Business Insights

TECHNOLOGY

The Voice Business Market Outlook

Key Technologies and Emerging Market Opportunities

By Gary Eastwood

Gary Eastwood

Gary Eastwood is an experienced writer and editor on business and IT issues, contributing too many of the leading IT publications and magazines. As well as holding senior positions on a number of IT trade publications, he has worked with companies such as UK Department of Trade & Industry, Confederation of British Industry, Microsoft, IBM, CSC, Oracle and Intel on a variety of marketing communications projects.

Table of Contents

The Voice Business Outlook: Key Technologies and Emerging Market Opportunities

Chapter 4   Voice business market overview: EMEA   68

Chapter 5   Voice business market overview: North America   98

Chapter 6   Voice business: Vertical market overview   116

List of Figures

List of Tables

x

Executive Summary

Executive Summary

The voice business value chain

By 2008, the global voice business market will be worth $3.1bn, with increasing growth rates through 2007, at which point growth rates will begin to stabilize and fall off as the market matures.

While the platform market as a whole will continue to grow, it will have the lowest CAGR for 2004-2008 of any value chain segment.

Speech recognition and text-to-speech engines will account for the lion's share of revenues within the segment, although voice authentication will increase in prominence, through 2005 and onwards.

The applications segment is expected to become the biggest portion of the voice business pie by 2008, representing 32% of total revenues.

Voice business services will be one of the fastest growing value chain segments through 2008, with a CAGR of 35%.

Voice transactions market

The growing number of customer success stories and benchmarks has helped convince more businesses that speech is a viable business solution that provides measurable ROI benefits.

In 2004, there were 947,000 installed base IVR ports in the North American hosted IVR market. Of this figure, traditional IVR accounted for 85.3%, or 808,000 ports, while Voice-XML accounted for 14.7%, or 139,000 ports.

At the end of 2004, revenues from the hosted and premise-based managed IVR market in North America were just north of $1.9bn.

As a result of its large IVR footprint, traditional IVR accounted for the majority, or 78.2%, of revenues. Voice-XML accounted for 21.8% of revenues.

By 2009, revenues from the hosted IVR market in North America will reach approximately $2.3bn at a CAGR of 3.4%.

Revenues for Voice-XML ports will more than double from $422m to $929m at a strong CAGR of 17.1%.

Hosted and managed voice services in North America

The growing number of customer success stories and benchmarks has helped convince more businesses that speech is a viable business solution that provides measurable ROI benefits.

In 2004, there were 947,000 installed base IVR ports in the North American hosted IVR market. Of this figure, traditional IVR accounted for 85.3%, or 808,000 ports, while Voice-XML accounted for 14.7%, or 139,000 ports.

At the end of 2004, revenues from the hosted and premise-based managed IVR market in North America were just north of $1.9bn.

As a result of its large IVR footprint, traditional IVR accounted for the majority, or 78.2%, of revenues. Voice-XML accounted for 21.8% of revenues.

By 2009, revenues from the hosted IVR market in North America will reach approximately $2.3bn at a CAGR of 3.4%.

Revenues for Voice-XML ports will more than double from $422m to $929m at a strong CAGR of 17.1%.

Voice business market overview: EMEA

EMEA voice business revenues will expand through 2008, from $350m in 2004 to approximately $1bn by 2008.

The United Kingdom (UK) is a leading market for voice business sophistication in EMEA. Many companies across a wide-range of verticals have adopted voice as a means of lowering overhead costs and enhancing customer satisfaction.

German voice revenues will rise from nearly $86.1m in 2004 to approximately $247m by 2008.

Voice business will grow steadily in the Netherlands between 2004 and 2008, from $29.1m in 2004 to $86m by 2008.

French voice business expansion will be rapid through to end 2005, at which point annual growth will plateau at about 33%, and stay there until 2007-2008, when it will drop to just under 25%.

Italy is proving to be a very strong market for voice services. All verticals seem interested in using speech to facilitate customer care, and Italian end-users appear keen to take advantage of the improved quality and speed by which transactions can be undertaken.

Voice business in Spain will grow from 28.7m in 2004 to $85.6m by 2007.

The Nordics voice business market will reach maturity in 2006, and as a result margins will begin tapering off.

Voice penetration will be somewhat limited in South Africa, due in part to a small market, coupled with very low contact center agent costs.

Voice business revenues in Eastern Europe will grow from $4.2m in 2004 to $9.4m in 2008.

Voice business market overview: North America

As one of the earliest adopter of speech recognition, North America remains the largest global market for speech technology and services.

North American spending on speech technology will grow to roughly $1.2bn by the end of 2008 at a CAGR of 25% between 2004 and 2008.

As the largest voice business market in the world, the US accounts for 43.4% of the global market revenues, growing from $440m in 2004 to over $1bn by 2008 at a CAGR of 24.3%.

Speech penetration in the US market is primarily for call center automation. As the largest call center market in the world the US has over 50,000 call centers and 2,840,000 agent positions.

A growing number of solution providers are introducing packaged application suites for vertical markets such as retail banking, utilities and healthcare, while platform vendors are focusing primarily on horizontal packaged applications such as auto-attendant, bill pay, address capture and pin/password reset.

Financial services institutions in the US have invested heavily in speech technology in efforts to reduce costs and improve customer service through increased automation.

Canadian voice business revenues will rise from $41m in 2004 to roughly $135m in 2008.

The Canadian market is expected to exhibit strong growth in 2006 and 2007 as the market awareness of the business benefits of speech technology are more widely recognized by newer vertical markets and early adopter verticals deploy across other areas in the enterprise.

Voice business market: Vertical overview

Travel and tourism investment in EMEA will increase steadily through 2006, after which it will slow as this technology becomes increasingly mature within this vertical market. But the market will still reach just under $45m by 2007.

Growth in US travel and tourism will be most aggressive during 2005, tapering off after that.

Aggregated, voice business revenues in North American government are expected to rise from just under $11m in 2003 to nearly $27m at the end of 2007.

EMEA's public sector spend on voice solutions will grow from just over $10m in 2004 to $23m by the end of 2007.

Voice solutions in the North American healthcare and pharma vertical will grow at a significant CAGR of 37.4% to represent over $24m of enterprise voice revenues in 2007.

The EMEA healthcare and pharmamarket is growing at an exceptional CAGR of 44.3%, albeit slightly smaller in revenue share than the NA market at approximately $22m in 2007.

CHAPTER 1

The voice business value chain

Chapter 1   The voice business value chain

Summary

❑ By 2008, the global voice business market will be worth $3.1bn, with increasing growth rates through 2007, at which point growth rates will begin to stabilize and fall off as the market matures.

❑ While the platform market as a whole will continue to grow, it will have the lowest CAGR for 2004-2008 of any value chain segment.

❑ Speech recognition and text-to-speech engines will account for the lion's share of revenues within the segment, although voice authentication will increase in prominence, through 2005 and onwards.

❑ The applications segment is expected to become the biggest portion of the voice business pie by 2008, representing 32% of total revenues.

❑ Voice business services will be one of the fastest growing value chain segments through 2008, with a CAGR of 35%.

Introduction – what is voice business?

Speech is one of the most natural forms of communication. Advances in speech recognition technology mean that it is commercially viable to use human speech as an interface between users and machines. This opens up a whole new world of opportunity, since the automation advantages that we are seeing the Internet bring, and mobile technology promise, can now be extended to the ubiquitous telephone. Business Insights calls this voice business, and defines voice business as:

The business applications of speech recognition technology across networks and associated technologies.

The voice business value chain

Business Insights defines the value chain for voice business technology and services according to the following segments: platforms, enabling software, applications, and services. Most often these are deployed on a customer premise equipment (CPE) basis. Increasingly, however, a viable hosting alternative is emerging. The relationship between these value chain segments is illustrated graphically in Figure 1.1. In most cases voice business vendors will see their strengths as spanning several segments of the value chain, yet this delineation provides a useful framework for discussing market developments and opportunities.

Figure 1.1: The voice business value chain: technologies and services

Voice business value chain: technology and services

Services
- Consulting
- Systems Integration

Applications
- Packaged
- Customized

Enabling Software
- Speech Recognition
- Voice Authentication
- Text-to-Speech
- Tools

Platforms
- Traditional IVR
- Standards-based
- Browsers

Hosting
- Voice Applications
- Voice Technologies

Source: Business Insights   Business Insights Ltd

Overall market growth

The global supply-side market for voice business technologies and services (excluding revenues from hosting) was worth $1,105m in 2004. This market will grow at a compound annual growth rate (CAGR) of 30% between 2002 and 2008. By 2008, the global voice business market will be worth $3.1bn, with increasing growth rates through 2007, when growth rates will begin to stabilize and fall off as the market matures. Figure 1.2 shows total revenues and the yearly growth rates of the global voice business market.

Figure 1.2: Supply-side voice business value chain revenues and yearly growth, 2003-2008
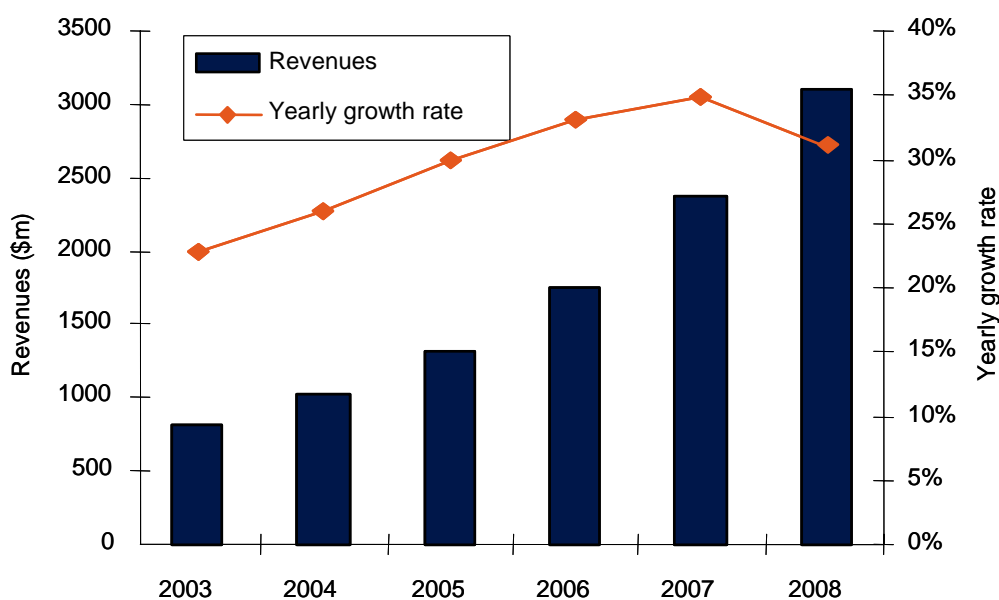
Source: Business Insights   Business Insights Ltd

Table 1.1:   Supply-side voice business value chain revenues and yearly growth, 2003-2008

	2003	2004	2005	2006	2007	2008	CAGR
Total revenue ($m)	806	1,015	1,319	1,754	2,367	3,100	30%
Annual growth (%)	23	26	30	33	35	31	

Source: Business Insights   Business Insights Ltd

The value shift

The value chain represents the key technology and services components that comprise a voice solution. As the market, the segments of the value chain will grow at different rates. A shift in value within the value chain, towards applications and services and away from platforms and enabling software, is typical of a new technology market. Over time, the technologies that gave birth to the voice business industry will become more commonplace and commoditized. Increasingly, it is the skilled utilization of these technologies (i.e. in the applications and services segments) that generates business value. Enabling software providers have generated relatively flat license revenues over the past two years, and have already begun to move more aggressively to other segments of the value chain. This is a sign that the industry is maturing, and is encouraged that vendors are nimble enough to evolve in a tight economy. Moreover, there will be continued vendor movements throughout the value chain through 2008. Figure 1.3 depicts this shift between 2001 and 2008.

Figure 1.3: Voice business value shifts by subsegment, 2001-2008

Source: Business Insights

Business Insights Ltd
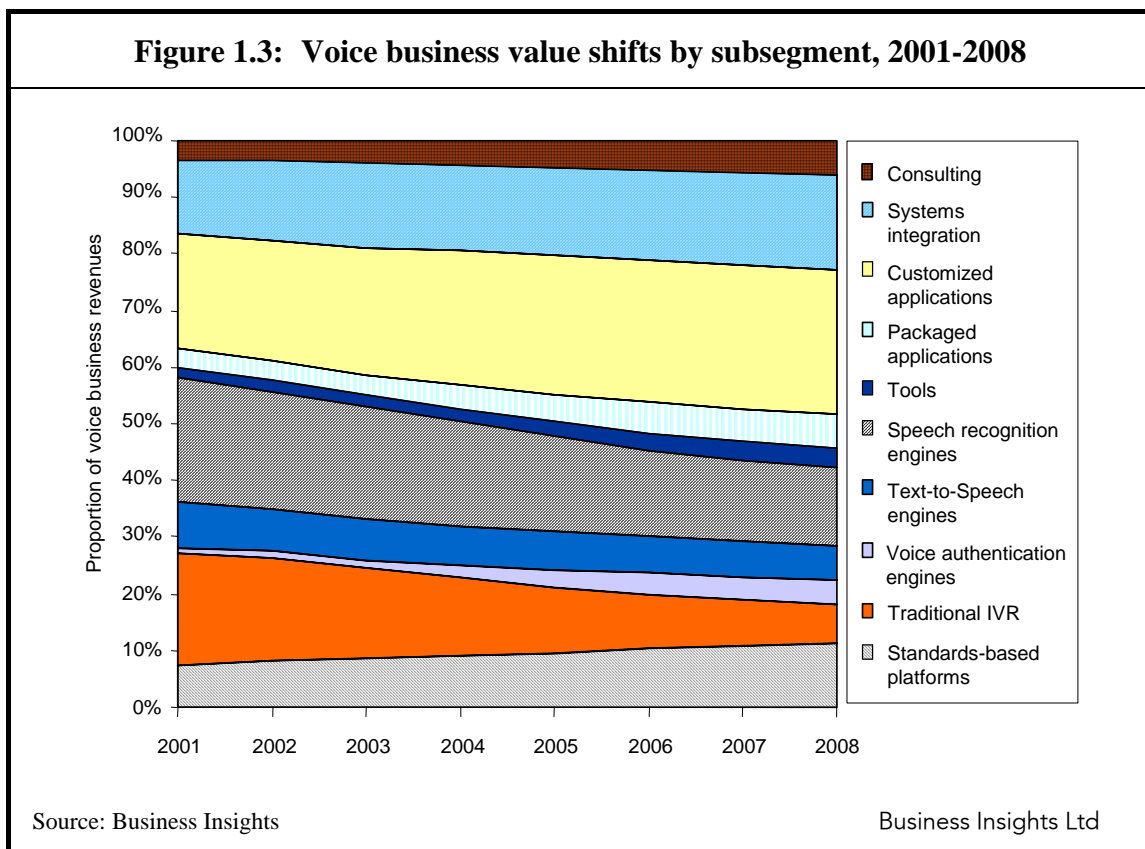
Value chain trends

Platforms

While the platform market as a whole will continue to grow, it will have the lowest CAGR for 2005-2008 of any value chain segment. It is important to distinguish between traditional telephony IVR platforms that operate in proprietary languages, and standards-based platforms, many of which take advantage of existing web infrastructure and intelligence. Growth in the traditional IVR subsegment will be the slowest in the industry with a CAGR of 10%, though in contrast, standards-based platforms will continue to grow at a much higher CAGR of 36%. The discrepancy in growth rates is in part due to the limited current revenue levels of standards-based platforms. However, this growth is also due to the significant expected increase in uptake of standards-based platforms (relative to traditional IVR) over the next five years.

