidenced by the fact that 10 African countries now benefit from a burgeoning market for mobile payment services.

<sup>12</sup> Plyler, Megan C./Sherri Haas and Geeta Nagarajan: “Community-Level Economic Effects of M-PESA in Kenya,” University of Maryland, June 2010, 50 pages.

2.2 Japan’s Pioneering Role among the Developed Countries

The Japanese approach to the introduction and development of mobile payment services, an approach which has enjoyed considerable success throughout the last 7 to 10 years, has played a leading role among the developed countries. It all began in 2001 when JR East introduced the contactless Suica Card and soon gathered steam in 2004 when NTT DoCoMo introduced the mobile wallet Osaifu-Keitai.

However, the boom in Africa and Asia wouldn’t give cause for optimism about an impending breakthrough for mobile payment services in Europe if it weren’t for a few other interesting facts and trends pointing in the same direction.

For instance, a number of major corporations and consortia, including Google, ISIS, VISA, PayPal, Wal-Mart and Target, have recently invested considerable sums in the development of their own mobile payment services. This copycat effect has served to accelerate the general trend.

Market observers regard Europe as the market with the greatest potential from the year 2015 and proximity-payment services as the most promising sector. Mobile POS solutions alone are expected to account for USD 75 billion.

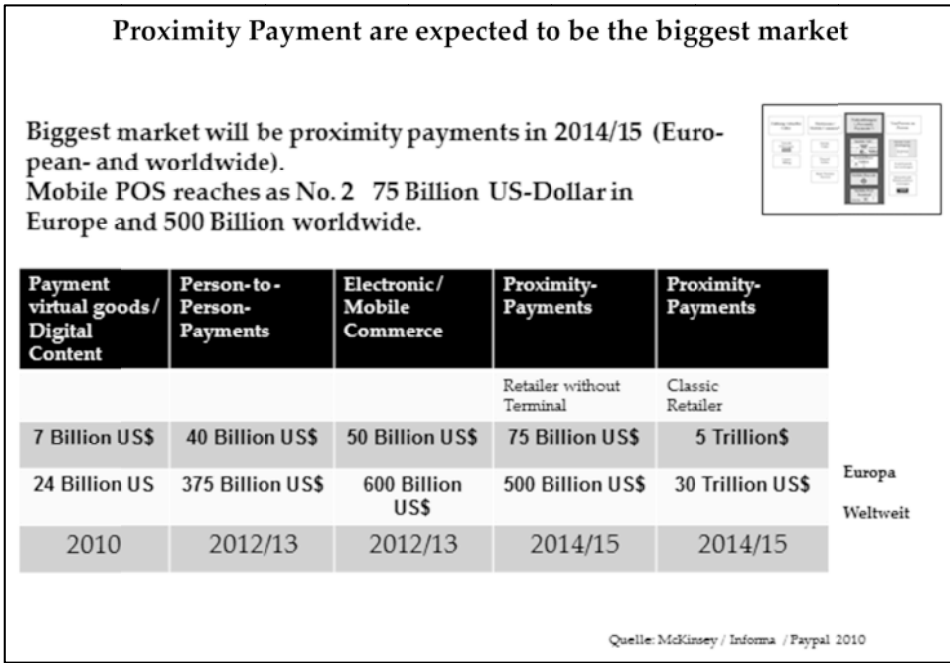


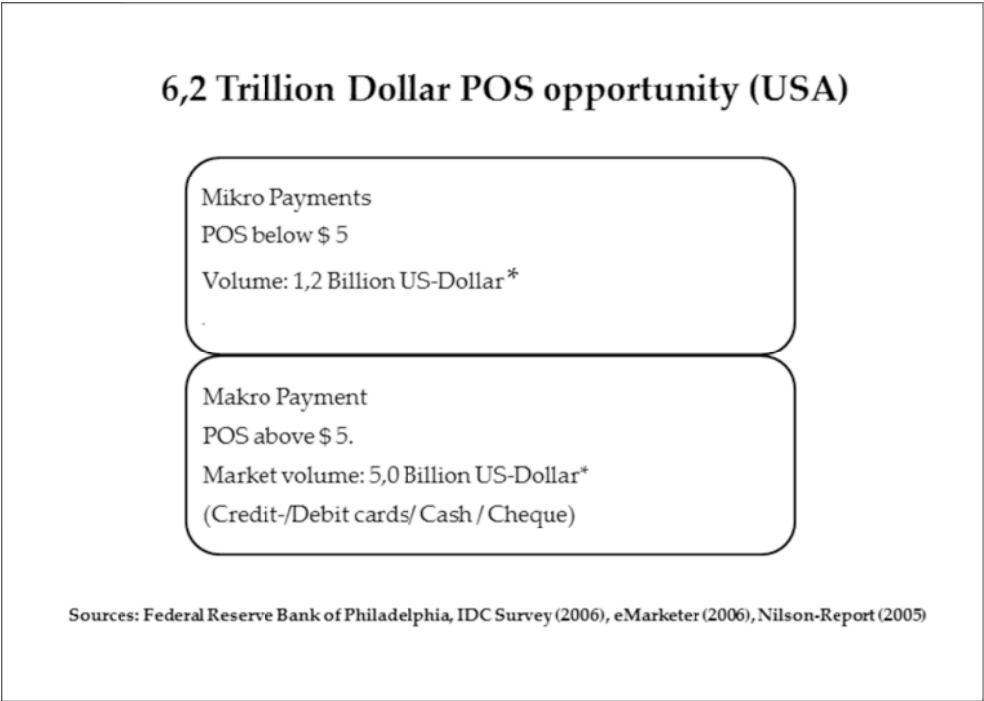
Figure 7: Market estimates and projections for the mobile payment sector<sup>13</sup>, © McKinsey/ Informa/ PayPal 2010

13 Gartner Inc. (June 2013): The sluggish performance of Google Wallet and ISIS has led their respective companies to revise their growth forecasts for proximity payments

At a volume of USD 7 billion, virtual goods or digital content was the smallest market sector in Europe in the year 2010.

Thanks in particular to innovative services in developing countries and services offered by Western Union, person-to-person payments currently represent the third largest sector, accounting for USD 40 billion in Europe and USD 375 billion worldwide.

Online trade (electronic or mobile commerce), with PayPal commanding the largest market share, represents the second largest market sector. But again, proximity-payment services represent by far the largest sector. This explains the magnetism this sector has for major corporations.

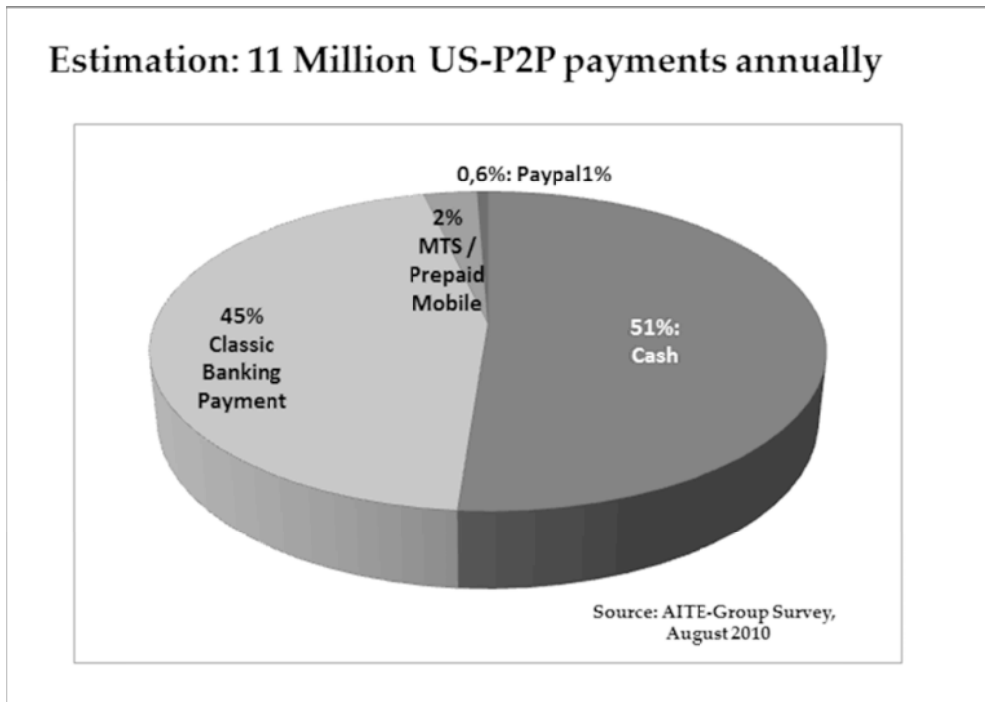


**Figure 8: U.S.-market segmentation and size, © Federal Reserve Bank of Philadelphia, IDC Survey(2006), eMarketer(2006), Nilson-Report(2005)**

Experts expect the size of the U.S. market to expand in the coming years to at least USD 4 billion. The number of person-to-person transactions in the U.S. increased in the year 2010 to 11 million.

