

Consumerization

IT Innovations from the Consumer Market as a Challenge for Corporate IT

DOI 10.1007/s12599-012-0234-4

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Received: 2012-04-27
Accepted: 2012-09-13
Accepted after two revisions by
Prof. Dr. Sinz.
Published online: 2012-10-17

This article is also available in German in print and via <http://www.wirtschaftsinformatik.de>: Weiß F, Leimeister JM (2012) Consumerization. IT-Innovationen aus dem Konsumentenumfeld als Herausforderung für die Unternehmens-IT. WIRTSCHAFTSINFORMATIK. doi: 10.1007/s11576-012-0338-y.

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1 Corporate Use of Consumer Market Technology

Over the last few years, innovations that originated in the consumer sector have increasingly been infiltrating the corporate environment (Ingalsbe et al. 2011, p. 3; Cummings et al. 2009, p. 259). This trend, referred to as “Consumerization”, will have a lasting impact on corporate information management, and in coming years will continuously confront IT managers with new challenges.

This trend was initially observed with the emergence of Web 2.0 technologies, such as wikis, social networks, and blogs (Cummings et al. 2009; Holtsnider and Jaffe 2012, pp. 287–303). These applications and technologies are currently used by companies to improve collaboration (e.g., via Doodle), to exchange information (e.g., via Twitter), or as a form of multilateral cooperation in conjunction with the use of social networks (e.g., via Facebook or LinkedIn).

In addition to Web 2.0 technologies, mobile devices and applications from the consumer market are currently forcing their way into the corporate sector (Holtsnider and Jaffe 2012, pp. 271–303). iPhones in particular are increasingly being used in companies as a substitute for the classic business smartphone (usually a BlackBerry). In addition to the iPhone, Apple’s iPad is also increasingly being used in the corporate environment, to some extent even replacing notebook PCs (for example for service technicians). In contrast to mobile devices specifically developed for business use, this category of device is increasingly using sensor technology (e.g., position and ambient light sensors or Near Field Communication (NFC)) to provide context sensitivity and to enable provision of corresponding value-added services (Leimeister 2012).

This consumerization trend is currently most prevalent in North America. This can be seen, for example, in the results of a study by business analysts Strategy Analytics. This study shows that in

2010 approx. 37.6 % of all smartphones worldwide that were bought for business use were purchased privately (Strategy Analytics 2011). In North America on the other hand, it was 55 % of the smartphones bought for business use (in comparison with Western Europe: 25.5 %; Strategy Analytics 2011). The high prevalence of the trend in the USA is also confirmed in an analysis carried out in 2011 by the Yankee Group. This analysis shows that 78 % of American IT decision-makers accept the use of private devices and applications in the company environment (Palumbo et al. 2011). Only 20 %, however, offer support for the use of these devices and applications (Palumbo et al. 2011).

2 Changed Expectations as Drivers of the Consumerization Trend

In the ICT sector, innovations have for a certain time initially appeared in the consumer market (“Innovation first on consumer market”; Terryn 2011, p. 1). One result of this is that company staff have more experience in the use of innovative information and communication technology for private purposes, and that they also expect the same usage patterns in the corporate environment (Holtsnider and Jaffe 2012, pp. 271–272). The fact that in the perception of the staff the infrastructure provided in companies does not sufficiently fulfill these expectations is driving the corporate adoption of consumer market technologies (Finell 2010; Davenport 2005). A high level of user-friendliness (so-called “User Experience”) and provision of new application options (Vogel et al. 2010, p. 26; Holtsnider and Jaffe 2012, pp. 271–272), both paramount aspects for private use, are being used as evaluation criteria for corporate use (see Fig. 1). A high level of user-friendliness, for example, is provided by intuitive operating concepts (e.g., via touch screens or intuitive menu