Enabling software

The enabling software market continues to constitute the largest share of the voice business market in terms of revenue. Speech recognition and text-to-speech engines will account for the lion's share of revenues within the segment, although voice authentication will increase in prominence, through 2005 and onwards.

While there will be an overall healthy CAGR of 27% in this segment, the voice authentication and tools markets are primed to grow at a more rapid pace. For the former, low current penetration rates, coupled with significant potential usage, prime this market to grow at a CAGR of 61% from 2004 to 2008. As customers take on a more active role in managing and implementing (with regard to packaged applications) their own speech solutions, the tools market will experience rapid growth as well. The tools market will grow at a CAGR of 44%. Overall, license prices are expected to fall for ASR and TTS engines during the next 18 months, as a result of pressure from new entrants, as well as the long-term trend towards commoditization of speech engines.

Applications

The applications segment is expected to become the biggest portion of the voice business pie by 2008, representing 32% of total revenues. This segment will attract growing interest from players currently focused on other aspects of speech solutions, and many of them, such as SpeechWorks, Intervoice, and Syntellect, are already trying to expand their reach into the applications space.

While the customized applications subsegment will continue to grow at a healthy CAGR of 33%, there will be a surge in the "packaged" applications subsegment, with a CAGR of 43%. This will be facilitated in part by the proliferation of templates and reusable components. The majority of what we refer to as "packaged" applications will follow the 80-20 rule, with 80% consisting of pre-built components and 20% customized to each particular client. As the use of pre-made components increases, the perceived split between packaged and customized applications will in reality become more of a sliding scale from one to the other.

Services

Voice business services will be one of the fastest growing value chain segments through 2008, with a CAGR (2002-2008) of 35%. Systems integration constituted 80% of the services segment in 2002, although consulting revenues are expected to grow at a quicker pace through 2008. Large SIs still remain largely under the radar, but have begun to ramp up their investment in speech expertise and involvement in speech deals. Large systems integrators are inherently well positioned to accelerate growth of the voice business market overall, due to their strong brand, existing relationships with large enterprises, and experience with large-scale multi-channel projects. Smaller systems integrators and consulting companies will also experience growth, and the most successful will be those that focus on niche verticals or solutions.

Customer focus

The Americas will remain the largest market through 2008. Though it will grow at a CAGR of 26%, The Americas are likely to represent a gradually decreasing proportion of the market. Meanwhile the Asia Pacific market is set to grow at a CAGR of 41%, almost doubling as a proportion of the global market in terms of revenue. Europe is expected to remain roughly one third of the global market in terms of revenues during this period. Since many enabling software vendors are US-based, the language component of voice technology makes global expansion especially challenging. As such, vendors as well as enterprises are watching both adoption rates and localizing of speech technologies closely. Vendors must carefully weigh the economic revenue potential of new markets with the costs of the R&D associated with developing new language expertise. As a result, local vendors will be critical to success in new markets.

The Telecommunication, Financial Services and Outsourcing verticals will continue to be early adopters of new voice technologies. Strong short-term growth is also expected in the Healthcare & Pharma, Retail and Travel & Tourism verticals. Voice business vendors have the opportunity to solidify customer relationships in three ways:

Educating the customer;

Using meaningful metrics;

Viewing customers as long-term partners.

In the larger competitive landscape, the increasing prominence of large systems integrators will force some vendors to hand over a degree of customer ownership. SIs will have an important role to play in the voice business market, and recommends that vendors forge partnerships with such SIs in the short term.

Competitive dynamics

The competitive landscape of the voice business market is evolving rapidly, as vendors contend with issues of increasing commoditization, the move to standards, accelerating M&A activity, and the entrance of new players. The move to standards should foster a community that is based more on partnerships and less on proprietary alliances. Of particular importance is the push that large systems integrators and technology vendors like Microsoft, IBM, and Sun will make into the market over the next two years. Their increasing prominence will cause a change in the voice business community, in both competitive structure and prominence of the voice business industry in general. Vendors must watch carefully for the signs of downward pricing pressure, and also determine their partnership strategy with these new players.

The future market

There are the following key trends in the voice business value market:

Interchangeable building blocks will comprise the voice business stack;

Platforms and enabling software will become increasingly commoditized over time;

Players from outside of the existing voice business industry will dominate the market;

Consolidation in the speech engine market will create a cartel system;

Pseudo-Natural Language Understanding will become widespread;

Investment in multimodality will continue in the short term, but adoption will not be widespread in the medium term;

Customer demand will diverge, with the desire for large multi-year and multi-channel projects on one hand, and small, quick, easy to deploy solutions on the other.

Strategic recommendations

Enterprises

Enterprises must recognize that speech solutions are part of a larger customer care strategy.

Enterprises must press for a migration path to standards that best suits their budget and long-term plan.

Enterprises should view voice business vendors as partners rather than purveyors of technology.

Telcos

Telcos must move more quickly into the outsourcing and reseller space.

Telcos should use speech technology as a basis for a new suite of premium consumer services.

Platform providers

Traditional IVR platform providers need to support the move to standards, while emphasizing their inherent differentiators.

Platform providers should develop additional robust lines of business in other segments of the value chain.

Enabling software providers

Enabling software providers must embrace larger technology vendors who wish to provide thought leadership going forward.

Enabling software providers should prepare for inevitable price erosion.

TTS providers should invest more in language coverage than in developing off-the-shelf new personas for existing languages.

Enabling software providers must be more honest about their NLU capabilities or risk falling short of customer and end-user expectations.

Application developers

Application developers should package their expertise.

Application developers must devise ways to satisfy customers who wish to bring expertise in-house over time.

Application developers should develop vertical specialization, particularly in their product positioning and marketing.

Systems integrators

Large systems integrators must begin developing their partner portfolio of voice business vendors.

Small systems integrators must establish themselves in niche verticals in order to survive.

CHAPTER 2

Voice transactions market

Chapter 2   Voice transactions market

Summary

❑ Global investment in this voice transactional technology will expand $79.2m in 2004 to almost $380m by 2008, at a compounded annual growth rate between 2003 and 2008 (CAGR) of 47%.

❑ Annual investment growth will crest by 2007, at 50.1%, and then drop slightly as the market for voice transactional technology matures.

❑ Voice transactions in North America are set to grow from $37.6m in 2004 to over $150m in 2008.

❑ EMEA voice transaction revenues will grow from $28m in 2004 to $128m by 2008, at a CAGR of 46%.

❑ APAC transactional voice investment will grow from $11.1m in 2004 to $77m, at a rapid CAGR of 61%.

❑ Voice authentication will accelerate between 2003 and 2007 at a CAGR of nearly 110%. However, it is important to note that this expansion will be from a very small revenue base of less than $10m globally in 2003, and that by 2008 revenues will still be only approximately 10% of total global voice application investment.

❑ North America and EMEA are projected to remain dominant through to 2008 with up to 80% of total transactional voice market share.

Introduction

While voice-enabled transactions are still in commercial infancy, their potential is considerable. If vendors go to market with solid solutions that provide businesses with the capacity to generate revenue over a fully automated telephony network, the scope of electronic commerce will be expanded considerably. However, as with other voice products, the challenges that 'v-Commerce' will have to overcome are considerable.

Definition

Transactional voice solutions can be defined as speech-automated applications that allow end users to conduct a commercial transaction using their own voice with a technology interface over a network. In general, the types of transactions that can be conducted using such a system include:

Purchasing a good or service;   Reservations;

Paying bills;   Investing;

Bank transfers;   Migrating to voice transactions.

Companies that implement transactional voice solutions tend to do so after first having deployed solutions that acclimatize existing customers to voice technology in general. This path is outlined in Figure 2.4, which shows the manner in which most enterprises come to adopt v-Commerce solutions.

Figure 2.4: Path to voice transactions

Contact management → Information provision → Transactional capabilities

Source: Business Insights   Business Insights Ltd
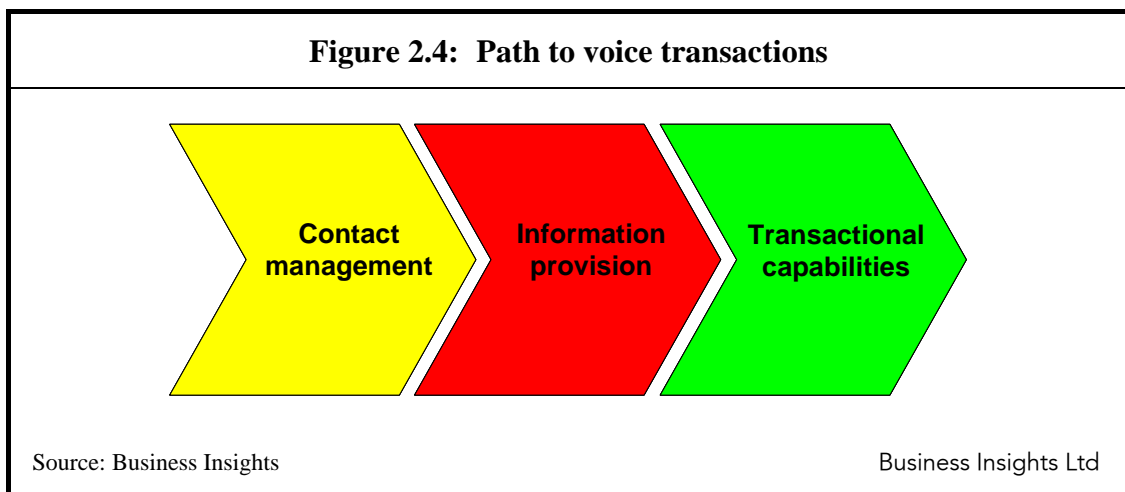
The first step is to deploy contact management applications, which will provide end-users with a glimpse of the potential of voice solutions, and get them comfortable interfacing with the technology. The second step is to implement information solutions, where clients can obtain details and data from an enterprises' portal, using their own voice, as opposed to speaking to an agent or using a keypad. It also provides more exposure to voice for the end-user, in terms of functionality and ease-of-use. The third

and final step is the move to transactional capabilities, where enterprises deploy revenue-driving applications based on voice technology to a customer base that has been steadily convinced of the efficiency and reliability of the technology.

Market overview

Transactional voice solutions are expected to grow rapidly over the coming five years. Specifically, global investment in this technology will expand from $79.2m in 2004 to almost $380m by 2008, at a compounded annual growth rate (CAGR) of 47%. It should also be noted that annual investment growth will crest by 2007, at 50.1%, and then drop slightly as the market for voice transactional technology matures.

Figure 2.5: Voice transactions revenues growth, 2003 - 2008

Source: Business Insights

Business Insights Ltd
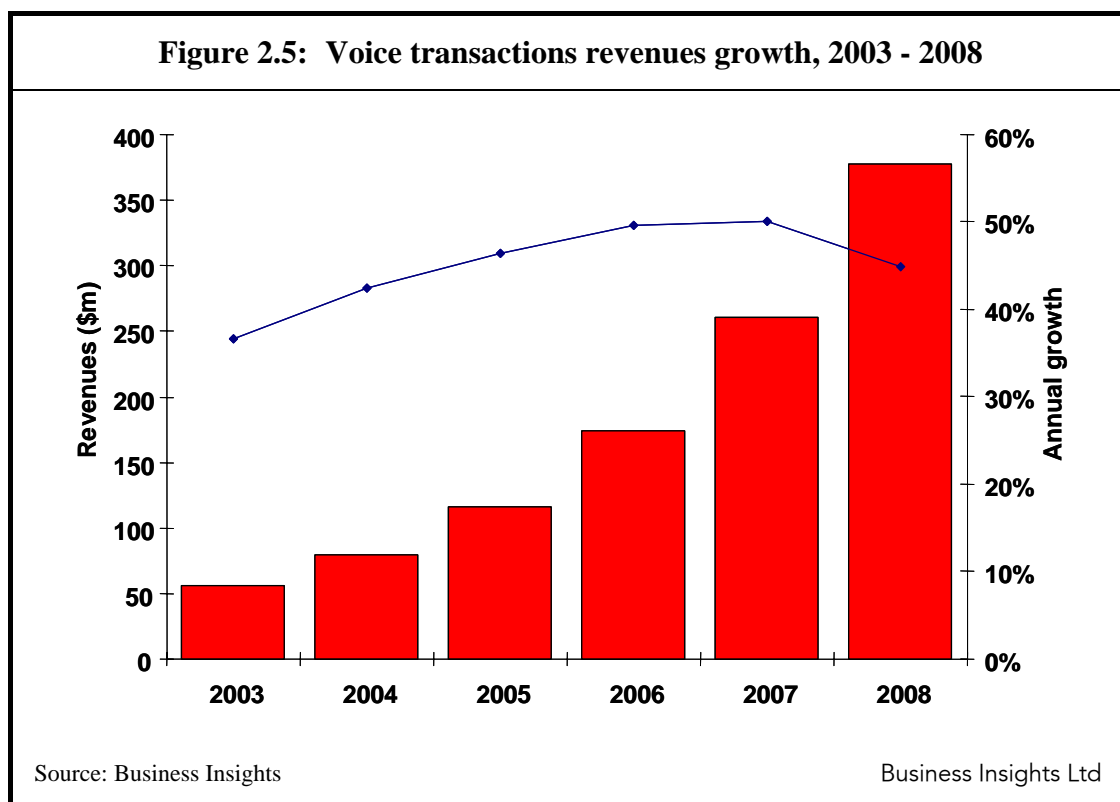
Table 2.2:	Voice transactions revenue growth, 2003 - 2008						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Total revenue ($m)	55.6	79.2	116	173.6	260.5	377.6	47%
Annual growth (%)		42.2	46.5	49.7	50.1	45.0	

Source: Business Insights   Business Insights Ltd

Revenues derived from the sale of transactional solutions as a proportion of all voice business sales will also grow during this five-year period. As seen in Figure 2.6 transactional sales will rise from approximately over 7% of total voice application revenues in 2004 to nearly 13% by 2008. This clearly indicates the popularity this technology is likely to garner as enterprises and consumers become comfortable with using network-based speech transactions as first a means of self-service, then a means for transacting.

