

Explaining the (non) adoption and use of interactive voice response (IVR) among small and medium-sized enterprises

Caroline Kähr · Martin Steinert

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Abstract Typically, the penetration of interactive voice response systems (IVRs) is described as being very high especially among large companies. The paper at hand discusses the use and adoption rate of such systems among companies, especially among small and medium-sized enterprises (SME). The study conducted shows that the penetration of IVRs is far lower (about 12%) than initially thought. The main reason stated for this low penetration level seems to be the incompatibility of the company's business model with an automated telephone answering system. However, the evaluation of results gave evidence that this reason serves as a pretext only and that the real reason(s) for not adopting an interactive voice response system might be far more complicated and profound. It is supposed that the negative historic perception of automated speech system still prevails and that IVR providers and sellers have failed to communicate the system's progress as well as its benefits and its numerous areas of application.

Keywords Interactive voice response (IVR) · Adoption of information systems (IS) · Small and medium-sized enterprises (SME) · Customer service

1 Introduction

In this paper, we empirically show that contrary to prior assumptions, the adoption rate of interactive voice response systems (IVRs) among small and medium-sized enterprises (SME) is far lower than previously thought. Automated telephone answering systems, known as IVRs, have become a standard application for most big companies. IVRs are interactive recordings that allow a customer to make selections to route them to the specific customer service function that will most likely be able to provide the information they seek (Anton 2000). Using a telephone set, a caller connects to a computer system and enters his or her inputs either via speech recognition or the keys on the keypad (Dual-tone multi frequency, DTMF) and the computer thus produces output using playback of digitized speech (Kloosterman 1994). Even though automatic speech recognition and synthetic speech technology require computing hardware resources, the technology is essentially software based (Oberteuffer 1995).

According to prior studies, the diffusion of touch-tone based IVRs is supposed to have reached a level of 90% among large companies in the US (Frost and Sullivan 2006). In contrast to this study, previous research even claims that already in 1993, nearly 97% of US large firms used IVR to greet incoming phone calls (Communications International 1995). While the adoption rate in the US seems to be at a very high level, it looks like Europe displays much lower values of the penetration of IVRs. As has been stated in a survey conducted in 2005, IVR penetration rate in Europe among contact centres is supposed to be only about 24% (Aspects Communications 2005). However, this data can only be compared to US penetration rate of IVRs in contact centres but this still is, with 43%, almost twice as high as in Europe (ContactBabel 2006). Nevertheless, according to Datamonitor's report 2008, the global investment in IVR

C. Kähr
Chair of Organization and Management, University of Geneva,
Geneva, Switzerland
e-mail: caroline.kaehr@unige.ch

M. Steinert (✉)
International Institute of Management in Technology, University
of Fribourg, Fribourg, Switzerland
e-mail: martin.steinert@unifr.ch

licenses will increase from \$475 million in 2006 to \$845 by 2012 (mainly due the adoption of VoiceXML) (Musico 2008). While the study estimates that the growth in the IVR market is global, some regions such as North America and Europe, the Middle East and Africa will experience a compound annual growth rate (CAGR) of six to nine percent from 2007 to 2012 (Musico 2008).

Given the high level of saturation of the IVR market, the estimates above could appear exaggerated. But it has to be borne in mind that this high numbers don't just represent revenues from new systems but also stem from the ongoing replacement of first generation-products. In addition, interesting opportunities are seen in the less penetrated segment of the small and medium-sized enterprises (SME¹) (Frost and Sullivan 2007).

However, it is common knowledge that small businesses don't follow the same adoption pattern of (new) technologies as do big companies. The adoption of information technology (IT) among SME is determined by decision-maker characteristics, information system (IS) characteristics, organizational characteristics and environmental characteristics (Thong 1999). Other factors that might influence the adoption pattern of SME are owner/manager characteristics, planning orientation and the existence of alliances/networks (McGregor and Gomes 1999). Also, SME are more likely to lack the expertise and time that is requested from top management when implementing IT (Fuller 1996).

