

**November 2012**

## **Mobile Commerce via Smartphone & Co**

**Analysis and outlook of the future market from the user's point of view**

### **Summary**

Franz Büllingen, Peter Stamm  
WIK Wissenschaftliches Institut für Infrastruktur  
und Kommunikationsdienste GmbH



Im Auftrag des vzbv

Verbraucherzentrale Bundesverband e.V. – vzbv  
Fachbereich Wirtschaft  
Markgrafenstr. 66  
10969 Berlin  
[wirtschaft@vzbv.de](mailto:wirtschaft@vzbv.de)  
[www.vzbv.de](http://www.vzbv.de)

## Summary

### *Smartphones and mobile data services are booming in Germany*

- (1) The rapidly growing penetration of smartphones and tablet PCs in Germany means an equally rapid growth in the demand for mobile data services. While mobile voice is gradually approaching market saturation, the volume of mobile data traffic is currently growing at an exponential rate.
- (2) Of all mobile data services, mobile commerce applications are among those with the highest annual growth rates. Applications like “online shopping for products” or “buying train, local transit or airline tickets” increased by more than 200 per cent in 2011 over last year.

### *Technical prerequisites for mobile commerce are continuously improving*

- (3) The high demand for mobile data services poses a major challenge for mobile networks. These are continuously upgraded by their operators. By introducing LTE (Long Term Evolution) standard – the fourth generation of mobile technology – the mobile operators are multiplying the capacities of their networks. At the same time, the countless Wi-Fi networks in private households and in public places are playing an important role for Internet access through smartphones and tablet PCs. Wi-Fi networks relieve the traffic load of mobile networks and offer consumers high data rates at a lower cost.
- (4) Statistically, the performance of new smartphone generations doubles every two years. The industry enjoys extremely high rate of innovation dynamics. In future, new forms of mobile end devices are expected in addition to tablet PCs. Smartphones offer far better performance than simple mobile phones. They are small pocket computers with telephone function, which offer high-performance processors, large memory, a touch-sensitive screen, high-resolution cameras, numerous sensors, their own operating system and an application software interface. In addition, smartphones offer a very high degree of user-friendliness.
- (5) The operating systems of smartphones and tablets (Android, Apple iOS, BlackBerry OS, Windows Mobile, etc.) offer very easy-to-install extensions of their functionality through the installation of so-called apps. Apps are small programs whose features are closely related to the mobile-use situations. Native apps run independently on the corresponding devices and can access the devices’ sensor data, location data and other information. Moreover, they establish direct access to online services and specific information from the Internet.
- (6) Mobile apps are specific to an operating system or device. They are directly downloaded to the mobile device from the so-called app stores. With these sales platforms, such as the Apple App Store (iOS), BlackBerry App World (BlackBerry OS), Google Play Store (Android), Samsung Apps (Android and Bada) or Microsoft Marketplace (Windows), a new usage and innovation paradigm for software has been established. It integrates independent developers in the mobile value chain and releases an enormous creative potential. Even individuals can be creative developers because app stores offer them access to a mass market not available to them before.

### *Personalized smartphones are very attractive for mobile commerce*

- (7) Depending on the operating system, consumers can now choose from a selection of about half a million apps available. Through the individual compilation of apps,

every smartphone can be highly personalized by its user. Moreover, smartphones contain very personal information such as address book, calendar, photos, links to social networks, etc. In conjunction with the fact that these devices are used by consumers anytime and anywhere, smartphones have developed into devices with the highest degree of individualization.

- (8) Equipped with all these features, smartphones prove to be very suitable for mobile commerce. On the one hand, they offer customers a highly individualized communication channel by appealing to them with custom-tailored promotional offers or coupons. On the other hand, smartphones enable consumers to call up the most relevant information for a particular situation and location. For example, consumers can examine offers for goods and services, compare prices, locate stores, or place direct orders and pay for them directly.

*Geo-localization: Not only "always on", but also "always local".*

- (9) Thanks to built-in localization techniques, smartphones and tablets always detect the user's location. They can even point the way to the desired direction. Combined with smart apps, this enables consumers to get the information necessary for deciding where to go and what to get. Thus, location is one of the most important context characteristics. It is now part of almost all m-commerce services.
- (10) However, location data are also quite sensitive personal data, especially in conjunction with the identification number of smartphones. These data can be used to generate exact mobility profiles of consumers. The new smartphone applications also offer opportunities for improper marketing purposes. It is therefore hardly surprising that a large part of apps offered free of charge are suspected of transmitting location and other personal user data to collectors of commercial information.