Figure 2.6: Transactional solutions as a proportion of total voice application sales, 2003 - 2008

Source: Business Insights   Business Insights Ltd
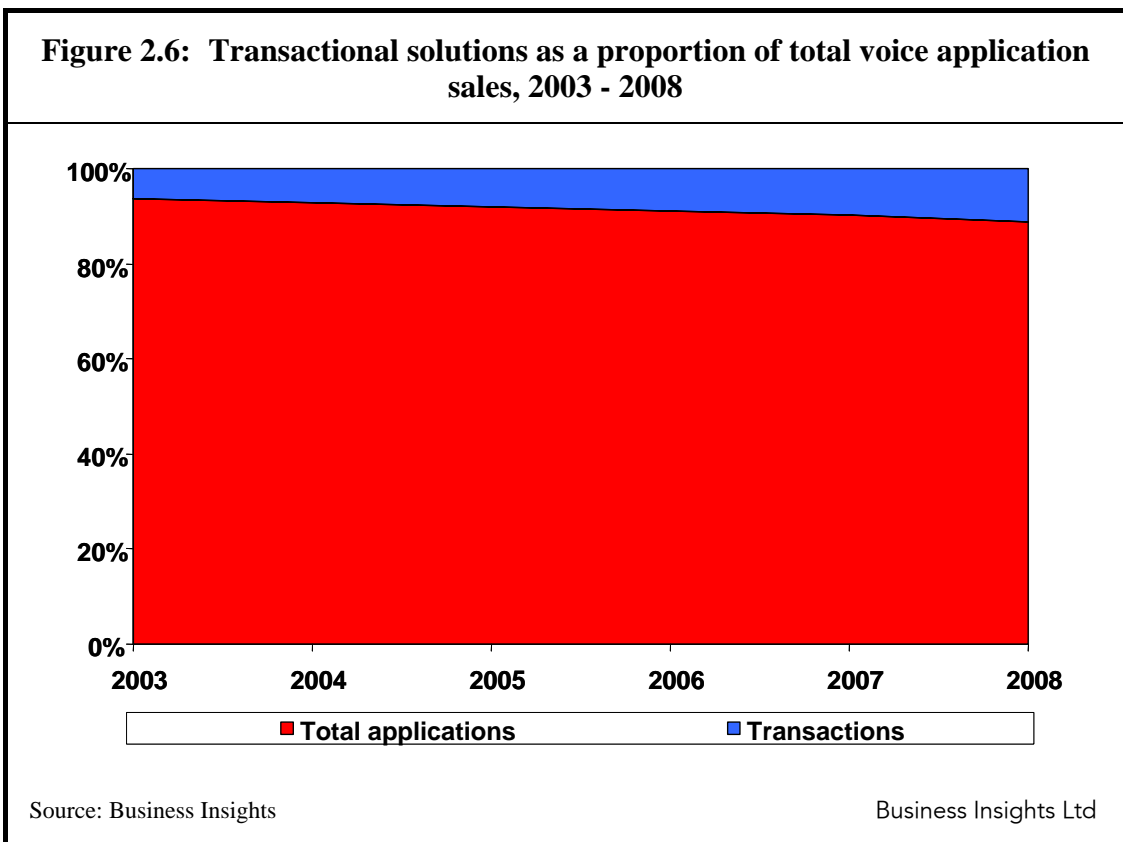
Voice transactions: Key drivers

There are numerous forces behind the projected mass adoption of voice transactional solutions. The following are identified as the principal ones that vendors should be aware of over the coming years.

Call center proliferation: The total number of contact centers has grown significantly in the past two decades, due to an increase in commercial interaction between consumers and businesses. While this has been positive for businesses in terms of a new revenue channel, it has also meant increased overhead costs in terms of facilities and wages. Transactional voice solutions have the potential to alleviate these expenses.

Self-service expansion: The acceptance of self-service among both consumers and enterprises has grown considerably in recent years. Among consumers, self-service is popular because of its capacity to reduce wait times and provide consumers with the ability to undertake business from remote locations, whether it be using voice portals, DTMF-touch tone solutions or on the Internet, via web functionality.

New revenue opportunities: Voice transactions have the potential to provide new income channels for enterprises, while at the same time providing more commercial flexibility. To date, the growth of internet-based 'e-Commerce' has been strong with many computer-literate consumers using websites to buy products and services, as well as account management. However, from the perspective of the telephone, the ability to conduct transactions using self-service has been limited, due to the lack of functionality surrounding DTMF touch-tone to undertake complex transactions. This is solved by voice transactional solutions; using a natural language interface (NLU), consumers can identify the products / services they wish to buy, determine availability and complete the purchase without pressing a key. This option would be especially suitable for consumers that enjoy the convenience of self-service, but who may not have access to a computer or who are not Internet-savvy.

Voice transactions: primary inhibitors

Despite the drivers identified above, vendors should also be conscious of the numerous drawbacks from which voice-enabled transaction technologies suffer. The principal ones include:

Reliability: Similar to all aspects of voice business, a significant problem for transactional solutions relates to speech technology's perceived reliability. This is due to the numerous false starts that have occurred in voice business, where vendors oversold voice products to enterprises, only to find rollout problems and a lack of functionality. As well, vendors also found that the lack of functionality also impacted customer satisfaction, as end-users became frustrated with poor voice-portals. Reliability and quality remain huge obstacles for voice business in general, and ones that must be considered by vendors looking to deploy transactional solutions.

Low priority: For many companies, the priority now is on refreshing existing legacy contact management infrastructure. This is especially true among those firms most likely to be early adopters of speech transaction technologies. It is likely that transactions vendors will not necessarily receive the attention they feel they deserve from target customers whose priorities are an infrastructure refresh.

Cost perceptions: Again, this negative point is typical of any voice solution, but will be one transactional vendors are certain to encounter. In the past, vendors have found that prospects are unwilling to look at voice solutions because of very high perceived implementation costs associated with proprietary solution development and integration. The case has also been made that setting up voice solutions are especially time–consuming as well. This is because in the past, such implementations were associated with periods lasting from 12 to 18 months. Therefore, because of the high degree of technical complexity of transactional solutions, it is likely that vendors will encounter these perceptions, and will need to stress their ability to keep implementation times short and manage costs. Key to this is a strong partnership network with high-quality professional services firms specializing in speech transactions.

Migration pain: Another obstacle that vendors of transactional voice products could face relate to the perceived difficulty of moving existing web-based campaigns and offers to the speech transactions channel. It is unlikely that this will be a huge issue from the standpoint of legacy DTMF self-service options, given their limited scope. However, problems could arise in developing congruent self-service options between websites and voice portals. End-users are certain to want offerings on both channels to be identical. If they are not congruent, the long-term result could be a loss in existing customers. However, this need not be the case, if vendors can explain the ease of migrating to voice transactional solutions, due to the proliferation of VXML open standards, which closely resembles web HTML coding.

Human resources shortage: An area of concern among vendors is the lack of skilled workers needed to develop voice transactional solutions. Many cite the small pool of speech scientists graduating from universities, which is having a number of impacts. For one, the existing labor market has tightened, leading to an increase in developers' and technologists' salaries. This is certain to impact the price of solutions, thus eroding their appeal.

Key transactional applications

The following is a selection of transactional voice applications currently in use. Please note that this list is not exhaustive.

Account management: One of the principal uses of transactional self-service, whether web-based or telephone, has been to pay bills. Vendors and enterprises across verticals have begun using pure speech solutions to facilitate telephone bill payment, as it offers flexibility to mobile users who may not have access to an Internet connection, and has proven to be more 'usable' than DTMF. This is because customers are not encumbered by touch-keys, and can conduct a voice-based transaction significantly faster. The primary verticals currently using this technology include utilities, the public sector, financial services and telcos.

Reservations: Another area where voice transactions are relieving the contact center facility and wage costs relates to making bookings, be it for hotels, automobiles, or

transportation. While the travel and tourism vertical has been the primary adopter of these solutions to date, there is also considerable opportunity in areas of hospitality and entertainment.

Pay-as-you-go: The growth of pay-as-you-go mobile telephones in North America and EMEA has led to some implementations of voice-enabled top-up systems. As opposed to using a DTMF-touch tone solution, pay-as-you-go users can validate credit by using their voice when interacting with a portal, which is significantly more user-friendly, and offers more flexibility than using DTMF or web-based systems that require access to a PC.

Order management: One of the most obvious uses for voice transactions is the ability of a consumer to purchase goods & services, and track the order thereafter. This technology is most prevalent in retail and catalogue ordering, but also has potential in the burgeoning games industry.

Voice authentication

Introduction

Further securing voice-enabled transactions to avoid fraud is crucial to vendors, enterprise investors and end-users. Lately, the possibility of implementing voice authentication technology parallel to transactional solutions has been garnering considerable attention. While there are potential advantages to this approach, there are also several legal and logistical concerns. The following section focuses on voice authentication, and provides a strategic discussion on implementing this technology as a means of furthering 'v-Commerce'.

Market overview

Market size and growth

From the perspective of overall growth, voice authentication will accelerate between at a CAGR of nearly 110%. However, it is important to note that this expansion will be from a very small revenue base of less than $10m globally in 2003, and that by 2008 revenues will still be only approximately 10% of total global voice application investment.

Current uses for voice authentication

Given the infancy of this technology, there are currently relatively few voice authentication deployments in place. However, several applications have been successful, including:

Internal security access: Many firms have begun implementing voice authentication for the purposes of restricting access to sensitive information. To date, most deployments of this nature have been in financial services and the public sector, where information access is tightly regulated.

Password reset: Voice authentication for password reset has reduced the need for IT help desk staff to handle these basic-type queries. Employees' voiceprints are kept on file, and when a reset is required, an automated IT portal verifies the caller's identification, and change the password accordingly.

Corrections: Parole officers in the United States have begun using voice authentication as a means of tracking prisoner movements. As opposed to using the traditional 'lowjack' device, furloughed prisoners are required to telephone a voice portal from a particular number, in order for their biometric print to be verified.

Immigration control: Several countries are looking at the possibility of voice-printing visitors in order to monitor border activity. This would be similar to the thumb-printing and retina-scanning already in process at US customs.

However, despite the fact that all of the above implementations are discussed in the context of applications outside of transactions, some vendors of v-Commerce solutions feel that voice biometrics have the potential to further this commercial technology. The following are the principal drivers for using voice biometrics alongside transactional voice applications:

Accuracy: A definite advantage of biometrics in the realm of voice transactions relates to its purported high level of accuracy. Vendors in this space are quick to point out that voice biometrics carry a confidence level higher than fingerprinting, and on a par with retina scanning. Taking this into account, ideally voice biometrics are a logical substitute (or augmentation) for PIN entry and for securely finalizing transactions.

Added layer of defense: Many voice vendors feel that an excellent application for authentication technology is to use it alongside existing security provisions, such as PIN entry. In this scenario, customers would be required to provide some type of password or personal number, as well as a voice sample to compare against a print on file.

Ease of use: Combined with the previously discussed security advantages, another compelling argument for voice authentication relates to its straightforward nature. Specifically, as opposed to entering PINs or easily-forgotten passwords to proceed with a voice transaction, the caller needs only to speak a prompted word in order for his identification to be verified.

However, there are a number of compelling reasons why voice authentication technology is not necessarily an appropriate application to work alongside transactional speech solutions. Among them, vendors cite the following as the most prominent:

Harvesting: Collecting voice prints from extensive customer bases could prove very challenging for enterprises. Not only are they likely to meet resistance from end-users who are unfamiliar with voice-printing technology, but there is also the logistical issue of how to best capture a biometric. If customers were required to provide their voiceprint at a physical location, such as a department store, this process could be expensive in terms of facilities and qualified labor overhead. Conversely, even if

voiceprints can be reliably captured over a telephony network, the cost of educating end-users could still be an expensive prospect for customers.

Storage: Another problem in using voice authentication with speech transactions relates to the storage of biometric prints. A primary worry relates to the cost of holding up toms of voiceprints on file, in terms of faculties and technology. While it is true that electronic storage costs are rapidly declining as this aspect of technology becomes commoditized, currently, many enterprises are still too cost conscious following the recession to consider such investments they feel will be costly.

Privacy issues: Biometric prints could also face challenges in the area of privacy laws. Similar to DNA, biometric voice prints are unique to each individual, and concerns have been voiced about the security of facilities that store of this type of data, and how it could be misused if it fell into the wrong hands.

Lack of mainstream functionality: There are several compelling implementations of voice authentication currently in use. However, these are not mainstream deployments, and tend to focus on serving B2E needs. Consumer acceptance could be a challenge, as not only are end-users unfamiliar with the technology and its benefits, but educating the general public on voice biometrics could prove to be very costly.

Lack of developers: For transactional voice solutions to leverage the benefits of voice biometrics, more research into the commercial applications of authentication will be necessary. To date, a number of smaller specialists are providing the majority of biometric solutions. This is changing gradually as larger diversified voice players put together authentication specialty teams. But this slow pace of development could translate to a lack of innovation and focus on authentication.

Talk time: Despite its capability to provide very safe transactions, one possible inhibitor of using transactional voice biometrics when implemented beside a PIN entry system relates to the added talk minutes that such applications would require. One of the key selling points of voice solutions are their capacity to reduce the time spent on the telephone, and by adding another layer of security that may not be required could anger callers looking for convenience.

Geographic and competitor profiles

To date, transactional voice solutions have had varied uptake in different parts of the world. Generally, those regions that have been enthusiastic adopters of voice technology have been much more willing to use transactional solutions. Different vendors have taken this into account when developing commercially based applications. This chapter will identify the main voice particularities of each region, as well as the leading players who provide transactional solutions.

Voice transactions in regional perspective

Broken out between regions, the global voice transactions market centers on North American and EMEA investment. Both these markets are projected to remain dominant through to 2008 with up to 80% of total transactional voice market share. However, it is also worth noting that there will be significant gains in the APAC region, where voice transactions are projected to grow in conjunction with regional economic expansion. CALA, while posting a rapid adoption rate of this technology, is still a very small player in the transactional voice market.

Table 2.3:	Voice business revenues by region, 2003 - 2008						
Revenue ($m)	2003	2004	2005	2006	2007	2008	CAGR
North America	27.2	37.6	53.2	76.2	107.5	151.0	41%
Annual growth		38%	42%	43%	41%	40%	
EMEA	19.5	28.0	41.3	62.0	90.9	127.3	46%
Annual growth		44%	48%	50%	47%	40%	
APAC	7.2	11.1	17.4	28.3	49.1	77.1	61%
Annual growth		53%	57%	63%	73%	57%	
CALA	1.7	2.5	4.1	7.1	13.0	22.2	68%
Annual growth		50%	62%	74%	84%	70%	
Total transactions	**55.6**	**79.2**	**116**	**173.6**	**260.5**	**377.6**	**47%**
Annual growth		**42%**	**46%**	**50%**	**50%**	**45%**	

Source: Business Insights   Business Insights Ltd

Figure 2.7: Voice transaction revenue proportions by geography, 2003 - 2008
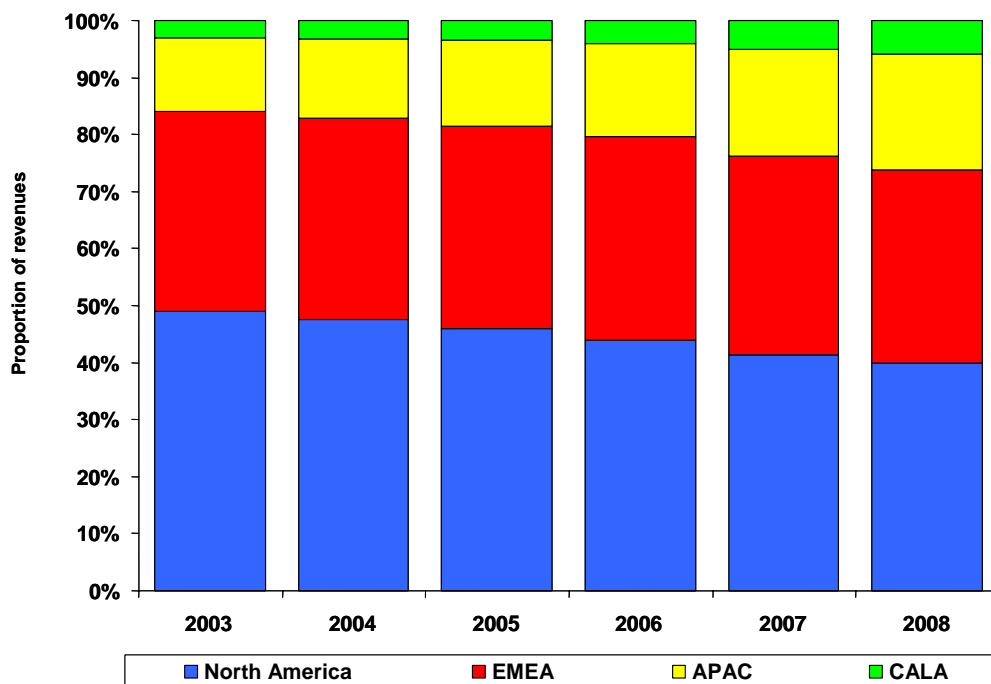
North America

Voice transactions in North America will grow from $37.6m in 2004 to over $150m in 2008. The main drivers of this expansion will be the already strong acceptance of voice solutions from a business and consumer standpoint, which should facilitate the acceptance of using this technology to conduct commerce. Another factor is the projected growth of the North American economy. Also, businesses in the region, which have adopted speech self service to save costs in information management and call steering, appear ready to embrace transactions to generate new revenue streams.