IVRs are typically employed in order to service high call volumes and are often used by contact centres, support centres and other information retrieval centres. Today's most popular uses are automated attendant applications, automated call routing (ACI) and information retrieval. More specifically, tasks such as information search, placing orders, making reservations, automatic phone central, conducting surveys, participation TV and raffles can be performed with an IVR application.

The principal reason for adopting an interactive voice response system is enhancing productivity (Oberteuffer 1995). This is mainly due to the fact that waiting times for the customers can be reduced and thus leads to an improvement of customer satisfaction (Valentine 2002). Another contributor to productivity is the decrease of costs since IVRs are cheaper than live operators (Lenning et al. 1995). However, there has been a lot of critique of IVRs mainly that they are not customer friendly and that especially with touch-tone IVRs, the user is confronted with a confusing hierarchy of choices. As a result, IVRs have not proven especially popular with users (Dettmer 2003; Spoken Communications 2006).

¹SME are companies employing less than 249 associates (according to the Swiss Federal Statistical Office, <http://www.admin.bfs.ch>).

During the last couple of years, a lot of companies switched from IVR solutions with the traditional phone to voice over internet protocol (VoIP) IVR solutions where the voice communication is transformed into digital data and is then delivered over internet protocol (IP) networks. This switch proves especially valuable for companies that have to make long-distance calls and for firms needing to combine phone calls with email through so called unified messaging (Sullivan 2007). In addition, VoIP allows companies to reduce monthly call costs up to 60% thereby representing an advantage not only for big companies but especially for SME being very cost conscious (Pasha 2002).

As stated by various companies and research reports, IVR seems to be a widely adopted application for service companies in the US as well as in Europe. Especially in Switzerland, where not only one national language is spoken but three (German, French and Italian),² the use of IVR is highly expected as the calls need to be distributed according to the caller's language. Nevertheless, the fact that many customers complain about IVR somehow questions the popularity of automated telephone answering systems. Also, SME tend to refrain to invest in an IVR solution given the often prohibitively high costs of such a system (Datamonitor 2003). It has therefore been doubted by some major Swiss telecommunication firm that the numbers and rates stated previously reflect the actual penetration rate of IVRs. In order to get a better picture of reality, a survey among 940 Swiss companies was conducted. Demographics and other correlates of the adoption rate of IVRs have been sought in order to answer the generated research questions regarding the real numbers of firms employing IVRs and thus the problems associated with automated telephone answering systems.

Based on the literature review above and the discussion with some industry experts from the telecommunication firm mentioned, the following general research questions have been assumed:

- Is the adoption level of IVR really as high as has been previously assumed?
- What are the main reasons that push respectively prevent a company from adopting an IVR solution?
- What needs to be done in order to favor the adoption of IVR technologies?

2 Methodology

In order to find out whether the data discussed in the previous section is consistent with Switzerland and in order

²According to the Swiss Federal Institute of Statistics, the Rhaeto-Romanic (a group of Romance languages spoken in the eastern part of Switzerland and in north eastern Italy) counts as an official language indirectly only.

to answer the three general research questions, a quantitative survey among 940 Swiss companies from August to September 2008 has been conducted. Switzerland's demographic situation regarding company size is quite similar to the one in many other European countries. Also, Switzerland bears many advantages as a test market such as its location in the middle of Europe and its well-educated and affluent population but also its multilingual setting that makes it especially suitable for deploying IVRs since having multiple languages resources available at all times may be very expensive for a company. Furthermore, Switzerland is known to be open to (new) technologies and to have a high demand for quality (Berne Economic Agency Development 2006). Thus, companies may ask for sophisticated IVR solutions, thus assuring that the data gathered on such system yield viable results for IVR suppliers. Moreover, topics such as cost pressures and the need for more efficient processes are on the agenda of every management meeting, just as in any other European country. Most importantly, Switzerland is often regarded as "Europe in Miniature" (Snyder et al. 2006). Therefore, Switzerland might not only be regarded as an excellent test market but also as an example that stands for whole Europe.

