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Mobile Business: Good preconditions on farms

The private and professional use of internet-enabled mobile devices has increased enormously with the advancement of mobile devices and standards. As a result there is new potential for the mobile operating management. This study analyses the current status quo of mobile business on farms in Germany. The focus is on the equipment with internet-enabled mobile devices and the manner of use of these devices. The results suggest that even farms are, in comparison to other industries, quite developed in terms of ownership and use of internet-enabled mobile devices.

Keywords
Mobile Business, application, app, information management, smartphone, agriculture

Abstract
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More than ever, a company's success in business is inseparably linked with information and communication technologies [1]. Besides the technological advances made in mobile devices and ever faster and more competitive broadband services, the latest developments in the field of mobile telephony standards, Long Term Evolution (LTE) for example, open up new possibilities–including for companies in the agricultural and food sector, by enabling them to directly address and thus retain their customer groups [2]. The success of these kinds of business processes is based on a willingness to consider customer requirements for individuality, independence and flexibility [3]. Having mobile access to the Internet via smartphone, tablet PC, etc. holds the greatest potential to comprehensively satisfy these requirements. Companies in all types of industries have realised this and utilise the available options to provide their customers with mobile business applications. Notable examples include the mobile banking offers of financial institutions [4], mobile music platforms of the entertainment industry and mobile ticketing in public transport networks [5].

So far, companies with agricultural businesses as their target market for mobile business applications have given these general trends a lukewarm welcome. An example shows that at the time this study was drafted (winter, 2011), only a few (about 50) of the approx. 520,000 to 550,000 applications (apps) available on the market for smartphones and tablet PCs had been developed especially for the requirements of agricultural users. And yet agricultural businesses are precisely the ones who, because of their specific production processes [7], can really benefit from the potential of mobile Internet access (e. g. independent of location). Options such as constant, mobile access to latest price trends or weather data give farmers advantages that they can use in their production processes (e. g. fertilisation, pest management). The survey focussed both on users' general knowledge of mobile business in agriculture, and on reviewing the degree to which businesses were equipped with mobile devices and the extent to which they were being used for operational purposes.