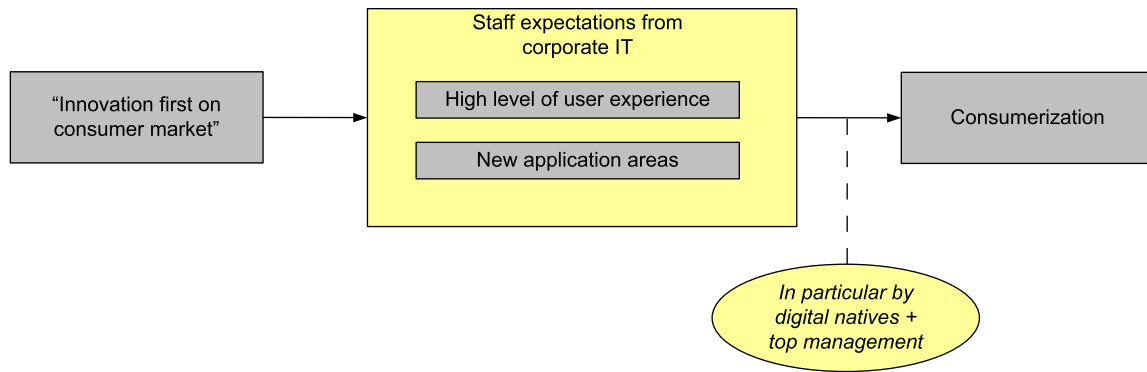


Fig. 1 Changed expectations from IT as drivers for consumerization

guidance) or an appealing design. New application areas are for example created via the context sensitivity provided by sensors and via increased mobility and new options for collaboration.

The dissatisfaction with the infrastructure provided results in uncontrolled use of private devices and applications by the staff, despite this being forbidden by companies (Holtsnider and Jaffe 2012, p. 272). For example, company SIM cards are used in privately purchased iPhones and discussion groups opened for company-internal affairs in social networks, such as Yammer on the initiative of staff. So-called “Digital Native” employees (normally classed as having been born later than 1980), who grew up in a strong symbiosis with computers, the Internet, and mobile technologies, are in particular increasingly striving for corporate use of the technologies familiar to them from the private sector, and are in this way forcing integration of these technologies into the corporate environment (Vogel et al. 2010, pp. 25–28). The increasingly blurred distinction between private and business life also supports the drive by the staff, and in particular the Digital Natives, for use of familiar devices and applications in the corporate context (Seidel 2011; Holtsnider and Jaffe 2012, pp. 288–296). Due to security considerations and the problems associated with corporate support, companies have resisted official use of the discussed technologies for a long time. Pressure for integration of mobile devices, such as iPhones and iPads, however, has increased substantially in many companies – in particular as a result of interest on the part of middle and top management in the use of these types of devices (Holtsnider and Jaffe 2012, p. 272). The level of interest and the resulting pressure

are so high that IT departments are being forced to provide support for these devices and their security at short notice.

3 Impacts of the Trend on Corporate IT

The impacts of the consumerization trend on corporate IT are derived and discussed below based on Krcmar’s information management model (2010, pp. 50–595) (see Fig. 2).

3.1 Impacts on the Management of Information Exchange

The consumerization trend impacts the demand for and the supply and use of information and its management in companies. New intuitive operating concepts allow faster location and retrieval of information and thus support the demand for information within companies. The increasing use of smartphones and tablet computers enables mobile access to required information from almost any location. Via context sensitivity, available information can be enriched and personalized. Influenced by the private usage pattern, the provided information is discussed, appraised and supplemented via social networks, blogs, and wikis. This in turn can support the information supply and demand and improve knowledge management.

Information and communication technologies from the consumer market enable companies to cover information requirements via previously unused channels. This inevitably leads to an increased amount of information to be managed. In this respect, use of Web 2.0 applications can support self-regulated consolidation of supply and demand by the

staff. In addition to content-related quality assurance, expedient reduction of the amount of information is a central challenge facing management of information exchange.

3.2 Impacts on the Management of Information Systems

The use of e.g., mobile Web 2.0 applications as a component element of corporate information systems has impacts on the management of data, processes, application lifecycles, and the system landscape in companies.

Due to intermittent absence of network connectivity, data captured using mobile devices (e.g., location data) can be out of date and can thus result in inconsistencies. This must be taken into account when designing information systems.

To fully exploit the options offered to companies by the consumerization trend, some of the existing business processes must be modified or redesigned. The sales process, for example, can be realigned and optimized for the use of iPads or staff experience with social networks can be incorporated into a suitably adapted product development process.