2.1 Sample design

The subjects of the survey were 940 Swiss companies based in the German and French part of Switzerland. Companies in the Italian part, the Ticino, have been neglected due to their small number (according to the Swiss Federal Institute of Statistics, only about 5% of Swiss companies are based in the Ticino). As can be seen in Table 1, a disproportionately stratified sample design was chosen due to the first research question that examines the penetration of IVR systems.

Given the rather small sample size, a complex probability sample was chosen in order to maximize the precision of the results and minimize costs (Churchill and Iacobucci 2005). A more obvious approach relating to the sample design might have been to do a proportionately stratified sampling. However, industrial experts suggest applying a disproportionate sampling in order to focus the survey on the company group of greatest interests, in this case the small and medium-sized enterprises. The reason for this focus on SME (includes micro and small companies as well as medium-sized companies) is not only that they represent 99.7% of all Swiss companies³ but also the fact that companies employing more than 250 employees are very likely to use IVR already.

³A pattern that exists in many European countries such as France (99.8%), Italy (99.9%), Germany (99.3%) and UK (99.6%) with an average SME percentage among the European Union (EU) of 99.8% (Schmiemann 2008).

Table 1 Sample design

	Sampling frame		Sample	
	Absolute Number ^a	Percentage	Absolute Number	Percentage
Micro Companies < 9 employees	261,584	87.6%	140	15%
Small Companies 10–49 employees	30,638	10.3%	300	32%
Medium-Sized Companies 50–249 employees	5,472	1.8%	300	32%
SME 1–249 employees	297,694	99.7%	740	79%
Big Companies > 250 employees	1,028	0.3%	200	21%
Total Companies	298,722	100%	940	100%

n = 114

^aAbsolute numbers available at the Swiss Federal Institute of Statistics: <http://www.bfs.admin.ch/bfs/portal/de/index/themen/06/02/blank/key/01/groesse.html>

2.2 Procedure and response rate

In mid August 2008, the questionnaires were mailed by post to the 940 Swiss companies. The participating companies were asked to return the questionnaire within two weeks with the envelope enclosed. The questionnaire⁴ consists of about 28 questions that addressed the following topics:

- demographic questions
- use of IVR (whether it is actually used, planned to be used or currently not used)
- the nature and area of application
- the reasons (internal and external) for the use or not-use of an IVR solution
- experiences with the system
- area of improvement (for those companies that don't use it: what needs to be changed in order to favor an implementation)
- plan for future use (extension, status quo or abolishment)

Within the previously mentioned time slot, 114 of the mailed questionnaires were sent back thus representing a response rate of 12%. Big and medium sized companies hold slightly higher response rates with 18% respectively 19% whereas micro and small companies own lower response rates with 8% respectively 5%.

⁴The questionnaire may be downloaded in its original German and/or French version from <http://iimt.ch/index.php?id=36>.

2.3 Data limitations

Concerns were expressed about possible bias of the sampling frame that was provided by an industrial partner in the Information and Communication Technology (ICT) industry. A potential source of bias is the font of the sample since it represents active customers from the industrial partner. Thus the probability of these companies employing IVR is expected to be slightly higher because as customers of an telecommunication company, by definition, they express their interest in ICT products and services and are therefore more likely to employ IVR than would non-customers be. However, the survey is seen as exploratory and one of its primary goals is not only to find out about the adoption rate but also to provide explanations why the rate is at a determined level.

In 1.5% of the cases, the questionnaires sent didn't reach their destination. Given the low level of this number, it can be neglected. Also, the person filling in the questionnaire might not have been the one intended to so the answer displayed might not entirely reflect the company's IVR situation or the question might not have been answered truthfully by this person. Nevertheless, an effort was made by the data provider to send the questionnaire directly to the person entitled to fill it in, allowing therefore the minimization of the probability of this possible source of bias.

The ability of the survey to measure what was actually purported to measure (Cooper and Schindler 2008), the validity, is only partly given due to the limited sample size. While the internal validity is given, the external validity is restricted as the number of IVR employing companies is rather low so that results can hardly be generalized. However, this does in no way depreciate the results of the survey as it is of explorative nature and no claim for representativeness is made.