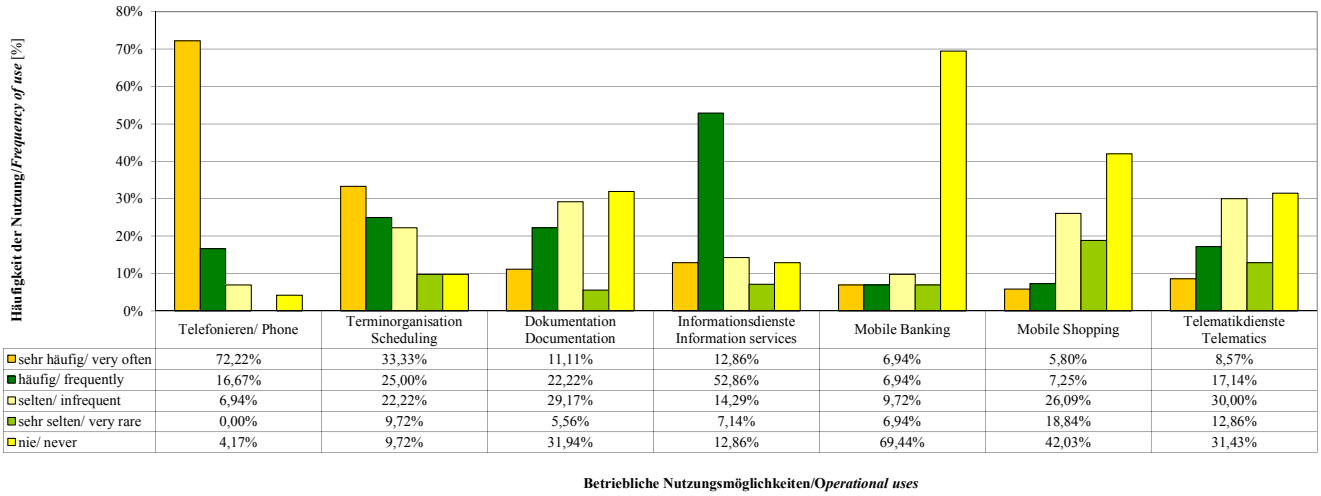
Methodology

The quantitative survey was selected as the data collection method. 1026 agricultural businesses were chosen from the lists of training companies in various public registers. The businesses are located in six federal states: Baden-Württemberg (471 businesses) and Rhineland-Palatinate (66 businesses) from South Germany, Lower Saxony (26 businesses) and North Rhine-Westphalia (134 businesses) from North West Germany, and Brandenburg (245 businesses) and Thuringia (84 businesses) from East Germany. The study also took into account different business structures (e. g. organic/conventional, farming/animal husbandry).

The questionnaire was developed to contain primarily closed questions, and was made available online to the surveyed businesses. The survey was conducted between 14 March 2012 and 28 March 2012. A total of 135 businesses took part in the survey, which is a response rate of 13 %. Usually an average response rate of 2 % to 5 % is expected when using thus survey method [8].

In light of this, the response rate achieved can be considered high. An analysis of demographic parameters leads one to conclude that the surveyed group constitutes a sufficiently representative cross section of the predominant make-up of German agriculture.

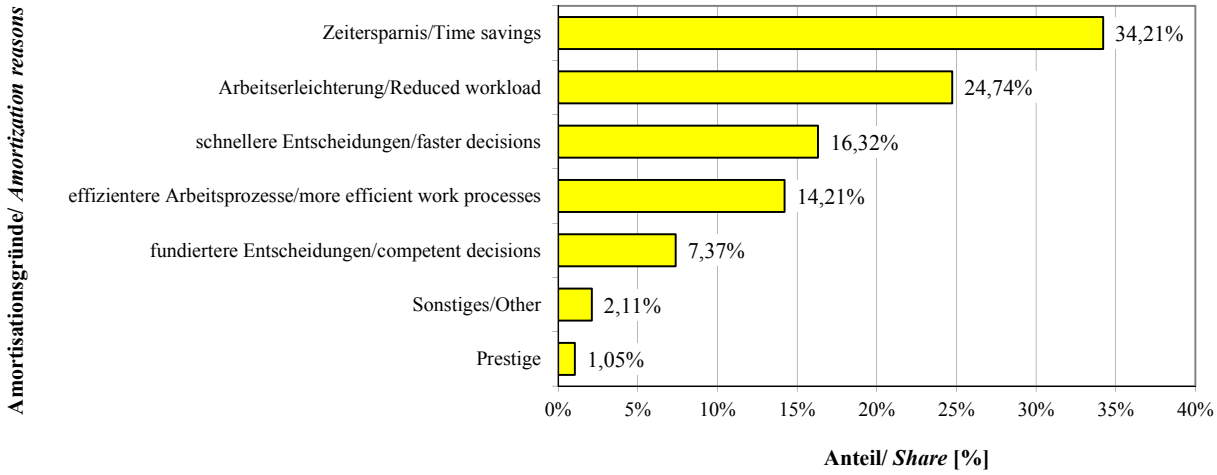
Fig. 1



	Telefonieren/ Phone	Terminorganisation Scheduling	Dokumentation Documentation	Informationsdienste Information services	Mobile Banking	Mobile Shopping	Telematikdienste Telematics
sehr häufig/ very often	72,22%	33,33%	11,11%	12,86%	6,94%	5,80%	8,57%
häufig/ frequently	16,67%	25,00%	22,22%	52,86%	6,94%	7,25%	17,14%
selten/ infrequent	6,94%	22,22%	29,17%	14,29%	9,72%	26,09%	30,00%
sehr selten/ very rare	0,00%	9,72%	5,56%	7,14%	6,94%	18,84%	12,86%
nie/ never	4,17%	9,72%	31,94%	12,86%	69,44%	42,03%	31,43%