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downwards. Comprehensive implementation in this area isn't expected until 2017. ("Mobile Payment Growth, No Thanks to NFC or Google-Wallet," PYMNTS)



**Figure 9: P2P transactions in the U.S. in the year 2010, © AITE-Group Survey August 2010**

The relevant technologies such as SMS, WAP, QRC, NFC and various cellphone (e.g. Symbian) and smartphone operating systems (e.g. Android, iPhone) are available in standardized forms. Moreover, studies and pilot tests have indicated very favorable responses on the part of customers and retailers. While the slow spread of NFC-enabled devices has remained a limiting factor, this problem is expected to vanish in the coming years, essentially leaving no more hurdles of a technological nature.

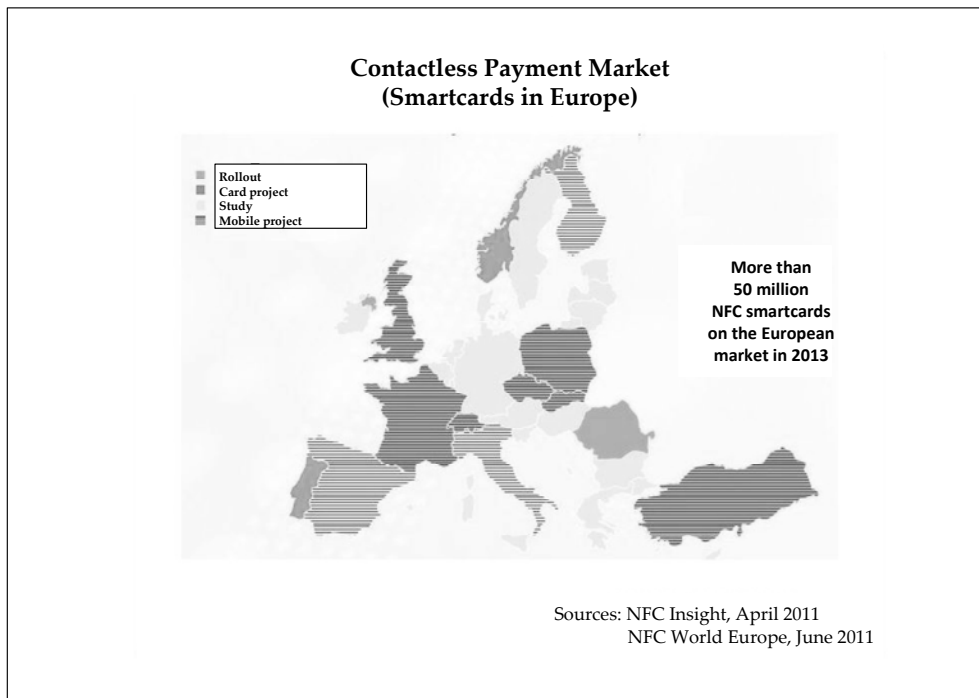
According to market researchers at Gartner Inc., SMS-based text messaging is expected to retain its position as the dominant technology, accounting for a projected 51% of all mobile payment transactions in 2015. The share of WAP/Internet solutions is expected to increase to 38% and NFC technology, regarded as the most important new technology, is expected to account for an 8% share of all transactions. Thanks to its use in developing countries, USSD is expected to account for a share of 4 percent.

This suggests that even if NFC ultimately becomes the dominant technology in mobile payment applications – virtually all of the device manufacturers have signaled their willingness – the use of other technologies such as barcode, WAP/Internet, SMS and telephone numbers with or without PIN is essential for short-term success.

According to projections, unit sales of NFC-enabled devices are expected to reach 40 to 50 million in 2011. Edgar, Dunn & Company have predicted an overall market expansion for mobile NFC to USD 680 billion by the year 2016 and other market observers expect the market value for NFC chips to reach between USD 300 million (Juniper Research) and USD 800 million (IMS Research) by the year 2014.<sup>14</sup>

Experts suggest that the number of NFC-enabled devices available worldwide will reach 750 to 900 million by the year 2016. Smartphone penetration, which hovered around 47% in 2011, is expected to reach 70% in 2015.<sup>15</sup> Moreover, 85% of all POS terminals are expected to be outfitted with contactless technology by the year 2016, compared to only 10% in the year 2010.<sup>16</sup>

In Europe, for instance, around 30 million NFC-enabled contactless cards were in circulation at the end of 2011. Contactless services were first introduced to customers in Italy, Spain, France and the U.K. in June of 2011. Companies in Germany, Benelux, Austria and Switzerland are still at the feasibility and pilot-test stage.