3 Results

Even though the survey was not exclusively focused on SME, the presentation and interpretation of the following results will mainly focus on companies employing no more than 250 people as they represent the primary area of interest.⁵ As stated in the introduction, it is strongly doubted that the penetration of IVR is at such a high level with SME.

According to the survey conducted, out of the 114 corporations that returned the questionnaire, only about 12% employ IVRs. As can be seen in Table 2, the adoption rate is highest for big companies followed by medium-sized companies.

⁵For more detailed descriptive results of the master thesis on which this paper is based on, you might contact the authors.

Table 2 Adoption level of IVR

Micro Firms	Small Firms	Medium-sized Firms	SME	Big Firms	Overall
8%	5%	18%	8%	19%	12%
<i>n</i> = 114					

Contrary to general assumptions, the lowest rate of adoption was not found for micro firms but for companies employing between 10 and 49 people. Even so, the overall adoption rate of 12% is extremely low and in stark contrast to the levels mentioned in the first part of the paper at hand.

The average year of introduction of IVRs is 2002 among the respondents. Contrary to studies in the US that name the nineties as the decade of broad introduction of automated telephone answering systems (Oberteuffer 1995), the introduction seems to have taken place much later in Switzerland. Interestingly, only 60% of all companies employing IVR reported that they assume IVR to be a standard in their industry while the remaining 40% thought it to be an emerging technology.

Generally, industries such as telecommunications, financial services, insurance and air travel are being described as early adopters of IVR systems (Valentine 2002). Quite the opposite seems to be the case when looking at the following figure where the industries of the participating companies and their respective level of IVR adoption can be seen.⁶

As shown in Table 3, the adoption of IVR equals zero for a number as high as eight industries (out of 19). This number is extremely elevated and contrary to many assumptions and studies mentioned in the first part of the study at hand. For example, companies offering IT Services being especially affine for a wide range of technologies should dispose of a lot higher adoption rate as displayed in Table 3. On the other hand, transport industry is not generally referred to as an industry that is particularly interested in the use of speech recognition systems. These converse outcomes might be explained by the fact that some industries are represented by a small number of companies only thus giving a limited picture of reality.

Even though over half (54%) of all companies not using IVR have heard of it, only about a 14% have had a detailed look at it. As revealed in Table 4, the popularity of IVR seems extremely low among micro firms and not surprisingly highest for big companies.

It is quite obvious that the popularity of IVR is lowest when a company employs only a very small number of people thus often dealing with a low call volume due to their

⁶Companies were supposed to indicate their industry provenience in the questionnaire. The list of industries in the questionnaire was exhaustive and the companies taking the survey obviously don't cover the whole list of industry proveniences.

Table 3 Adoption level per industry

Industry	IVR Adoption
Manufacturing Food and Kindred Products	0%
Manufacturing Furniture	0%
Wholesale Trade	0%
Public Administration	0%
Eating and Drinking Places	0%
Communications	0%
Construction	0%
Agriculture	0%
Industrial and Commercial Machinery	5%
Insurance	20%
IT Services	20%
Financial Services	20%
Automotive Dealers	25%
Retail Trade	25%
Business Services	33%
Real Estate	50%
Transportation (exclusive of air travel)	100%

n = 114

Table 4 Popularity of IVR

Company Size	Heard of IVR	Studied IVR
0–9 Employees	30%	8%
10–49 Employees	57%	8%
50–249 Employees	47%	18%
SME	48%	12%
Over 250 Employees	69%	19%

n = 114

limited number of customers. Additionally, a small company might not have heard of IVR due to their restricted IT infrastructure that is again given through the company size. Nevertheless, it comes as a big surprise that only about a fifth of all big companies have actually started thinking about IVR and studied its use and its potential areas of application. Even so, the difference between SME and big companies for both categories “heard of IVR” and “studied IVR” is not significant. Despite this, the results in Table 4 confirm the results of the two previous tables and give support for the doubt expressed about the high adoption level of IVR.

The frequencies of the five reasons indicated for not using IVR are shown in Fig. 1. As a matter of fact, the occurrence of the different reasons varies according to the company’s size.