EMEA

EMEA voice transaction revenues will grow from $20m in 2003 and $28m in 2004 to $128m by 2008, at a CAGR of 46%. The key factors behind this expansion include the rapid uptake of overall voice technology among firms in late-adopting markets (including Spain, South Africa and Italy), coupled with the recovering regional

economy, which is fuelling IT and customer satisfaction investment. While end-user and enterprise acceptance of voice technology in Germany and France has been limited of late, this is expected to change as self-service commercial automation becomes a business priority in these recovering economies.

APAC

APAC transactional voice investment will grow from $11.1m in 2004 to $77m in 2008. The majority of this growth will occur within the major and mature economies, including Australia / New Zealand, Japan and Korea, where automation and technology are at the commercial forefront. However, countries where contact center labor is relatively cheap are likely to be late adopters of transactional speech technology.

CALA

The CALA voice transactions market will remain relatively small, growing from $2.5m in 2004 to $23m in 2008. There are generally limited possibilities for voice technology in this region, due to economic instability, a limited consumer class, few speech self-service deployments and inexpensive contact center wages.

Competitor profiling

Table 2.4: Selected transactional voice solution vendors		
Vendor	**Geographic focus**	**Vertical focus**
Apterra	NA, EMEA, APAC	FS, Retail, Utilities, Travel
Edify	NA, EMEA	FS, Retail, Travel
IBM	NA, EMEA, APAC	FS, Telcos
Intervoice	NA, EMEA, APAC	FS, Travel, Retail
Nortel	NA, EMEA, APAC	FS, Retail
Scansoft	NA, EMEA, APAC	Travel, FS, Telcos, Retail
Telisma	NA, EMEA	Banking, Telcos, Ent'nment
Telephonetics	EMEA	Entertainment, Healthcare, FS
VeCommerce	APAC	Gaming, FS, Telcos, Govnmnt
Versay	NA	FS, Utilities, Retail
Voice Objects	NA, EMEA	FS, Telcos

Source: Business Insights   Business Insights Ltd

Table 2.4 shows a selected list of voice technology vendors that provide transactional speech services. Please note that this list is not exhaustive. While there are many voice business firms that are actively pursuing the transactional solutions space, there are a number of market leaders, which include:

VeCommerce: Australia-based VeCommerce has made tremendous strides in voice transactions. Aided in part by a consumer culture that is very accepting of technology, this company has developed innovative transactional solutions for the public sector, retail banking and several small & medium enterprises.

Apptera: This company has done significant work in transactional voice solutions designed for the retail vertical. Their leadership has been demonstrated both in North America and Australia / New Zealand.

ScanSoft: A known market leader in voice business, ScanSoft has shown leadership in the development of transactional solutions for several verticals, particularly financial services.

Intervoice: Intervoice has been developing transactional voice solutions for some time, and is likely to continue its efforts in this area, notably in traditional vertical markets.

Strategic recommendations

Given the immature nature of voice transactions in the context of overall voice applications, it is difficult to provide a generic path that vendors of transactional solutions should follow. However, in the following chapter some general guidelines are established for vendors.

Position as a business solution

A mistake that many vendors have made in the past has been to position voice applications as technology solutions, as opposed to methods of enhancing customer or employee interactions. Vendors of transactional solutions should learn from this, and position their products as means for enterprises not only to save money and satisfy

customers, but also to derive new revenue streams. This is especially important, given that in today's voice market, CEOs and marketing directors are making the final decisions on customer care products, and presenting a solid business case is essential.

Form the right partnerships

An important question relates to who will be the primary vendor of transactional voice solutions. It is clear that some of the most innovative solutions are coming from applications vendors, who seem to be very aware of the needs relating to businesses. Therefore, it is recommended that voice business player interested in pursuing transactional solutions develop solid partnerships with forward-thinking application developers that have a proven track record in this space. Equally important will be to form partnerships with credible system integrators that have experience in complex voice solutions.

From the standpoint of transactional application vendors, it is recommended that they form partnerships with reliable players across the voice business value chain, so as to ensure economical and timely deployments for clients.

Bundle transactional solutions

While still an immature technology, vendors need to develop plans to bundle transactional solutions into end-to-end deployments. That way, when approaching large enterprises interested in establishing automated customer care systems, vendors will be able to offer the benefits of voice-automated call management, information provision and new revenue channels via transactions. Because of the 'full package' nature of such a deployment, investors will also be able to save through economies of scale.

Vertical prioritization

Vendors of transactional voice solutions need to develop a scale upon which they will prioritize the vertical markets that they feel are most appropriate for their applications. By doing so, resources are not wasted on industries that are not at the sophistication level required to adopt v-Commerce solutions.

Early adopters

This segment includes verticals that have already begun using voice transactional solutions, albeit in limited deployments. Vendors need to target applications to this segment first, as they have demonstrated a willingness to invest in these applications to generate revenue. Equally important, end-users have shown a propensity to use them. Ideally, each of the early adopter verticals already has a strong commercial self-service legacy in place, making the need to educate senior executives and marketing officials minimal. Because of the fact that good prospects should have legacy self-service deployments already established, it is also recommended that transactional voice vendors examine the possibility of partnerships with traditional IVR and ACD vendors. Buy doing so, transactional vendors will be adding to their full-solution voice supply chain, as well as to the credibility of the technology.

Based on the research outlined earlier, the following verticals fall into this category and should be first on the list of transactional voice vendors:

Retail banking;

Brokerage;

Telcos;

Travel & tourism;

Utilities;

Gaming.

Late adopters

This category consists of vertical markets that have a good potential to use voice transactional services, but that have chosen not to do so as of yet. This could be due to economic limitations or a limited legacy in voice solutions in general. Verticals in this segment likely have some type of self-service deployment in place, be it on the web or the telephone, but may not have activated it to its full commercial potential. Therefore,

vendors should target these firms at a later time, thus allowing them to become more comfortable with voice self-service as a revenue generating tool, so as not to expend limited marketing resources. It is also worthwhile for vendors to examine the possibility of educating firms in these segments on transactional voice solutions and their benefits in the interim. Vertical markets in this category include:

Retail;

Entertainment;

Public sector;

Insurance;

Other financial services.

Unlikely adopters

This segment includes those verticals that have a limited self-service legacy, as well as those that have not yet adopted speech solutions in any form. Vendors should not concentrate on these verticals, as the amount of time and resources necessary to develop understanding and enthusiasm for voice would be considerable, and better spent on early or late adopters. Verticals in this category include:

Manufacturing;

Transportation;

Education.

Vertical tailoring

Vertical focus is an area in which many vendors have failed to take into account particular features of an industry and what end-users expect. Given the more sophisticated and discerning nature of today's consumers, it is very important for vendors to make sure offerings have at least some vertical tailoring, so as to ensure as smooth a commercial experience as possible. Therefore, the following are key:

Target end-users: Different customers deserve a different approach, and this needs to be considered by voice transaction vendors when considering vertical prospects. Some verticals serving a very broad range of customers require a very straightforward, business-as-usual approach with no frills. Alternatively, for those verticals where there is a more dynamic or less-diverse end-user segment, alternative marketing strategies can be used.

Terminology and acronyms: Depending on the vertical, there will a need for specific terms and expressions that are applied in any transactional voice deployment, such as industry-specific measurement units.

Determine client's appropriateness

Once that solutions have been developed for appropriate vertical markets, vendors should examine individual prospects to determine their suitability for transactional voice applications. The following points provide a framework for what vendors should look for, in terms of customer care sophistication.

Call steering deployments: The first step for vendors should be to determine if the prospect has already automated call steering capabilities. While limited in its functionality, a reliable call center automation system provides end-users with a glimpse of voice technology, and makes them comfortable using it. However, if a prospect has no call steering system in place, then it is certainly not an appropriate target for transactional voice solutions.

Information provision: Should vendors determine particular prospects have efficient call center automation systems deployed, the next litmus test is whether a voice-enabled information gateway is in place. In essence, an information portal automated by voice would provide an interface between the end-user and the business and would supply various aspects of data to the caller. Given that the caller interacts directly with the telephone interface, their confidence in voice solutions would continue to grow, provided the information solution in place was well designed. However, should the prospect not yet have an information portal in place, it would likely still be too early for voice transactional solutions.

E-Commerce: Vendors looking to sell transactional voice solutions to prospects should also ensure that there are adequate web-based commercial applications deployed. Not only will it ensure a legacy in electronic self-service, but such an offering also provides a framework for telephone-based transactional solutions. If the prospect does not have such a system in operation, the migration to voice-enabled commerce could be a difficult challenge, in terms of customer acceptance.

Internet and telephony congruency

The final step for vendors is to ensure that the format of any transactional voice solution fits as closely to equivalent web offerings as possible. This is very important, as end-users do not want to be confused by different solutions and functionality between channels. The outcome of such a scenario is certain to be dissatisfaction with self-service offerings, and an erosion of the customer base, which has generally become much more conscious of value-for money since the recent recession.

CHAPTER 3

Hosted and managed voice services in North America

Chapter 3 Hosted and managed voice services in North America

Summary

❑ The growing number of customer success stories and benchmarks has helped convince more businesses that speech is a viable business solution that provides measurable ROI benefits.

❑ In 2004, there were 947,000 installed base IVR ports in the North American hosted IVR market. Of this figure, traditional IVR accounted for 85.3%, or 808,000 ports, while Voice-XML accounted for 14.7%, or 139,000 ports.

❑ At the end of 2004, revenues from the hosted and premise-based managed IVR market in North America were just north of $1.9bn.

❑ As a result of its large IVR footprint, traditional IVR accounted for the majority, or 78.2%, of revenues. Voice-XML accounted for 21.8% of revenues.

❑ By 2009, revenues from the hosted IVR market in North America will reach approximately $2.3bn at a CAGR of 3.4%.

❑ Revenues for Voice-XML ports will more than double from $422m to $929m at a strong CAGR of 17.1%.

Introduction

The North American hosted interactive voice response (IVR) market is heavily populated with proprietary dual tone multi-frequency (DTMF) applications that provide basic yet effective routing and self-service capabilities to businesses. However, increased competition has led to downward pricing pressure over the last couple of years, driving revenues from DTMF services steadily down. Today, hosted IVR providers view hosted speech services as a way to arrest the precipitous slide of their revenues and to introduce new revenue streams. This shift towards hosted speech

services has been a combination of 'if you build it, they will come' approach and growing customer demand in North America.

Definitions

ASR (automatic speech recognition) – is a software engine that listens to and recognizes spoken words. In most cases it processes the incoming audio to isolate words, splits these words into segments (usually phonemes or diphones), and then statistically compares these segments with a linguistic database. Depending on the word spoken, a value is returned, normally with a degree of confidence.

Call centers – Defined by the following features:

An Automatic Call Distributor (ACD) or Private Branch Exchange (PBX) with equivalent functionality overlaid (or soft ACD);

10 or more agent positions;

Agent positions are desks from which agents make and/or receive telephone calls to and/or from internal or external customers. This is taken to imply that the call in question involves communication between the agent and the customer.

DTMF (dual tone multi-frequency) – is the signal to the phone company that a caller generates when he/she presses keys on a telephone's keypad. In North America and it is commonly known as touchtone phone (formerly a registered trademark of AT&T). DTMF has generally replaced loop disconnect ("pulse") dialing.

Hosted – All components of the DTMF/speech solution is located on either a service provider's or a dedicated hosted IVR provider's network data center.

IVR (interactive voice response) – a technology that analyzes a sequence of spoken and/or DTMF commands and reproduces voice prompts to the caller, the call is then routed via switch or serviced wholly within the IVR that is linked to a database. The IVR interacts with key systems, PBXs, ACDs through analog ports, digital ports and LAN/WAN connectivity.

Open-standards – The development of standards and standards-based platforms has challenged the proprietary siloed structure that is prevalent in traditional IVR systems. Standards offer the opportunity for platforms to be written in a standard language, thus rendering them interoperable with engines and applications developed by any other vendor, as long as the same language is used. Already in its second version, Voice XML is more established than newer alternatives such as SALT, and is the dominant standard, with a growing sphere of deployments and developers surrounding and supporting it.

Premise-based managed services – The DTMF/speech application is located on the client premise while the IVR and back-end routing is facilitated through the network out of the host vendors' data centers. The client does not own or maintain the service.

Premise-based traditional – All components of the DTMF/speech solution is located and operated on the client's premises.

SALT (speech application language tags) – an open-standard that enables multimodal and telephony-enabled access to information, applications, and Web services from PCs, telephones, tablet PCs, and wireless personal digital assistants (PDAs). SALT extends existing mark-up languages such as HTML, XHTML and XML. Multimodal access will enable users to interact with an application in a variety of ways: they will be able to input data using speech, a keyboard, keypad, mouse and/or stylus, and produce data as synthesized speech, audio, plain text, motion video, and/or graphics. Each of these modes will be able to be used independently or concurrently. SALT is currently in its 1.0 version.

Traditional IVR – a platform developed primarily for use in the DTMF-based telephony environment. These platforms are written in proprietary languages, and as such, are only interoperable with other technologies that also use the same language. However, with the advent of standards, most traditional IVR are nevertheless able to recognize applications in Voice-XML. Telephony platforms are characterized by being predictably robust and by having a high degree of call control functionality. At the same time, they often rely on proprietary systems and specialist knowledge. The

majority of traditional IVRs are DTMF systems but there are a small but growing number of speech-enabled traditional IVR systems.