**Figure 10: Contactless services in Europe, © NFC Insight, April 2011 / NFC World Europe, June 2011**

14 NFC Insight: "NFC-Payments Fact Pack: The Hottest Predictions for 2012," April 2012, 42 pages.

15 Ibid, p. 26 (estimate issued by Nielsen, Mercator, Morgan Stanley, Juniper Research and others)

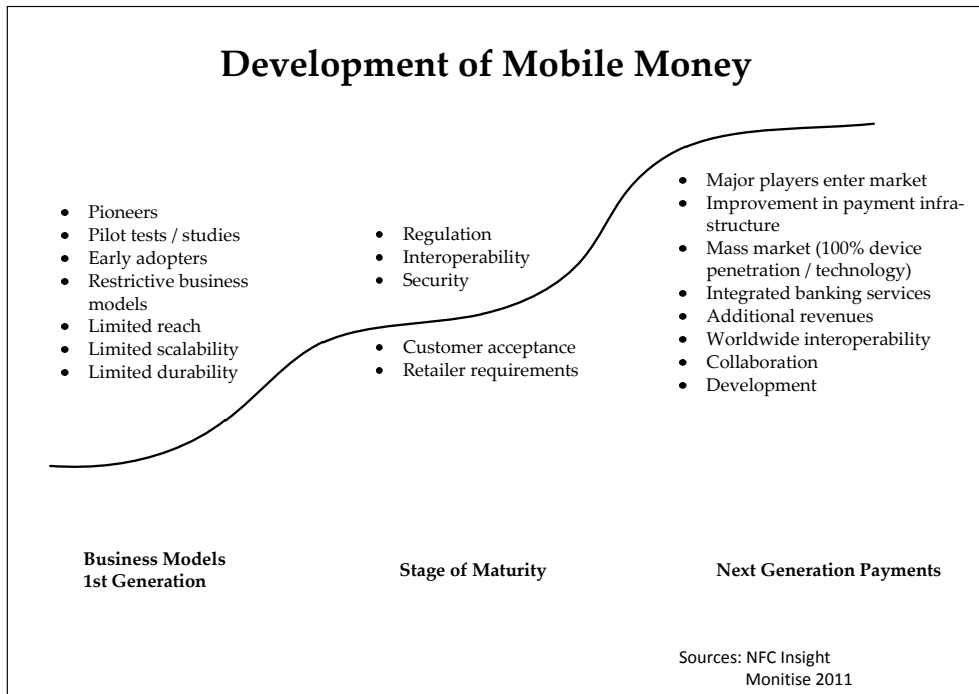
16 Ibid, p. 37 (estimate issued by ABI Research, 2011).

Based on the current situation, the following development is projected for mobile payment services around the world.

Most countries have initiated pilot tests to ascertain the feasibility and sustainability of the new services. The tests have so far been promising. Pioneers in individual countries have already introduced services to the market. These have achieved astonishingly successful results, although the business models are not yet fully developed because various issues such as device (e.g. reader) availability, retailer requirements, security, customer acceptance, interoperability and regulation remain unclear or only partially settled.

This means that the business models still have a limited range, limited scalability and a limited shelf life.

As the market develops, however, the regulatory matters (e.g. SEPA, PSD and E-Money Directive) and the remaining security and interoperability issues will be resolved. Moreover, the available business models can indeed be adapted to take account of customers and retailers. Attempts will be made to evaluate and better understand the cultural influence of cash, while the "young" generation will continue to demand more attractive payment options. Retailers, too, will continue to be on the lookout for cost-effective methods of payment and attractive value-added services.



**Figure 11: The development of mobile money, © NFC Insight Monitise 2011**

The big players and an array of new competitors will enter the market. This will lead to an improved payment-services infrastructure. Mass-market dynamics will be within reach once 100% market coverage has been established. According to various research institutes, this will come in the year 2015 at the earliest. Mobile money will be integrated into new banking services. New sources of revenue will appear for the providers of mobile money (wireless carriers, banks, retailers, auxiliary service providers, etc.). After having had ample time to examine the first solo efforts, the market players have come to the realization that cross-industry partnerships are the key to the successful introduction of mobile payment services.