*M-payment: smartphones are replacing wallets*

- (11) Over the last few years, Internet payment functions have become established, they also pave the way for m-payments of mobile online purchases. However, thanks to Near Field Communication (NFC) wireless technology, the option of paying by smartphone enters a whole new dimension, particularly with the ability to pay bills at the point of sale. Based on NFC, several competing m-payment systems are preparing for market entry in Germany. Even discount cards, customer cards, coupons, user identification cards or access cards can be integrated in smartphones through cryptographically secured NFC chips.
- (12) A prerequisite for the market success of m-payments is the broad penetration of NFC-enabled smartphones and sufficient acceptance among consumers and retailers. The coming months and years will show whether m-payments will reach a critical mass of users and which system will prevail. Even the complete replacement of wallets by smartphones might no longer be just a vision for a few years down the road.

*M-shopping: a bridge between analogue and digital commerce*

- (13) Although m-shopping is a fairly recent development, it is progressing rapidly – according to recent market surveys – with increasing smartphone penetration. Even though the first generation of smartphones, still had some obstacles (display size, output/input, etc.), 2.9 million mobile customers in Germany already used mobile devices for the purchase of goods or services in 2011. More than 5

million people took advantage of m-shopping by gathering information through a mobile device prior to purchasing a product.

- (14) M-shopping applications increase the transparency on both sides of the market. Consumers get better information on prices, shops, hotels and restaurants around them, on product range, special offers and product availability, on ingredients, product origin, and much more. At the same time the providers of m-shopping apps, mobile couponing and other mobile customer loyalty tools are able to generate a whole bundle of valuable information about the behaviour and preferences of their customers in order to address them specifically.
- (15) In this context, mobile shopping will be sustainably promoting the trend towards personalization in commerce. From the consumer's point of view, this also implies considerable risks of manipulation and deception, selection and price discrimination.

#### *Regulatory framework as an enabler of m-commerce*

- (16) Acceptance, accountability and transparency are critical success factors for the broad adoption of m-commerce. To fully develop the benefits and efficiency potential of m-commerce, it is necessary to implement a high level of consumer and privacy legislation regulation for the world of m-commerce. Smartphones derive most of their consumer benefits by concentrating and collecting sensitive personal data (including location information and payment details) and by turning this information into specific applications. Therefore, they also require adequate mechanisms of protection.
- (17) These protection mechanisms include the implementation of some basic principles prior to use. Mobile devices and their operating system software should be designed according to the "privacy by design" principle. The default settings should offer the highest degree of privacy. Apps must be programmed in such a way that only user data directly necessary to operate the service are transmitted.

#### *Implementation deficits in existing legislation*

- (18) Without exception, the obligation to provide information applies to m-shopping as well as to all other e-commerce. Due to constantly improved display screens of mobile end devices, for example through tablet PCs, the statutory requirements – especially regarding information about cancellation and return rights, printed information and summary order information – are increasingly easy to meet.
- (19) However, on closer inspection, it becomes apparent that a large portion of mobile apps have serious implementation deficits in terms of statutory regulations. Often, disclosure, which is obligatory under German Telemedia legislation, is missing, the general terms and conditions are usually too long, illegible or formulated in vague terminology. Finally, violations against Germany's Federal Privacy Act are very common. Neither is the principle of data avoidance and data economy respected, nor is permission obtained to collect, process and distribute personal data.
- (20) A viable option to enforce compliance with mobile apps might be to make the app stores responsible and to impose definite inspection obligations on them. Since the operators of the app stores are large international software and hardware marketers, unilateral national action is hardly promising. Instead, it should be examined whether the European Commission may have to become involved.

- (21) Moreover, reputation mechanisms for consumer-friendly end devices, apps and m-commerce services which conform with privacy legislation should be promoted. These include, for example, seals of approval and certificates by independent institutions.

*Consumer protection and privacy legislation need further development*

- (22) At present, users of mobile data services and applications have extremely limited possibilities. Instead of a blanket consent for data usage upon app installation, it should become possible to classify consent by data category and data recipient. In addition, users should always be able to adapt changes in privacy controls to the respective use situation. It should always be transparent to every user which data will be transmitted to whom for what purpose.
- (23) In addition, it should be considered to what extent consumers could be put into a position to avoid or reduce traces of data on the net while using mobile apps. At the very least, they should be given the opportunity to delete them after using a service. In addition, suppliers should create the prerequisites for customers to use their applications with a pseudonym.