Voice-XML (extensible markup language) – a markup language for creating voice user interfaces. It uses speech recognition and/or touchtone (DTMF keypad) for input, and pre-recorded audio and text-to-speech synthesis (TTS) for output. Callers interact with Voice-XML applications via a Voice-XML "interpreter" (also known as a "browser") running on a telephony server in an analogous way to Web surfers interacting with HTML applications via graphical browsers on their PCs. Voice-XML is currently in its 2.1 version.

Market drivers

Lower entry costs for speech – The major barrier to investment in speech has been and continues to be cost. A recent technology decision-makers panel survey of 200 US contact center managers found price to be the leading inhibitor for investment in speech solutions. Although costs for speech solutions have dipped in recent years due to increased competition and pricing elasticity, the initial investment for a premise-based speech solution remains high. To this end, customers look to hosting as a more cost effective alternative to investing in speech.

Emergence of Voice-XML – Voice-XML has paved the road for greater adoption of speech-enabled applications in North America. No longer are businesses and hosted IVR providers confined to proprietary applications. Instead, they are able to leverage the segregation of the application and IVR layers to create more scalable and flexible solutions without vendor lock-in.

Greater flexibility of deployment – To meet specific customer demands, hosted IVR providers offer several different options for deployment. These generally include both hosted and premise-based managed services. In addition, vendors also provide overflow, disaster recovery and premise-based pay-per-use services.;

Introduction of new pricing paradigms – Hosted IVR providers offer a myriad of flexible pricing options that include: per minute, per transaction, per month, per usage and pay-per-performance. As the market becomes more competitive, players will gravitate towards more pay-per-performance type pricing to upsell consulting, application development and fine-tuning to clients.

Growing market awareness – The growing number of customer success stories and benchmarks have helped convince more businesses that speech is a viable business solution that provides measurable ROI benefits.

Availability of reusable application components – A double-edged sword, reusable speech application components have helped drive development costs lower for both hosted players and customers. These reusable components have nearly become a standard offering among all hosted players in North America. Customers developing their own speech applications are able to use these components to build and manage speech applications and thereby reduce costs.

Increased competition – The entry of new hosted IVR providers in the hosted speech market has resulted in increased competition that has ultimately benefited customers and the overall hosted IVR industry. Price points are dropping for customers, while innovation is accelerating among hosted speech players due to the need to differentiate.

Investment in VoIP – VoIP investment has been steadily increasing among enterprises in recent years. A Voice-XML platform is a natural extension to a converged IP data network and customers. Hosted IVR providers are able to leverage the benefits of VoIP. Speech can often be deployed faster and with a lower TCO than traditional telephony-based solutions in an IP setup. Customers who have deployed a VoIP network are able to easily plug into vendors' or service providers' networks with a premise-based managed services model.

Market trends

Hosted speech is a relatively immature market in North America, and therefore a dynamic one. This has resulted in the emergence of new market trends over the past 12 to 24 months. Through the next five years there will be consolidation within this space as hosted IVR providers begin to compete on a fiercer level. The following highlights the major trends found in the North American hosted speech market today:

Growing demand for premise-based managed services – Both hosted IVR providers are witnessing a growth in the number of businesses that are seeking a premise-based managed service offering. This has been driven by:

Increased security concerns – Questions over data security have created a strong atmosphere of security consciousness. These current issues only add to the concerns of businesses that are subject to privacy legislation due to possession of sensitive information. Clearly this leads to concern about outsourcers' holding this sort of data and interacting with a customer's existing network. With the premise-based managed service model, customers are able to host their speech application behind their respective corporate firewalls which allays security concerns.

IT politics – Job security concerns and internal corporate politics have led more IT staff to engage in a premise-based managed services over hosted services rather than the hosted model.

Greater comfort level – Businesses are generally more comfortable with having a physical server existing on their premises rather than 'in the cloud'.

Sharpened focus on reliability and redundancy – Continuity concerns in customer service has led many businesses to prioritize reliability and redundancy in their hosted and managed IVR solutions. These businesses pay a premium to ensure that their outsourced solution will remain up and running at all times, and many hosted players differentiate themselves on these reliability and redundancy metrics. For example, one hosted IVR vendor indicated that if its network were down 1 minute customers would

get 1% of their monthly fee returned. Accordingly, if the vendor's network is down 100 minutes then its customers will receive 100% of their monthly fees. One data center and one carrier will no longer make the cut for hosted players engaging in high call volume deals - redundancy is a must.

Entry of Microsoft Speech Server (MSS) – Several US-based hosted IVR vendors are piloting MSS to determine if they would like to integrate the platform into their hosted offering. The low cost of MSS provides significant price advantages for both the customer and provider. However, the platform has yet to be proven in a large scale hosted environment. Through the next five years MSS will further penetrate the hosted IVR market and be offered by smaller vendors and a handful of large vendors as a lower cost speech solution. It is expected that an MSS hosted offering will have success in the SME market.

Voice-XML has become the standard – Voice-XML is the dominant standard endorsed and supported by the vast majority of the hosted speech market. Not only has Voice-XML become a standard among players in the industry but customers view Voice-XML as the standard as well.

Call Control XML (CCXML) – CCXML supports the movement of calls in the call flow and connects them to dialog resources. It essentially provides greater call control capability and supports multi-party conferencing, outbound functions and handles more intensive asynchronous events. It serves as a strong adjunct to Voice-XML. Businesses are showing increasing interest in CCXML, and some are deploying it in a hosted and managed services model.

Market size

IVR ports

In 2004, there were 947,000 installed base IVR ports in the North American hosted IVR market. Of this figure, traditional IVR accounted for 85.3%, or 808,000 ports,

while Voice-XML accounted for 14.7%, or 139,000 ports. The large traditional IVR footprint is attributed to service providers' sizeable investments in traditional DTMF IVR for call prompting/routing services. By 2009, there will be 1,160,000 IVR ports in the North American hosted IVR market growing at a CAGR of 4.1%. Traditional IVR will dip in proportion to account for 75.4% of IVR ports, while Voice-XML will grow in proportion to account for almost 25%. SALT will have been deployed and account for less than 1% of IVR ports. The following figure and tables illustrate the installed base IVR ports in the North American market from 2004 to 2009. As Figure 3.8 and Table 3.5 show, the number of traditional IVR ports will begin decreasing in 2007 as more hosted IVR providers migrate to Voice-XML.

Figure 3.8: Hosted and premise-based managed services ports, 2004-2009
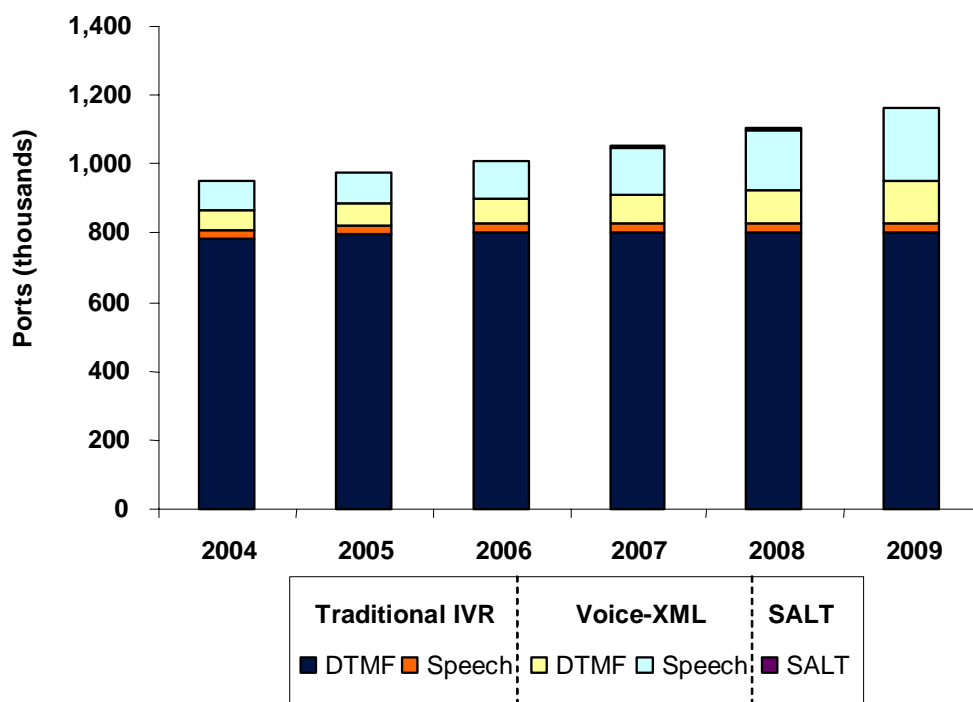
Source: Business Insights

Business Insights Ltd

Table 3.5:	Hosted and premise-based managed services ports, 2004-2009						
Ports (thousands)	2004	2005	2006	2007	2008	2009	CAGR
Traditional IVR							
DMTF	782	794	800	802	801	800	0.5%
Speech	26	27	27	27	28	28	1.3%
Total	808	821	827	829	829	828	0.5%
Voice XML							
DMTF	61	66	72	83	98	120	14.4%
Speech	78	90	111	138	172	212	22.2%
Total	139	156	183	221	270	332	19.0%
SALT	0	0.2	0.6	1.2	2.8	4.0	110.8%
Total	**947**	**977**	**1,010**	**1,050**	**1,099**	**1,160**	**4.1%**

Source: Business Insights   Business Insights Ltd

Revenue

At the end of 2004, revenues from the hosted and premise-based managed IVR market in North America were just north of $1.9bn. As a result of its large IVR footprint, traditional IVR accounted for the majority, or 78.2%, of revenues. Voice-XML accounted for 21.8% of revenues. Although traditional IVR accounted for the bulk of revenues, the high penetration of speech among Voice-XML ports has meant that average revenue per port for Voice-XML is substantially higher than traditional IVR. For example, in 2004 revenue for speech-enabled traditional IVR was $107m, and speech-enabled Voice-XML was almost three times as great at $312m. By 2009, revenues from the hosted IVR market in North America will reach approximately $2.3bn at a CAGR of 3.4%. Revenues for Voice-XML ports will more than double from $422m to $929m at a strong CAGR of 17.1%. Revenues from traditional IVR, however, will decline at CAGR of -2.2% from $1.5bn in 2004 to reach roughly $1.4bn in 2005. Figure 3.9 illustrates revenues for hosted and premise-based managed IVR services from 2004 to 2009.

Figure 3.9: Hosted and premise-based managed services revenues, 2004-2009
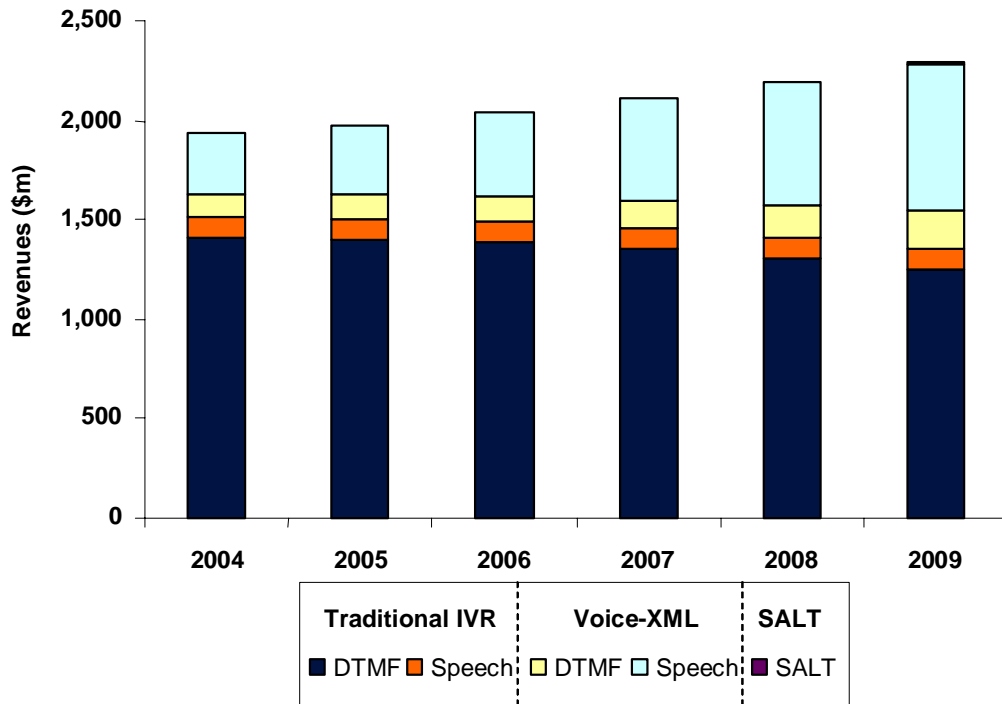
Source: Business Insights

Business Insights Ltd

Table 3.6: Hosted and premise-based managed services revenues, 2004-2009

Ports (thousands)	2004	2005	2006	2007	2008	2009	CAGR
Traditional IVR							
DMTF	1,408	1,401	1,383	1,351	1,307	1,256	-2.3%
Speech	107	106	105	104	102	99	-1.4%
Total	1,514	1,506	1,488	1,454	1,408	1,355	-2.2%
Voice XML							
DMTF	110	117	125	139	160	188	11.3%
Speech	312	352	425	516	624	741	18.9%
Total	422	469	550	655	784	929	17.1%
SALT	0	0.3	0.8	1.6	3.7	5.2	110.8%
Total	**1,936**	**1,976**	**2,039**	**2,111**	**2,196**	**2,289**	**3.4%**

Source: Business Insights

Business Insights Ltd

The hosted IVR market will witness downward pricing pressure through 2009 as competition grows and pricing elasticity increases. This will occur primarily among traditional IVR and Voice-XML solutions. SALT solutions will not experience as large a price decline due to its already low market penetration pricing.

Revenues from speech-enabled traditional IVR solutions will exhibit a consistent decline from $107m in 2004 to reach $99m in 2009, at a CAGR of -1.4%. Meanwhile, speech-enabled Voice-XML will grow from $312m in 2004 to reach $721m by 2009, at a CAGR of 18.9%. SALT solutions will account for $5.2m as more hosted IVR vendors deploy SALT within their network.

Revenues from hosted and managed speech-enabled solutions will continue to grow at an aggressive CAGR of 15.1% through 2009 as customer demand accelerates and market uptake increases over this time-frame.