As can be seen from a comparison of the five different reasons, the business model seems to be the primary reason for not using IVR for both SME and big companies. Not sur-

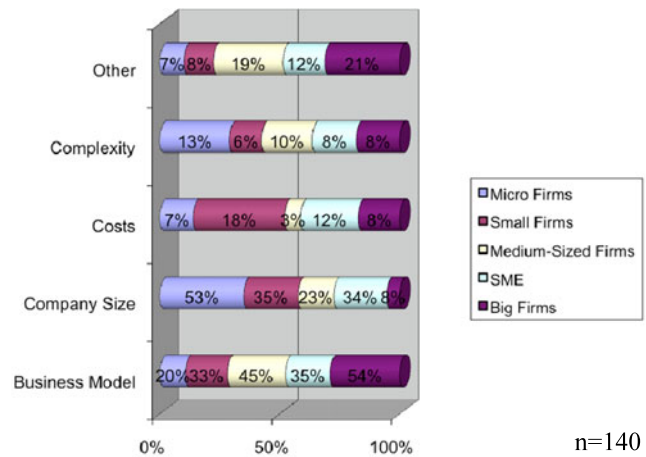


Fig. 1 Reasons for not using IVR

Table 5 Use of IVR and main communication channel

IVR	Phone	Email	Online Form	Correspondence	Visit
Yes	57%	29%	0%	14%	0%
No	40%	27%	4%	7%	7%

n = 114

prisingly, a very high number of SME name their company size to be an obstacle to IVR whereas big companies hardly mention that fact. Cost and complexity reasons obviously play a minor role in the purchase decision. In particular, it would have been expected that SME would state the cost reason much more often as they typically have strong constraints on their IT budget.

Another factor that might influence the adoption level of IVR is the main communication channel used by the company. The following table displays the relationship between the use of IVR and the primary communication channel.

Table 5 shows that the majority of companies name the phone to be their main communication channel. However, the majority of companies employing IVR is much bigger than those of the firms that don’t use IVR. About the same number of companies in both categories, IVR and non IVR, use Email as their primary mean of communication while the online form as well as the visit are only stated by a very small number of companies as their main communication channel. As is the case for the IVR adoption level, the main communication channel depends on the industry and it seems that for the transport industry seeing their customers in person represents the main customer interaction point. On the contrary, customers of the insurance as well as the banking and finance industry primary use the phone to get in contact with the company.

Additionally, companies were asked about the required changes that would favor the implementation of IVRs. As revealed in Fig. 2, the main change requested by almost half of

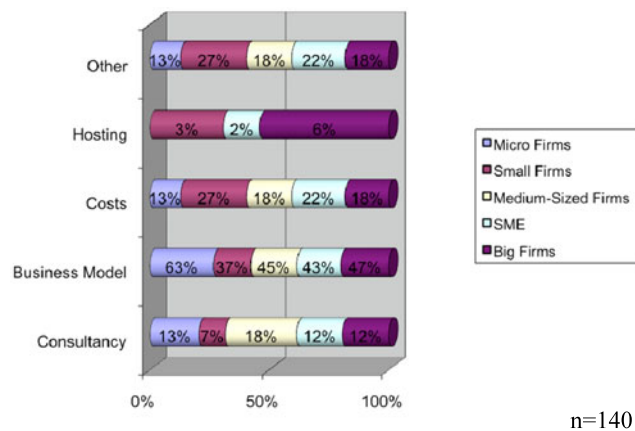


Fig. 2 Requested changes for use of IVR

the companies was their business model followed by some other, not specified reasons and the cost reduction.

Reasons such as the increase of consultancy before and during the adoption of the system as well as the offer to out-source the system did not seem to be of real interest for any of the companies questioned. Rather surprisingly, there appears to be no big difference between the reasons stated by SME and those stated by the big companies. In particular, the offer of a hosted IVR solution was supposed to be a big incentive for SME to start using IVR as no expensive infrastructure is needed in the case of a hosted solution.