Manner of use of professional used internet-enabled mobile devices (in %) – Phone n = 72, Scheduling n = 72, Documentation n = 72, Information services n = 70, Mobile Banking n = 72, Mobile Shopping n = 69, Telematics n = 70

Fig. 2



Reasons for an amortization of professional used internet-enabled mobile devices, n = 72, number of mentions = 190

Distribution of mobile devices

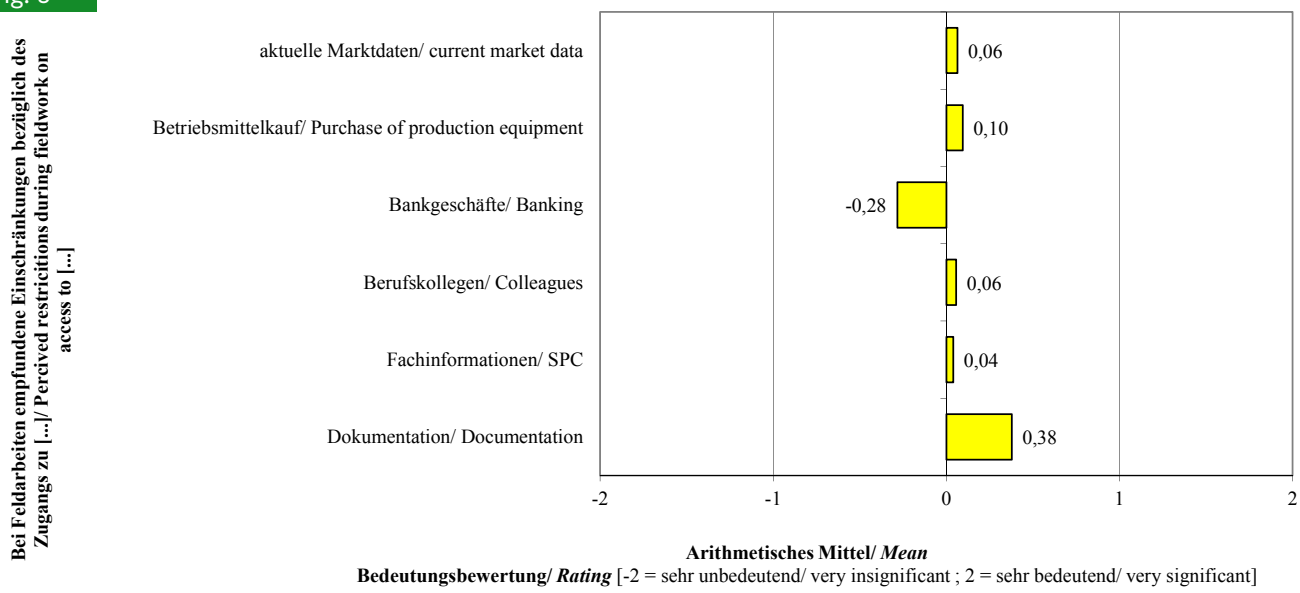
The results of the survey show that two thirds (64 %) of the respondents (n = 135) already know the term Mobile Business. The use of mobile business applications requires that mobile devices are available. 60 % (76 respondents) of the 126 participants who answered this question said they have a mobile device. 50 participants (40 %) answered "No" to the question. It could also be determined that the 76 businesses which said that they possessed Internet capable mobile devices held a total of 128 mobile devices. This corresponds to 1.68 devices per business. The great majority consists of smartphones (47 %). However, tablet PCs with are represented with 16 devices (13 %), as well as Internet capable pocket computers (11 %) and Internet capable mobile phones (28 %).