Figure 3.10: Hosted vs. premise-based managed services vs. premise-based traditional, 2004-2009
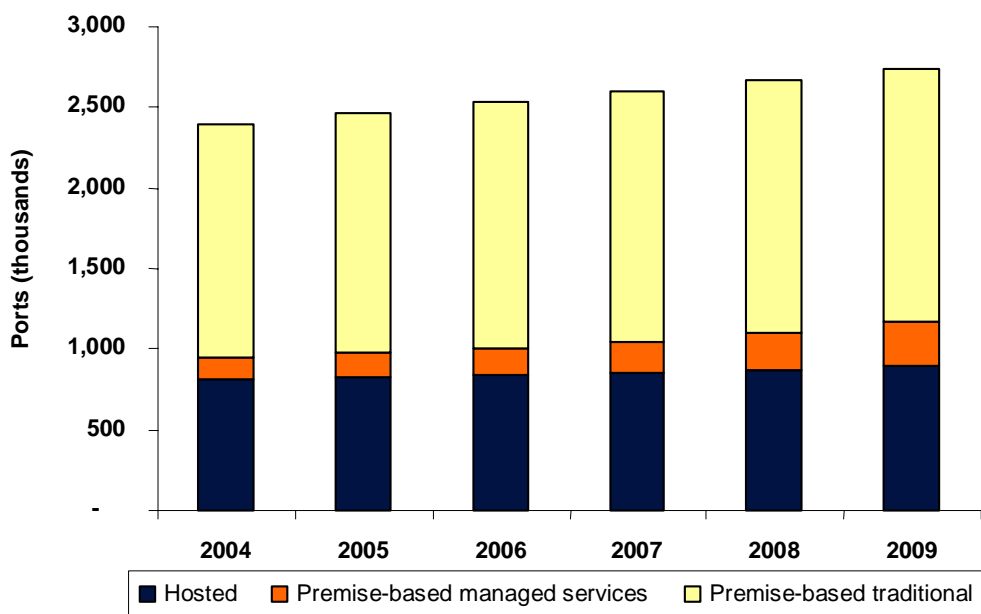
Source: Business Insights

Business Insights Ltd

Table 3.7:	Hosted vs. premise-based managed services vs. premise-based traditional, 2004-2009						
Ports (thousands)	2004	2005	2006	2007	2008	2009	CAGR
Hosted	805	827	842	859	873	891	2.1%
Premise-based mgd svc	142	150	169	192	228	273	13.9%
Premise-based traditional	1,446	1,480	1,515	1,547	1,566	1,577	1.7%
Total	**2,394**	**2,457**	**2,526**	**2,598**	**2,668**	**2,741**	**2.7%**

Source: Business Insights   Business Insights Ltd

Strategic recommendations

Communicate the capabilities and limitations of speech solutions

The overarching reason for the consistent underestimation of speech applications is a misunderstanding of its capabilities and limitations. Speech improves customer service, reduce costs and increase top-line revenue. In addition, unbeknownst to many businesses, speech also boosts agent morale by filtering out mundane, low-level calls. Even a 1% decrease in agent turnover can save a company hundreds of thousands of dollars. Reference points such as these help paint a more accurate picture on the capabilities and value of speech in the enterprise. Hosted speech providers should therefore analyze speech deployments and their impact across the entire enterprise to accurately communicate the capabilities and limitations of speech to customers.

Analyze customer acceptance of speech technology

Call center managers and IT decision makers are reluctant to invest in speech because they believe their customers 'did not want to interact with a machine'. Although the pilot phase in the deployment cycle will help determine customer acceptance of speech technology, hosted speech providers cannot accurately assess levels of customer satisfaction from just call handling rates and recorded calls. Therefore, hosted speech providers should hire a third party to analyze customer acceptance of speech technology on two levels: an end-user study of customers that have interacted with a

VUI, and an end-user survey of those that have not. This will provide an accurate insight into customer acceptance of speech technology and enable businesses to make more informed decisions on investment in speech.

Implement pay-per-performance pricing models

Pay-per-performance pricing models are not a novel concept among hosted speech providers in the North America, but the messaging behind this type of model has been lacking. In this pricing model, hosted speech providers are rewarded monetarily if certain performance thresholds, such as call completion rates, are met. If the deployment does not meet these thresholds then the customer pays at a discounted rate to the provider. Creating a pay-per-performance model is extremely difficult and will vary with each customer. However, if executed correctly it is a win-win situation for both the customer and provider. Moreover, it validates speech as by providing guaranteed results.

Today, many providers position themselves on reliability and scalability to appeal to enterprises' business continuity priorities. However, the hosted speech market is highly dynamic due to its relative immaturity, and therefore, technology and business practices are still melding together. By introducing specific business metrics and guaranteed results into pricing strategies, hosted speech providers are more likely to win new business.

Create partnerships with platform vendors, application vendors and systems integrators

The commoditization of platforms and ASR/TTS engines has encouraged competition in the higher-value added areas of the voice business value chain, namely applications and services. To this end, many platform vendors have shifted gears to provide more packaged applications and modules. In addition, the commoditization has resulted in the entry of new speech application startups in North America. By partnering with platform and applications vendors, hosted speech providers can broaden sales channels to increase overall revenue. Although the partnership will likely take away from the

providers' application development revenues, higher volume for providers translates to greater revenue.

Partnerships with systems integrators, such as Accenture, have not proven successful for most hosted speech providers in the market. However, as customer demand grows through 2009, speech will play a vital role in large business transformation outsourcing deals, a sweet spot for many systems integrators. Hosted speech vendors should look to partner with systems integrators to provide the speech component for business transformation outsourcing.

CHAPTER 4

Voice business market overview: EMEA

Chapter 4   Voice business market overview: EMEA

Summary

❑ EMEA voice business revenues will expand through 2008, from $350m in 2004 to approximately $1bn by 2008.

❑ The United Kingdom (UK) is a leading market for voice business sophistication in EMEA. Many companies across a wide-range of verticals have adopted voice as a means of lowering overhead costs and enhancing customer satisfaction.

❑ German voice revenues will rise from nearly $86.1m in 2004 to approximately $247m by 2008.

❑ Voice business will grow steadily in the Netherlands between 2004 and 2008, from $29.1m in 2004 to $86m by 2008.

❑ French voice business expansion will be rapid through to end 2005, at which point annual growth will plateau at about 33%, and stay there until 2007-2008, when it will drop to just under 25%.

❑ Italy is proving to be a very strong market for voice services. All verticals seem interested in using speech to facilitate customer care, and Italian end-users appear keen to take advantage of the improved quality and speed by which transactions can be undertaken.

❑ Voice business in Spain will grow from 28.7m in 2004 to $85.6m by 2007.

❑ The Nordics voice business market will reach maturity in 2006, and as a result margins will begin tapering off.

❑ Voice penetration will be somewhat limited in South Africa, due in part to a small market, coupled with very low contact center agent costs.

❑ Voice business revenues in Eastern Europe will grow from $4.2m in 2004 to $9.4m in 2008.

Introduction

EMEA telcos & enterprises are increasingly adopting voice solutions. With rapid growth in mobile telephony over the past decade, as well as Internet proliferation, self-service has become the norm for EMEA consumers.

Voice business in EMEA – market context

EMEA voice business revenues will undergo strong growth, from just over $350m in 2004 to approximately $1bn by 2008. Growth rates will peak in 2006, cresting slightly in 2007-2008.

Figure 4.11: Voice business growth in EMEA, 2003 – 2008

Source: Business Insights

Business Insights Ltd
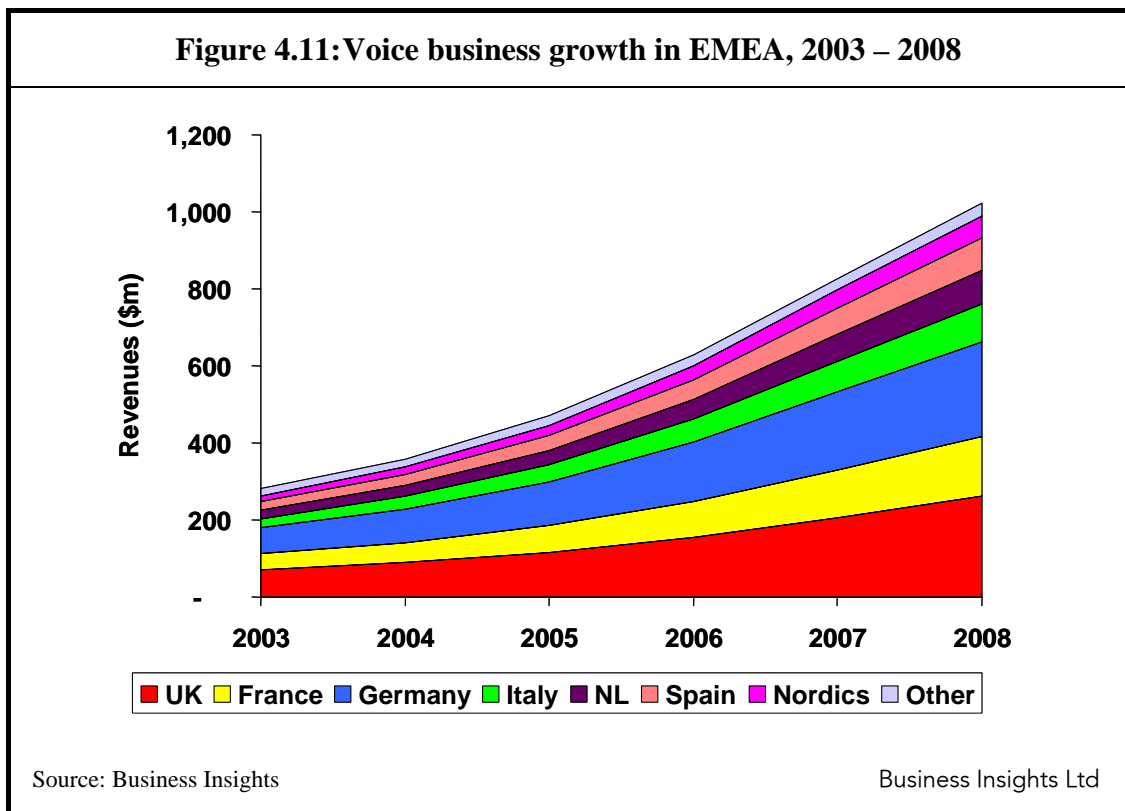
Table 4.8: Voice business growth in EMEA, 2003 – 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	282.0	358.8	469.8	627.0	825.9	1,022.7	23.3%
Annual growth (%)	19.4	27.2	30.9	33.5	31.7	27.8	

Source: Business Insights

Business Insights Ltd

National markets

A visual analysis of individual national EMEA voice markets based on present maturity and overall market size is contained in Figure 4.12. An in-depth examination of each market follows.

Figure 4.12: EMEA voice business national market positioning
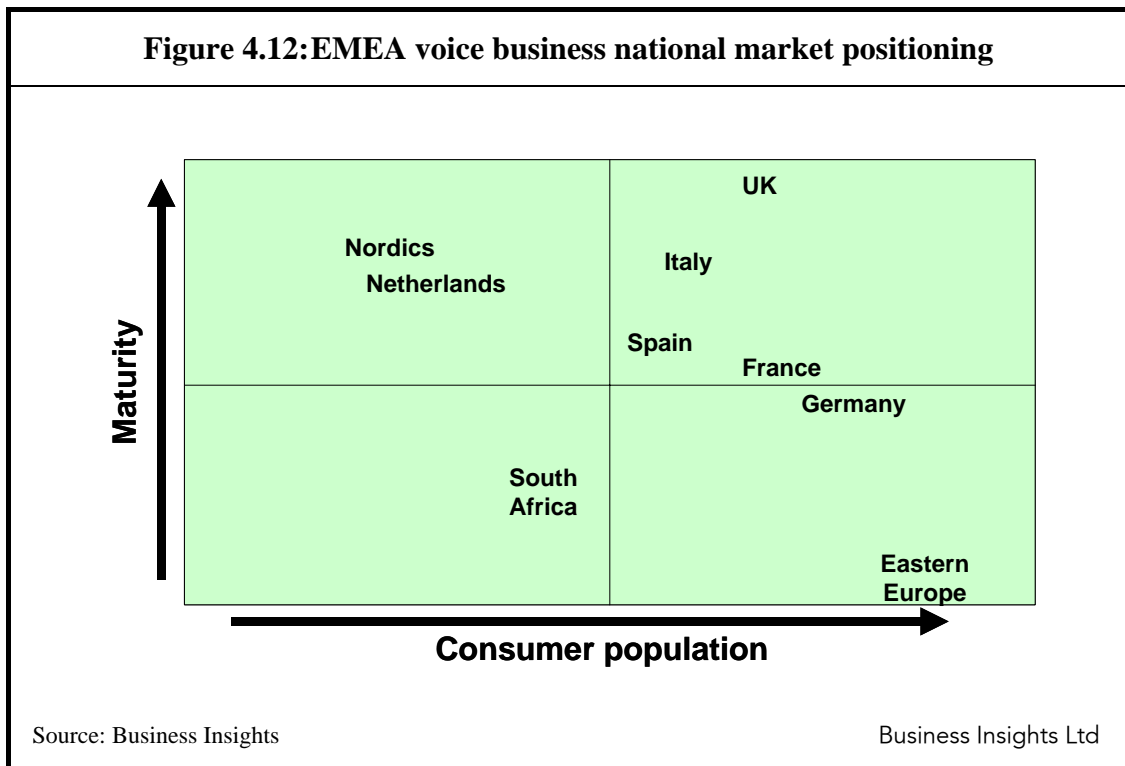
United Kingdom

The United Kingdom (UK) is a leading market for voice business sophistication in EMEA. Many companies across a wide-range of verticals have adopted voice as a means of lowering overhead costs and enhancing customer satisfaction. As such, innovative voice products will find excellent long-term prospects in the UK.

Market context

Voice solutions will grow aggressively in the UK through 2008. As indicated in Figure 4.13 and Table 4.9, voice revenues will increase steadily from $90m in 2004 to approximately $260m by the end of 2008, at a compounded annual growth rate (CAGR) of nearly 24%. In comparison to other EMEA countries, the projected uptake in voice solutions in the UK ranks ahead of Germany, Eastern Europe and South Africa. This is a likely reflection of the level of market maturity found in the UK in the context of voice business.

Figure 4.13: Voice business growth in the United Kingdom, 2003 – 2008

Source: Business Insights   Business Insights Ltd
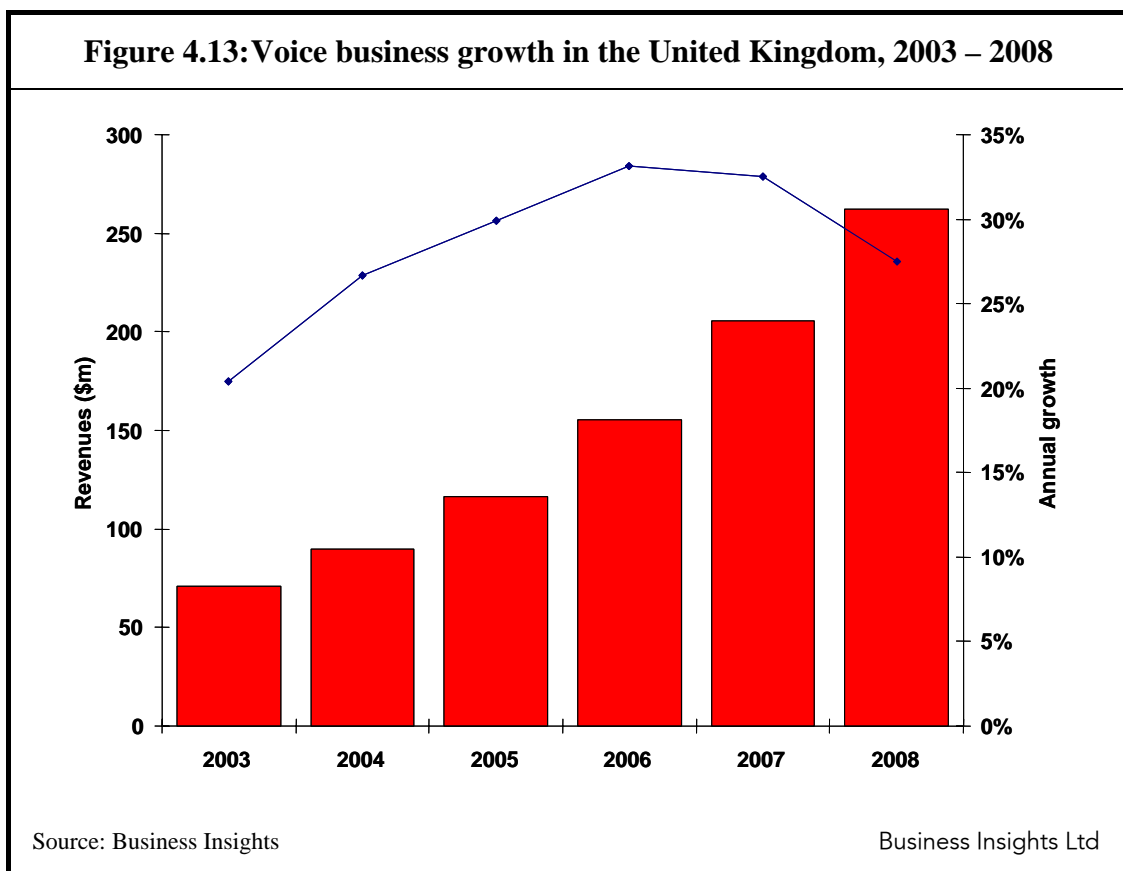
Table 4.9:   Voice business growth in the United Kingdom, 2003 – 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	70.8	89.7	116.5	155.2	205.6	262.1	23.9%
Annual growth (%)	20.4	26.7	29.9	33.1	32.5	27.5	

Source: Business Insights   Business Insights Ltd

Market characteristics

There are several aspects to the UK voice business market, which are discussed below:

Mature: In comparison with many EMEA voice markets, the UK's is considered to be nearly equal to that of the United States, in terms of overall solution sophistication and vertical penetration. As such, UK companies have been able to use the US voice market in order to determine what solutions have been successful, and weed out those that have not.