4 Discussion and conclusion

The survey reported on in the paper at hand has produced a wealth of data. Nevertheless, its most important result is that contrary to general assumptions, the adoption of IVR systems in Switzerland tends to be extremely low. Only about 12% of the companies report using an automated telephone answering system and the remaining 88% decline its use. Based on this result, the following hypothesis have been assumed:

- H1: The adoption level of IVR is significantly lower than repeatedly stated
- H1a: The adoption level of IVR among large companies is slightly lower than repeatedly stated
- H1b: The adoption level of IVR among SME is significantly lower than repeatedly stated

The adoption level of IVR needs to be tested separately for large companies and SME since their levels are likely to differ greatly. Thus, consistent result might only be drawn by making a difference between the two categories of firms, especially since the majority of companies in EU as well as in the US belong to the second category.

The main reason claimed for not using IVR is that the company's business model wouldn't allow for it. However,

it is strongly suspected that the reason "business model" serves as an excuse for not implementing such a system. This leads to hypothesis number two doubting the verity of this reason:

H2: The reason "Business Model" is used as a pretext only for not adopting IVR

As discussed earlier in the paper at hand, most SME as well as big companies note employing IVR declared that their business model was incompatible with an IVR system. However, it is very probable that this declaration is used as a pretext and that in reality the implementation of IVR has never been thought through properly. Customer processes, especially at SME, are not always soundly defined. As a result, roles and responsibilities in the customer handling process are not clearly assigned. This makes it very difficult for a company to see the need for an IVR solution respectively the optimization of the customer handling process. These so called structural difficulties that comprehend not only the poorly defined customer handling process but also the company size and its organization prevent many SME from using IVRs.

In order to test H2, the term business model has to be defined much more accurately and before testing it among a high number of customers, some qualitative exploratory research might help to grasp real reasons for not using IVR.

IVR is still seen as a technology that is quite the contrary of customer-friendly and that would thus lower customer satisfaction of a company employing it. While this might have been the case for a (too) long time, it is common knowledge nowadays that IVR systems need to be tailored a hundred percent to the customers needs and that they can be used for certain tasks only. When employed properly, IVR does not only reduce operational costs but actually enhances customer satisfaction. This is because an IVR system's primary aim is no more to replace call agents but to distribute the calls more specifically to the call agents and thereby solving the customer's problem more quickly and more efficiently. Especially newer systems that use voice recognition instead of touch-tone flatten the menu structure and make it easier for a customer to get the information needed. According to a Purdue University study, systems using ASR reduce the average call time of an IVR call by 35% when compared to traditional IVR (Valentine 2002). This may provide an important incentive for SME to start thinking about implementing IVR. However, before doing so, they may also reflect on the strategy and resulting structure of their customer handling process. A careful analysis of customer needs in collaboration with an IVR supplier may open the door to the adoption of small-scale but nevertheless cost-saving and customer-friendly automatic speech solutions.

As a result, hypothesis number three states that customer satisfaction with companies employing an IVR is not lower compared to companies not using IVR.

H3: There is no significant negative impact of IVR on customer satisfaction

IVR systems can be used for a large variety of tasks and in many different cases as stated in the introduction of the paper at hand. However, often only the most obvious cases are thought of so that for example an automatic password resetting would not be considered as a possibility for an IVR application. Companies working in industries such as aviation, insurance, banking and many other industries typically have a sophisticated IT infrastructure where IVR is a standard component. However, other companies working in different industries might not sustain the same level of IT infrastructure and thus have never reflected on using an interactive voice response system. It is therefore assumed that there is a significant impact of the sophistication of the IT infrastructure on the adoption level of IVR. Here, companies selling IVR solutions need to consider the scale and complexity of the IT infrastructure of their customer, especially if the customer stems from the SME segment. As stated earlier, many SME still think that IVR systems are either customer-unfriendly or too complicated for their small business. As a result, they cut off potential adopting discussions before even contemplating on the facts, let alone on the advantages, of such a system.

H4: There is a significant positive effect of a sophisticated IT infrastructure on the adoption level of IVR

The finding that 99% of all the companies currently not employing IVR won't implement it within the next twelve months as well as the fact that the business model needed to change in order to make the use of IVR possible give support for hypothesis number five.