This survey also included the quality of mobile phone reception. Its average assessment is "mediocre to good". A reason for this might be low quality network coverage in some rural areas in Germany. Nonetheless, it can be said that the technical requirements for mobile business in agricultural businesses are largely fulfilled.

Range of uses

The utilisation of mobile devices for operational purposes was of particular interest in this study. In order to differentiate between personal and operational use, all participants in the survey who had stated they owned an Internet capable mobile device were asked about their usage habits. The distribution of the results across the three response categories "only op-

Fig. 3



Importance of restrictions in various operational processes due to field operation – Documentation n = 127, SPC n = 126, Colleagues n = 122, Banking n = 124, Purchase of production equipment n = 126, current market data n = 126

erational", "operational and personal" and "only personal" are clear. An analysis of the data showed strikingly that

- 97 % of the owners of an Internet capable mobile device also used it for operational purposes, at least partially, and that
- 12 % of the relevant target group use their devices solely for operational purposes.

Influenced by the positive experiences they had made in day-to-day life so far, 49 % (35 respondents) of those who use their Internet capable mobile device for operational purposes, at least partially, intend to purchase additional Internet capable devices for operational use. In addition to telephoning, among operational users of mobile telephony the most frequent reasons for using mobile devices were mobile scheduling and mobile information services (**Figure 1**). So far the mobile telephone is not used as much for documentation purposes or telematics services. It is striking that farmers rarely or never use mobile banking and shopping applications. Summarising, one can say that a large number of farmers use mobile business operationally for different applications and in varying intensity.

Amortisation of Internet capable mobile devices

For mobile devices to be used in an operational environment, above all they must add value to operations. Whereas mobile devices are only rarely acquired as status symbols, in most cases they serve to improve operational processes (**Figure 2**). The two major criteria for purchasing mobile devices as stated in this study are timesaving at 34 %, and facilitating work at 25 %. The established sequence of reasons for amortisation leads to the conclusion that farmers look primarily to use their limited, and thus valuable, time more efficiently.

Sensitivity regarding operational restrictions

Production in agricultural businesses occurs under specific conditions, meaning work is often performed far from the offices/farm, and thus without a telephone, fax or the Internet immediately available. This may result in restrictions in various operational processes, such as fieldwork, which farmers perceive in varying degrees (**Figure 3**). An analysis of the results shows that all calculated arithmetic means are only slightly in a positive range, some even slightly negative, such as banking. From this it can be deduced that the aforementioned restrictions, which as such could be overcome with mobile business applications, are not deemed severe in practice. However, it should be noted that a slightly positive value can also be interpreted as a latent desire for mobile business applications. Based on the achieved results, the fact that the options to view operational documentation are insufficient is most likely to be identified as a problem area. This results in a field of action which should be looked into urgently. In contrast, the fact that it is not possible to do banking transactions is not deemed a problem.

Willingness to pay

Not all mobile business applications are free, making the willingness to pay charges another important aspect for assessing the potential of mobile business in agricultural operations. Of the respondents who use their Internet capable mobile devices for operations, only 17 % on average pay a fee, such as for mobile documentation. Among those who intend to purchase a mobile device, 91 % are generally willing to pay. It follows that providers must consider that charging fees for mobile business applications is a sensitive issue for agricultural operations.

Conclusions

The study indicates that the causes for the relatively low number of apps available for agricultural purposes are not to be found in a lack of knowledge of mobile business, or operational businesses poorly equipped with Internet capable mobile devices, or a lacking intent to use them for operational purposes. Rather, the results show an underused potential of mobile business in agricultural operations at present. Basic economic requirements such as a high willingness for operational use, technical requirements and acceptance of charges are already met. Therefore potential providers of mobile business applications for agricultural purposes should initiate or redouble their efforts in mobile business. This study highlights existing development needs, particularly in mobile documentation. When doing so, farmers should be asked specifically about their requirements and said requirements taken into account.

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