Competitive: Among EMEA countries, the UK has perhaps the greatest degree of voice business competitors striving for contracts across verticals. All major international voice business players have a solid presence in the UK market. But, there are also a large number of local firms that cater nearly exclusively to Great Britain, in many cases focusing on a small number of niche verticals. Combined, the presence of global and local competitors is a significant entry barrier for new entrants into this space.

Interactive culture: One of the most appealing aspects of the UK for voice vendors lies in Britons' acceptance of self-service. Indeed, qualitative evidence indicates that high penetration of mobile telephones and the Internet (73% and 42%, respectively) have instilled a confidence with regard to interfacing with technology among UK citizens, and has led to voice encountering significantly less resistance than in other countries.

Customer service: Reports of UK consumers being angered at long-wait times in telephone queues, combined with worries over offshored contact centers have proven to be beneficial for voice solution vendors, who report an upswing in sales to firms that are now looking to enhance the overall customer experience, in order to build long-term relationships.

Vertical markets

The following industries are excellent voice business prospects in the UK:

Telcos: To date, both fixed-line and mobile telcos have been large clients of voice services, and this trend is likely to continue. Telcos will use voice for call-center automation functions, such as call steering, as well as value-add applications including voice-activated dialing. However, mobile providers are also looking at adding functionality around productivity, such as remote email reading.

Financial services: UK financial services have adopted voice as a method of call-routing and information provision, most notably in the retail-banking sector. This trend will continue, as more institutions migrate from DTMF-based IVR systems to full voice solutions that provide transactional capabilities. As well, insurance companies are beginning to seek voice applications that can automate routine customer information harvesting, such as name and address capture.

Government: In an effort to reduce costs associated with labor, as well as complying with the 'e-government' initiative, all levels of the UK public sector are automating information provision, call-steering and transactions. To date, this has mainly been done through the Internet, but a growing number of bodies are also looking to leverage online offerings over the telephone. This has been especially notable in local government, as well as the state-controlled NHS.

Travel & tourism: Numerous firms associated with the tourism industry have voice-automated customer service portals in place. These range from transportation networks, including British Airways and Virgin Trains, to hotel reservation systems. It should be noted that similar to online offering, many of these are end-to-end solutions providing basic information provision and transactions.

Germany

Voice business growth in Germany has tapered in the past few years. While this has been primarily due to economic conditions, German firms seem less enthused with voice self service, as compared to other EMEA geographies. However, as the regional economy improves, vendors would be wise to maintain a close watch on this large market.

Market context

Figure 4.14: Voice business growth in Germany, 2003 – 2008

Source: Business Insights

Business Insights Ltd
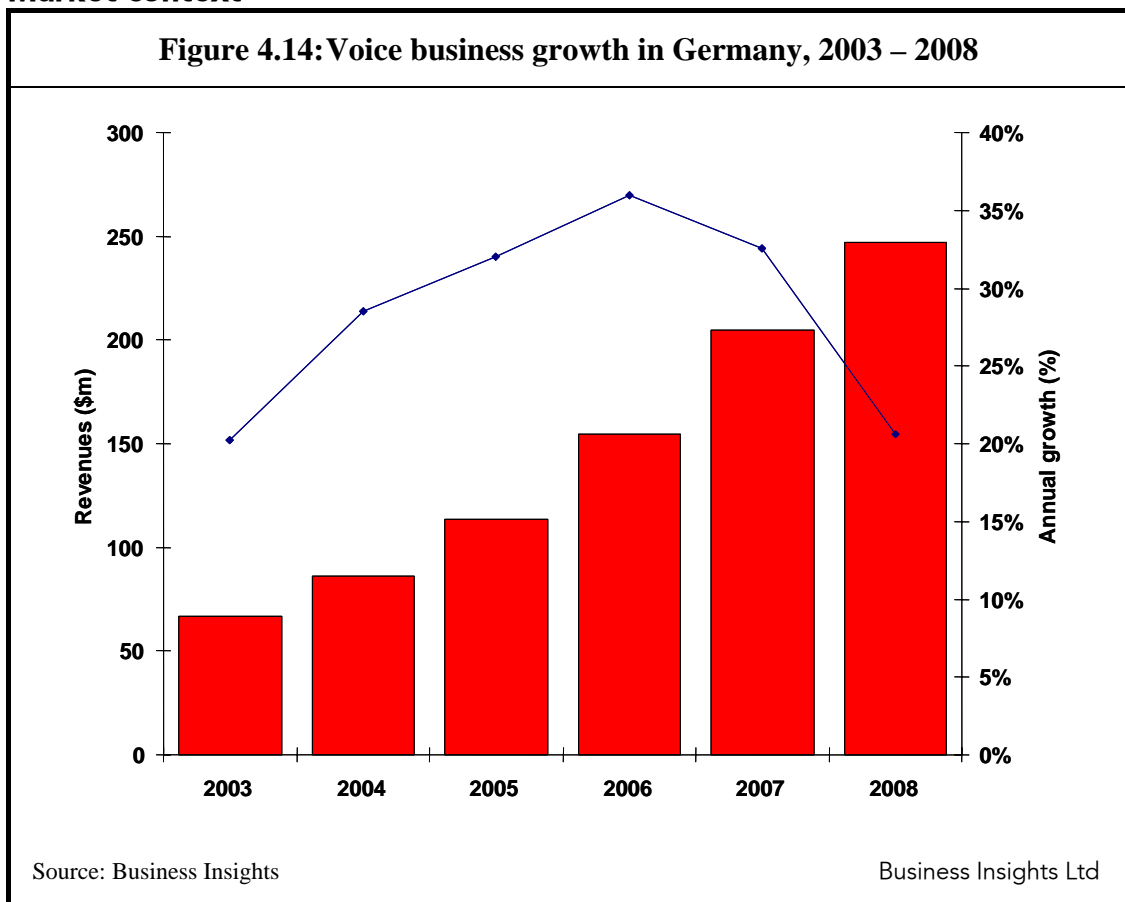
As indicated in Figure 4.14 and Table 4.10, German voice revenues will rise from nearly $86.1m in 2004 to approximately $247m by 2008, at a CAGR of 24%. It should also be noted that annual uptake of voice will be especially strong between 2004 and 2006, coinciding with the projected recovery of the German economy. As such, there will be an uptake in enterprise investment related to marketing and customer

satisfaction initiatives, many of which were on hold during the recessionary period. Year-on-year voice spending in 2007 and 2008 fall in percentage growth, but actual revenues will continue to expand.

Table 4.10: Voice business growth in Germany, 2003 – 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	67.0	86.1	113.7	154.5	204.8	247.1	23.5%
Annual growth (%)	20.2	28.5	32.0	36.0	32.5	20.6	
Source: Business Insights						Business Insights Ltd	

Market characteristics

There are several aspects to the German voice business market, which are discussed below:

Stagnant growth: Through the past four years, the German economy has been one of the slowest in the EMEA. The result has been general reluctance on the part of enterprises in almost every vertical to invest in new technology. This has directly affected vendors, as existing clients have not upgraded legacy deployments, while companies that do not have voice functionality have postponed investments.

Backlash against voice products: A huge problem that German voice vendors will need to overcome relate to a number of poor past speech implementations. These include a reportedly disastrous voice-automated public transportation information system and a second-rate dictation device that many Germans installed on their personal computers. Voice technology is poorly seen in terms of quality and reliability among German consumers, and will be an obstacle for vendors in the future.

Competition: The German voice market is seen to be very tight. While economic conditions are forecast to improve through the next few years, established voice players will already have a dominant position in Germany, which could prove to be a significant entry barrier for new competitors.

Price is key: The end-consumer is a secondary consideration in the German voice market. Rather, it is the ability to reduce overall costs in the short term with which German firms are concerned. Given the historically high prices and sales lags associated with voice solutions, this is another obstacle for German voice vendors.

Vertical markets

The following industries are excellent voice business prospects in Germany:

Telcos: This is one of the few sectors in Germany to have continued investing in voice business during recent years. Generally, deployments in German telcos have been in the form of basic information provision, such as directory assistance. However, it is very likely that these firms (notably wireless) will seek out opportunities in the area of subscription-based news and information services, as well as ring-tones and game downloads.

Financial services: This vertical has also been relatively aggressive in its voice business investment. While not as enthusiastic as counterparts in other parts of EMEA, some German banks have begun implementing relatively straightforward full-scale solutions, providing customers with access to bank balances and the ability to conduct transactions.

Public transportation: Despite past poor results of voice solutions in this vertical, several authorities have indicated an interest in using speech to further automate information provision systems for the general public. The prime motivator for these implementations is cost reduction, related with cutbacks in public sector funding.

Public sector: The final German vertical market worth examining for voice business opportunities is government. This is because of the efforts on the part of German authorities to reduce overall expenditures, as well as to comply with an E-Government initiative, similar to that in the UK. However, it should be noted that the German government procurement process is very cumbersome, and voice vendors should be prepared for protracted sales cycles.

The Netherlands

The Netherlands is a relatively mature voice business market. Given the Dutch affinity for technology and efficient customer care, voice solutions are proving popular among both end-users and the general public. However, the small size of the Dutch population could inhibit growth in the long-term.

Market context

As seen in Figure 4.15 and Table 4.11, voice business will grow steadily in the Netherlands, from $29.1m in 2004 to $86m by 2008. This is approximately the average for major western European markets. It is noted that revenues will rise year-on-year to 2007, at which point there will be a marginal decline in the rate of acceleration.
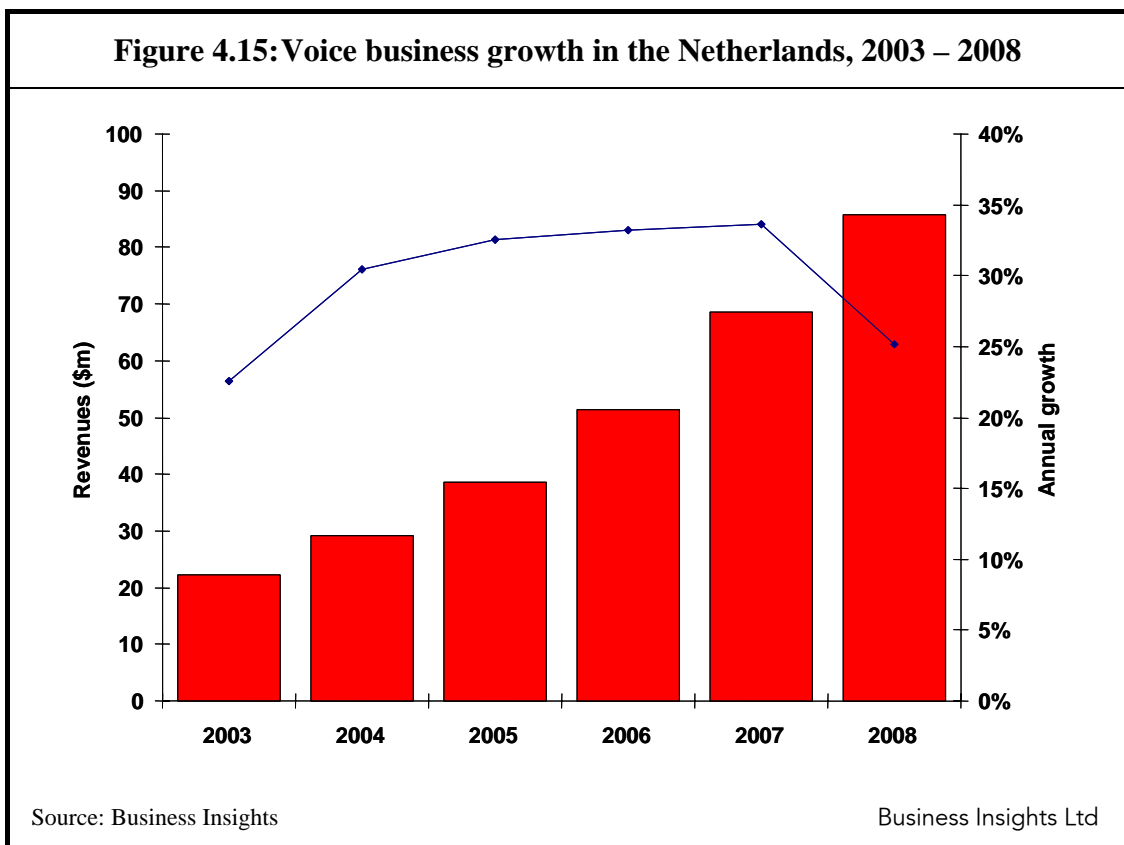

Figure 4.15: Voice business growth in the Netherlands, 2003 – 2008

Source: Business Insights

Business Insights Ltd

Table 4.11: Voice business growth in the Netherlands, 2003 – 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	22.3	29.1	38.5	51.3	68.5	85.8	24.2%
Annual growth (%)	22.6	30.4	32.5	33.2	33.6	25.2	

Source: Business Insights   Business Insights Ltd

Market characteristics

There are several aspects to the Dutch voice business market, which are discussed below:

Limited voice interactions: Qualitative evidence suggests that despite a legacy of self-service applications via touch-tone IVR, interactions with voice portals are infrequent in the context of the Dutch. Some vendors have expressed concern that Dutch end-users have not been pleased with past implementations, in terms of quality of service and technical reliability. Thus, it will be crucial for vendors to ensure that future offerings are of the highest quality, from the standpoint of reliability and navigation.