<b>Market: Value Mobile Payment Transactions (NFC, SMS, WAP and USSD) in 2015</b>	
<b>Globally</b>	<b>945 Billion US \$</b>
North America	260 Billion US \$
Western Europa	283 Billion US \$
Asia-Pacific	254 Billion US \$
Middle East / Africa	60 Billion US \$
South-/Central-America	46 Billion US \$

**Figure 12: Conservative forecast of the global development of mobile payment services, © Research and Markets, in: PYMTS 28<sup>th</sup> October 2011**

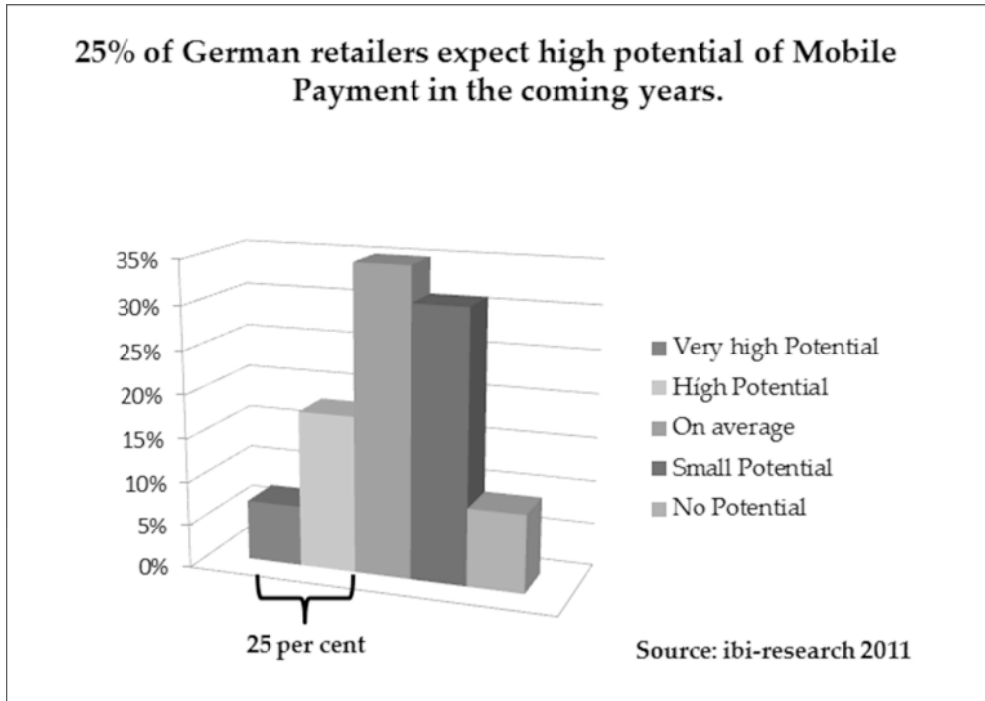
Compared to the more favorable forecast issued by Gartner Inc., the conservative forecast issued by Research and Markets includes a reordering of the major markets for mobile payment services for the period up to the year 2015. Western Europe accounts for the largest share of the market, followed closely by the regions of North America and Asia Pacific. Africa and South America are expected to lose a considerable degree of significance. Whatever the details, however, the researchers still project significant growth in the mobile payment sector.

### **2.3 Skepticism and Awakening in Germany**

The success of independent U.S. mobile payment business models, the smart strategies of a number of mobile network operators and the market entry by major, financially-sound corporations have sent a jolt to many companies in Germany. To be sure, the success that has been seen in Africa is not necessarily relevant to Europe and Germany, where existing infrastructure, systems of regulation and customer demands are more complex. Asia, too, with its enthusiasm for the latest in technology, is also a different kettle of fish.



In Germany, pressure to act has nonetheless grown because people are quite aware of the potential associated with the development of successful mobile payment services (see case studies involving mpass, Touch and Travel, girogo, Paybox, PostFinance and Yapital)



**Figure 13: Retailer response to mobile payment services, ©ibi Research 2011**

According to the results of a study conducted by ibi Research in the year 2011, for instance, 25% of all retailers indicate that the potential associated with mobile payment services in the next 5 years is either “high” or “very high.”