In terms of the impacts on the lifecycles of the application systems, cycle times can be expected to approach those in the consumer sector. Application lifecycles in the corporate context will be shorter since the staff will always want to use the latest innovations. It can also be expected that beta versions will increasingly have to be integrated into corporate IT due to the pressure for rapid introduction of innovations, as is the case in the consumer market. License management will also become more complicated, since e.g., in the case of mobile applications purchased via Apple’s AppStore the licensee is always the private individual

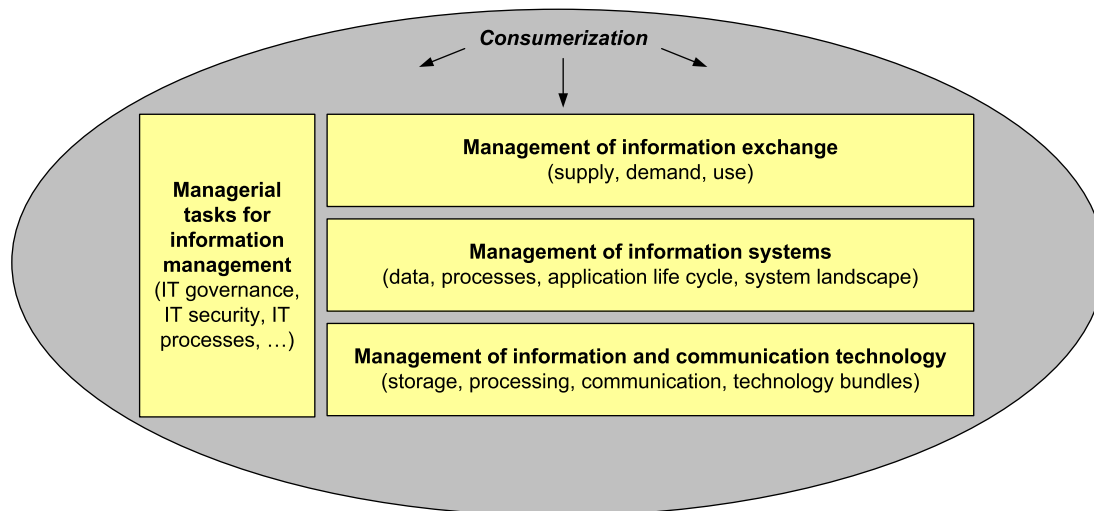


Fig. 2 Impacts of the trend on information management (Krcmar 2010, p. 50)

and not the company. And since there are no business accounts with Apple, the employee takes all company-financed licenses for mobile iOS applications with him when he leaves the company.

Applications from the consumer market normally do not offer the interfaces or use the standards necessary for professional use of IT (for example packaging of software components). Integration of these applications into the company's IT results in a disintegration of classic system architectures.

3.3 Impacts on the Management of Information and Communication Technology

At the information and communication technology level, mobile devices and operating systems (e.g., iOS and Android-based smartphones and tablet computers) as integral elements of technology bundles (e.g., client-server architectures) have a significant impact on information management. New demands are placed on the storage, processing, and communication of data.

Due to the addressed increase in the volume of information demanded and offered and the underlying data, consumerization further increases the growing data storage requirements to be met internally or externally by companies. In particular mobile applications such as Yammer or Dropbox store the data outside the company in a virtualized infrastructure. Despite the above-mentioned increase in the volumes involved, this can result in a reduction of the amount of data to be stored within the company.

The increasing volume of data exchanged via mobile devices increases the bandwidth requirements on corporate communication networks (e.g., UMTS and WLAN). This effect is aggravated by the private use of company-provided smartphones, since it results in increased consumption of bandwidth-intensive multimedia content.

The integration of information and communication technology from the consumer market entails a variety of risks for information management. Due to the short innovation cycles, particularly with mobile technologies, it is difficult to forecast trends and technology developments. And since innovations in the mobile environment are often provided by small companies, some of whom disappear from the market or are bought out in the medium to long term, support and further development of the associated hardware and software is not guaranteed. In addition to these risks, the combination of private and business use exacerbates the management of information and communication technology in terms of compliance with data protection requirements. In this respect, appropriate technical solutions (e.g., mobile sandbox applications) and organizational measures (e.g., usage policies and guidelines) must be established.