H5: Provider of IVR solutions fail to educate potential customers to eliminate historic negative perception of IVR and thus fail to communicate progress and improvements of IVR systems

It seems that even though a vast offer of IVR solutions, applications and servers exists, there is still a high number of companies reluctant to implement IVR due to past failure. Apparently, the news about the systems' progress and improvements as well as new areas of application didn't reach all companies. In fact, some companies (about 46% according to the survey conducted) haven't even heard of IVR. This number is even higher for SME and since only about 12% of SME have actually studied IVR, it seems that it has never come to their mind to use it. There is a possibility that this lack of awareness might be due to the IT infrastructure (tested in H4) but it is more likely the result of a neglect of IVR providers to change the historic negative perception of IVR solutions.

As stated previously, it is the provider's task to implement a system that is appropriate to satisfy the customer's

needs. This can be done by installing a customer-optimized system that will ensure a high level of customer satisfaction. However, this won't prove easy as IVR providers and vendors still compete with one another and the installation of customer-tailored systems is rather expensive. Therefore, it might be beneficial for IVR sellers and providers to collaborate with other companies in order to decrease costs and in order to grow the market.

H6: Collaboration among IVR vendors and providers helps reducing costs and growing the market

Introducing IVR together with VoIP might be even more cost effective than implementing IVR on its own. A collaboration of IVR sellers with IP providers may not only result in reducing the cost of installing a customer-optimized system but might actually make the difference in the customer's buying decision by offering even more benefits than one solution on its own. It is very likely that such an approach is greeted by SME as they get one solution from one company and there will be no more need to get every single component from different providers. In addition, such an approach might be the right way to help overcoming the prevailing negative perception of IVR systems and this definitively is the main issue that needs to be worked on. Once SME actually start liking automated telephone answering systems and given that there are some SME-friendly solutions on the market that are not too expensive, the penetration of IVR is very likely to grow. In addition, IVR sellers need to replace all current mass-market IVRs as they are very detrimental to the perception of current IVR systems. Many IVR users of such outdated solutions have the idea of troublesome response systems in mind and it is no secret that such a negative impression will not only spread but is also very likely to stick (Chase and Dasu 2001). In sum, IVR suppliers should focus their marketing resources not only on restoring the image of IVR systems but also on promoting the exchange of obsolete systems with new, customized and user-friendly solutions. By doing so, they may not only change the overall negative perception but also approach new customers who have never heard or thought about IVRs before.

However, measures need to be taken not only by IVR vendors but also by the potential customers, since it may be very dangerous for SME to ignore the development of automatic speech systems and new IT solutions in general. Cost pressure, the need for efficient but nevertheless quality-guaranteeing processes as well as the rapidly changing industry dynamics require companies to constantly keep up with current development and trends. Moreover, companies, SME included, need to become learners by nature and try to adapt to change. It is no secret that most people, and thus firms as well, find it not easy adapting to change, especially constant change (Kotter and Rathgeber 2006). However, the failure of staying informed about today's technological developments may result in obsolete and suboptimal systems

and processes, ultimately leading to a loss in competitive advantage.

The main purpose of the paper at hand has been to investigate the adoption of IVR among SME companies. Even though IVR systems seem to be considered as a standard among many companies and even though various surveys conducted report a very high adoption level of such systems, the majority of Swiss SME companies doesn't employ IVRs. The adoption level is not only low with SME but also with large companies. Also the main reason stated for not implementing IVR is strongly suspected to be a pretext only.

In addition, the perception that IVR has a negative impact seems to prevail among many companies and firms offering IVR solutions have failed to overcome this obstacle yet. It would seem, therefore, that further investigations are needed in order to find the real reasons for not adopting IVR and thus testing whether companies still think negatively of automated telephone answering systems.

However exploratory, the survey conducted might offer some insight in the actual adoption and use of IVR among SME. Also, it depicts possible reasons for the low adoption level and thus suggests possible areas for improvement. Due to the explorative character of the study conducted, the five hypothesis assumed in the discussion section above need to be tested with a properly drawn and representative company sample (on a national, European or even worldwide level). Moreover, further research needs to be done in order to understand the adoption process of ICT and IS among SME.

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