However, there is one factor that shouldn’t be underestimated: cash is the dominant means of payment in Europe, and any increase in the significance of electronic money or mobile payment services will entail a corresponding decrease in the significance of cash. According to Kurt Salomon of PHO Consulting, 85% of all payments in Europe are made in cash. According to a study conducted by VISA in 2009, the remaining cashless payments can be broken down as follows: credit transfers (SEPA transfers) (27%), direct debits (SEPA debits) (30%), card payments (33%), checks (8%) and e-money transactions (1%).

A study carried out by the Deutsche Bundesbank in 2009 indicates the following value-range breakdown for all cash payments: up to EUR 5 (96.6%), EUR 5 to 20 (93.7%) and EUR 20 to 50 (73.2%). The percentages then drop off significantly as the amounts involved increase beyond EUR 50.

While nearly all of the available data indicate a trend towards mobile payment, one should not underestimate the cultural aspect of cash when considering the prospects of success for new mobile payment services. Each new service provider is confronted by the force of human habit and ingrained sensibilities regarding factors such as security.

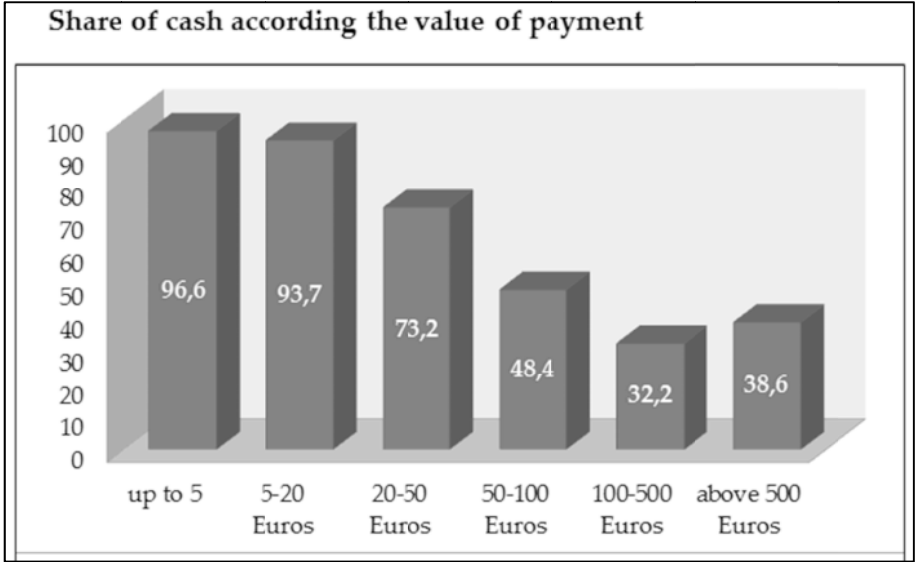


Figure 14: Percentage of cash transactions according to payment value, © Bundesbank Study 2009

This is why market observers expect those of the younger generation to adapt faster to the new payment options. The sea change away from the familiar instruments of payment can be expected to take a certain amount time (see case studies relating to the Japanese market).

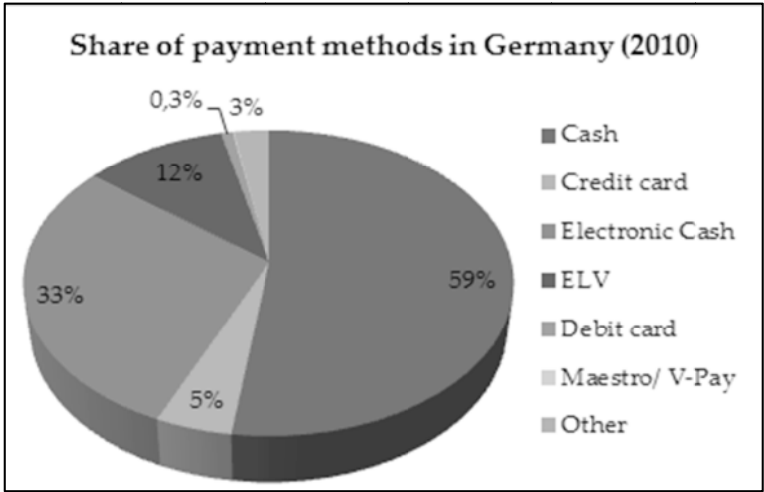


Figure 15: Retailer sales according to method of payment



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