3.4 Impacts on Managerial Tasks for Information Management

Consumerization has a strong impact on managerial tasks in conjunction with information management, in particular on the IT processes, IT governance, and

IT security. The use of consumer market technologies as a component element of corporate application systems involves on the one hand new procurement processes (private procurement of devices used for company purposes via "Bring Your Own Device" (BYOD) initiatives) and on the other hand new support processes ("Self-Service" by the staff). Due to the dynamic nature of the consumerization trend, practiced by the majority of the staff ("bottom-up") but also forced by top management ("top-down"), corporate IT is increasingly becoming a driven entity. It must be able to ensure integration of applications and devices at short notice. Proactive management (IT governance) is next to impossible. Ensuring IT security is also difficult, among other things due to the combination of private and corporate use and the administrative limitations normally associated with consumer market technologies (e.g., limited API provision with iOS and Android).

The financial viability of corporate use of consumer market technologies can only be assessed in conjunction with the specific integration into the respective company. BYOD programs contribute to a reduction of investment costs via the private procurement of devices, and to reduced support costs via the establishment of self-service models. Further cost savings can be achieved via the addressed external storage of corporate data. On the other hand, the increasing bandwidth requirements (without appropriate adaptations, e.g., in terms of mobile phone tariffs) and additional license costs for integration of a large number of private devices can result in increased infrastructure costs.

4 Future Developments – Consumer Apps and Gamification

The consumerization trend is currently being most strongly perceived in the use of privately purchased mobile hardware (smartphones and tablet computers) in the corporate environment (Quaadgras and Mohammed 2011, p. 1). In the future it can be expected that free or low-cost mobile consumer applications (so-called “consumer apps”) will increasingly be integrated into corporate infrastructure. A look at the usage statistics for mobile applications supports this forecast. An average of 37 mobile applications are used on private devices (Finell 2010). In the corporate environment a significantly lower figure can currently be assumed, a market potential that is currently extremely attractive for many IT providers.

What we are also seeing is the inclusion of elements typically to be found in games into application systems. This trend, referred to as “Gamification”, can be seen in the use of high scores, ranking lists, and experience points aimed at increasing staff motivation during what are often monotonous tasks, or to increase the learning effectiveness of train-

ing courses. One example of an application that combines both Web 2.0 and game features is the mobile application of the social business network Jive. With this application, users are for example awarded status points for useful contributions and answers posted in the forums. In summary it can be said that consumerization has heralded a paradigm shift: Many application and usage innovations have their origin in the consumer market and from there they are forcing their way into corporate IT. The wide range of challenges for the management of corporate IT with all of its facets is becoming even wider – and currently an end is not in sight.

References

- Cummings J, Massey AP, Ramesh V (2009) Web 2.0 proclivity: understanding how personal use influences organizational adoption. In: 27th ACM international conference on design of communication, Bloomington, p 7
- Davenport T (2005) Thinking for a living: how to get better performance and results from knowledge workers. Harvard Business Review Press, Boston
- Finell JP (2010) Transient apps: the consumer influence on enterprise mobility. Part 2. <http://pro.gigaom.com/2010/08/transient-apps-the-consumer-influence-on-enterprise-mobility-part-2/>. Accessed 2012-04-19
- Holtsnider B, Jaffe B (2012) IT manager's handbook, 3rd edn. Kaufman, Burlington
- Ingalsbe JA, Shoemaker D, Mead NR (2011) Threat modeling the cloud computing, mobile device toting, consumerized enterprise – an overview of considerations. In: 17th Americas conference on information systems, Detroit, p 6
- Krcmar H (2010) Informationsmanagement, 5th edn. Springer, Heidelberg
- Leimeister JM (2012) Dienstleistungsengineering und -Management. Springer, Heidelberg
- Palumbo S, Lund D, Hamilton G (2011) Embracing consumerization in the enterprise. Research report, Yankee Group
- Quaadgras A, Mohammed I (2011) Harnessing the consumerization of IT. In: MIT Sloan CISR research briefing, pp 1–4
- Seidel B (2011) Integration privater Endgeräte: Mitarbeiter geben der Unternehmens-IT den Takt vor. <http://www.isreport.de/news-esvents/news/archiv/2011/02/04/article/integration-privater-endgeraete-mitarbeiter-geben-der-unternehmens-it-den-takt-vor.html>. Accessed 2012-06-21
- Strategy Analytics (2011) Global business smartphone sales 2010–2016. Research report, Strategy Analytics
- Terryn WC (2011) Consumerization. Fer, Mauritius
- Vogel R, Berger T, Kocoglu T (2010) Desktop-virtualisierung – Definitionen, Architekturen, Business-Nutzen. Vieweg, Wiesbaden