Small market: The Dutch market is still relatively small, in comparison to that of the UK, France, Germany, and Italy. As such, vendors may find the Netherlands limited in terms of domestic prospects. As well, the cost of developing Dutch engines could prove uneconomical for smaller voice players.

Economic uncertainty: While Dutch economic growth has been stronger than Germany's, the uncertain global economy is driving a reluctance to spend among domestic enterprises. The prevailing attitude among firms in all verticals seems to be one of waiting for competitors to implement new voice solutions first, and then follow suit. This 'follow-the-leader' approach could prove difficult for voice vendors looking to penetrate the Dutch market. However, it could also render hosted solutions extremely attractive, and several firms in multiple verticals are currently examining this possibility.

Technology affinity: A positive aspect of the Dutch market for vendors is the high rate of regular technology use in the Netherlands. Both mobile and internet penetration (69% and 50%, respectively) are relatively strong in the context of continental Europe, and point to good self service potential in the future, both from the standpoint of information access and transactions.

Vertical markets

Voice vendors should pay particular attention to the following vertical markets:

Government: Several Dutch ministries have expressed interest in automating public-facing services with voice solutions. This is being done in an effort to improve overall service, as well as reduce costs associated with telephone agents.

Financial services: As with other EMEA markets, the Dutch financial services sector is a good prospect for voice business vendors, especially those that are able to provide end-to-end solutions. It is of particular note that these firms are also examining the possibility of using hosted voice services, as opposed to premise-based solutions.

Healthcare: As in other parts of EMEA, the Dutch public health system is facing cost pressure, and voice solutions are seen as a way to alleviate expenses related to front-line telephone staff. It is also noted that this is another Dutch vertical that is expressing considerable interest in hosted solutions, so as not to incur the expense of premise-based hardware.

Media: Several Dutch media firms have successfully implemented voice solutions designed to automate customer care issues related to service levels. While these have generally been in the domain of print media, vendors may find that electronic information outlets may also be good targets.

France

To date, voice solutions have been received with mixed reviews in France. While in the past there has been cultural resistance to voice-enabled applications, the recent up-turn in the European economy has led to increased interest from enterprises. That, plus the sheer size of the French consumer market, ensures that it is a market that forward-looking vendors cannot ignore.

Market context

As indicated in Figure 4.16 and Table 4.12, French voice business expansion will be rapid through to 2005, at which point annual growth will plateau at about 33%, and stay there until 2007-2008, when it will drop to just under 25%.
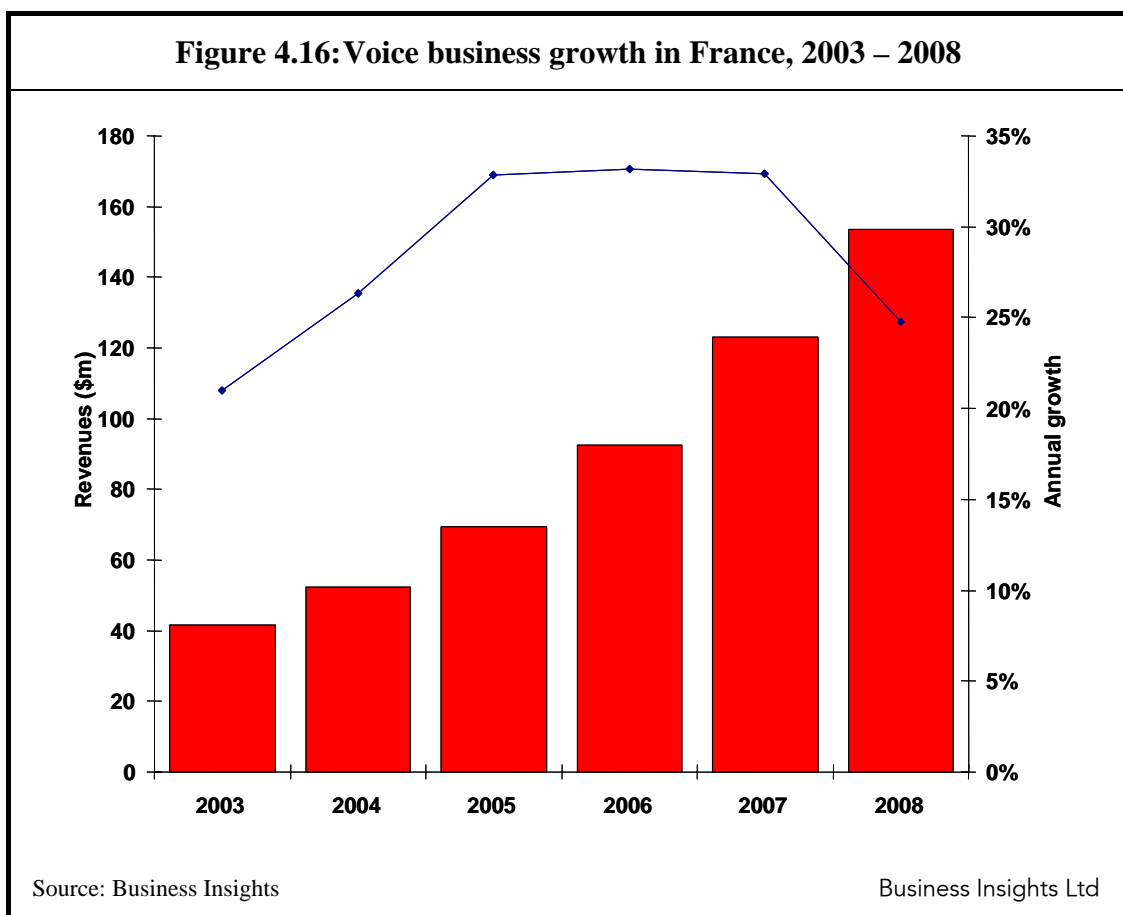

Figure 4.16: Voice business growth in France, 2003 – 2008

Source: Business Insights

Business Insights Ltd

Table 4.12: Voice business growth in France, 2003 – 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	41.4	52.3	69.5	92.5	123.1	153.5	24.0%
Annual growth (%)	21.0	26.3	32.8	33.2	32.9	24.8	

Source: Business Insights   Business Insights Ltd

Market characteristics

There are several aspects to the French voice business market, which are discussed below:

Shifting economy: The French economy is recovering, and with it appears to be a willingness on the part of French enterprises to adopt voice solutions as a means to maintain lower overhead costs. However, qualitative evidence suggests that there is still a great deal of lethargy in the French marketplace in terms of actual procurement, and vendors may find that the sales lag is somewhat longer than in other Western European markets. It is also noted that price remains a key differentiator in most new prospects.

Technology aversion: Among Western European countries, France has one of the lowest penetration rates for both mobile telephony and Internet. Thus, the self-service culture among end-users is not as mature as in neighboring economies.

Nationalistic marketplace: Qualitative evidence suggests that enterprises in France that are receptive to voice solutions prefer to deal with vendors that are either based in France, or that have a solid local presence. Therefore, it is advised that non-French voice players ensure partnerships with reputable local French resellers and SIs, which they will help them to win new contracts.

Vertical markets

Voice vendors should pay particular attention to the following vertical markets:

Telcos: This industry is becoming an aggressive adopter of various speech solutions in France. Most notably, French telcos are driving talk-time minutes by promoting various services, such as voice-read email, voice-activated dialing and information portals. Vendors that can deliver service-oriented solutions should make telcos a primary target.

Retail: To date, several French retail operations have implemented deployments that have automated various information provisions to their customers, such as store locators and stock finders. Vendors should examine the French retail sector for end-to-end solutions that will provide basic information and transactional capabilities.

Travel & tourism: As a major international tourist destination, French tourism firms offer excellent possibilities for voice vendors. Solutions for secure hotel bookings, flight information, train timetables, and ticket purchase are all logical areas that vendors should look at automating. It should also be noted that any deployment serving the French tourism industry should also be multilingual, in recognition of that country's global visitor base.

Italy

Italy is proving to be a very strong market for voice services. All verticals seem interested in using speech to facilitate customer care, and Italian end-users appear keen to take advantage of the improved quality and speed by which transactions can be undertaken. This market could prove to be one of the most innovative in voice business in EMEA.

Market context

As indicated in Figure 4.17and Table 4.13, Italian voice revenues will grow rapidly over the next five years, from $32.7m in 2004 to just over $98m in 2008. This rise will be at a CAGR of 24.6%, one of the highest in EMEA. Revenue growth will crest by 2006, and will fall over the subsequent two years, as the Italian voice business market matures. It is worth noting, however, that annual growth will continue to exceed 25%, reflecting the strength of this marketplace.

Figure 4.17: Voice business growth in Italy, 2003 – 2008

Source: Business Insights   Business Insights Ltd
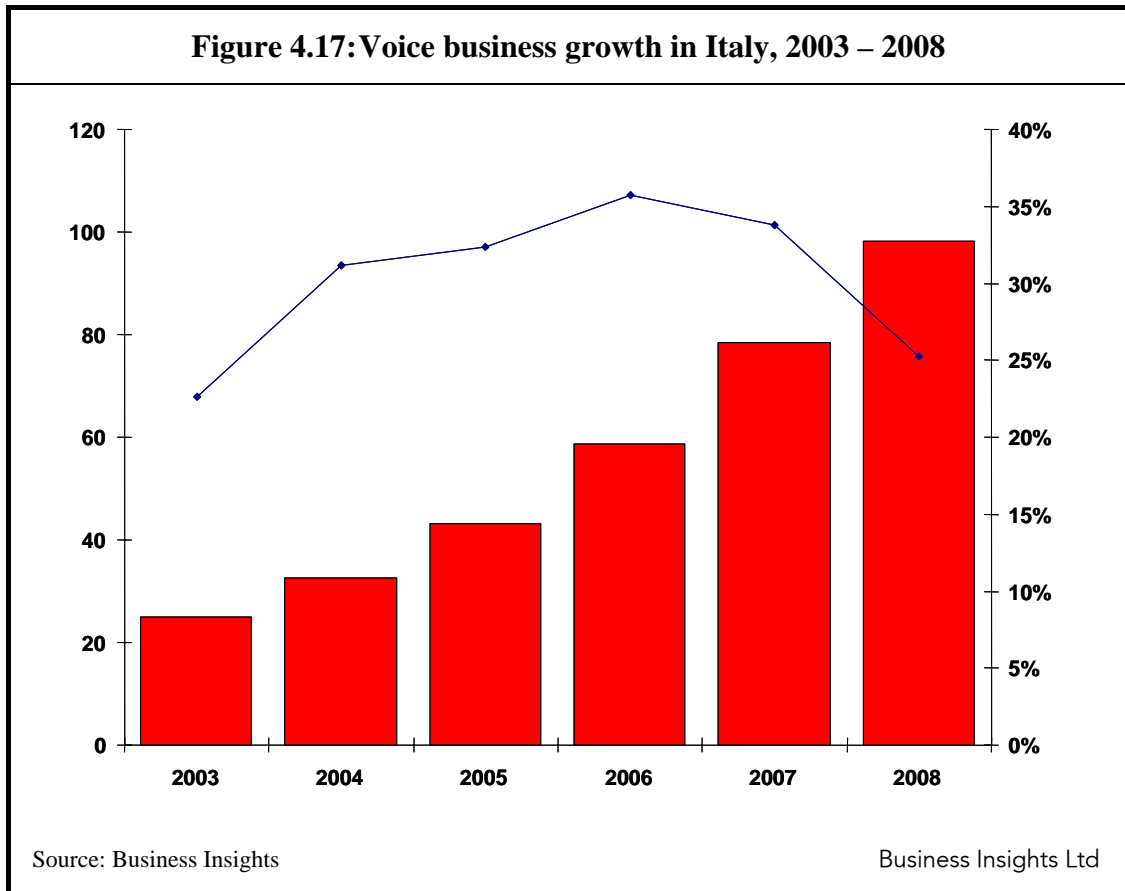
Table 4.13: Voice business growth in Italy, 2003 – 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	24.9	32.7	43.2	58.7	78.5	98.3	24.6%
Annual growth (%)	22.6	31.2	32.4	35.7	33.8	25.2	

Source: Business Insights   Business Insights Ltd

Market charcteristics

There are several aspects to the Italian voice business market, which are discussed below:

Monopolistic: Currently, there are very few voice vendors competing in Italy. Therefore, it is very difficult for smaller players to compete against these larger firms, all of which can leverage economies of scale and ever-growing pedigrees of blue-chip customers. However, new entrants providing innovative solutions at competitive prices could find success, especially with credible partners (this will be discussed below).

Limited partnerships: To date, qualitative evidence suggests that partnerships across the voice business value chain in Italy are still relatively immature, compared to northern European markets. Therefore, both established and new vendors looking to penetrate Italy's telcos and enterprises would be wise to cultivate such relationships in order to offer end-to-end solutions at competitive prices.

Voice legacy: Many in the voice business world are surprised at the enthusiasm Italian end-users and enterprises have demonstrated for speech-based solutions. However, this should not come as a shock, considering the near-saturation of mobile telephony in Italy (71%), which ensures a strong affinity for telephone-based services. As well, Internet penetration in Italy is somewhat lower than in northern Europe (34%), meaning that the mobile telephone is the primary technological interface for the average Italian. In the past, many enterprises have provided voice services that amounted to 'cool technology', but with little practical use. However, these same firms have solicited feedback from customers and are now focusing on useful technology that can add commercial value to enterprise services.

Local player advantage: Non-Italian voice vendors may experience difficulty in obtaining contracts, should they find themselves facing a local competitor. It is strongly recommended that all non-Italian voice companies that look to compete in this market should find a strong local partner, acquire a local firm or establish an on-the-ground presence.

Vertical markets

There are a number of vertical markets in Italy upon which voice business vendors need to focus, which include:

Public sector: Italy's national government has begun to use voice solutions in several areas of national security. These relate primarily to voice verification systems that provide a biometric print of those traveling through passport control areas, or that can allow specific individuals access to secure information. Information provision in relation to public security for the general public is also an area that voice vendors can target when selling to government agencies.

Retail banking: There is already tremendous penetration of IVR touch-tone solutions in Italian retail banking, and Italian end-users seem to appreciate self-service when dealing with their bank accounts. Conventional logic suggests that voice self-service is the next step in financial services automation, and already some institutions are examining this possibility. A particular nuance in the Italian retail banking voice market is the affinity that Italians have for using IVR touch-tone when entering their PINs. This could be a hindrance to voice verification systems, and vendors should consider this when selling to banking prospects.

Telcos: As indicated earlier, Italians have one of the highest rates of mobile adoption in Europe. Therefore, voice vendors would be wise to target wireless telcos with value-added services designed for subscribers, including voice-enabled ring-tones, game downloads, and general information provision.

Spain

The Spanish voice business market is rapidly maturing, with both telcos and enterprises quickly grasping the benefits of self-service. While this growth may come as a surprise to many, Spain is quickly becoming a destination of choice for innovative voice solutions.

Market context

Voice business in Spain will grow from $28.7m in 2004 to $85.6m by 2007, as indicated in Figure 4.18 and Table 4.14. It is important to note that revenues will grow year-on-year to 2006, at which point there will be a marginal decline, reflecting the increasing maturity of Spanish voice marketplace at that point.
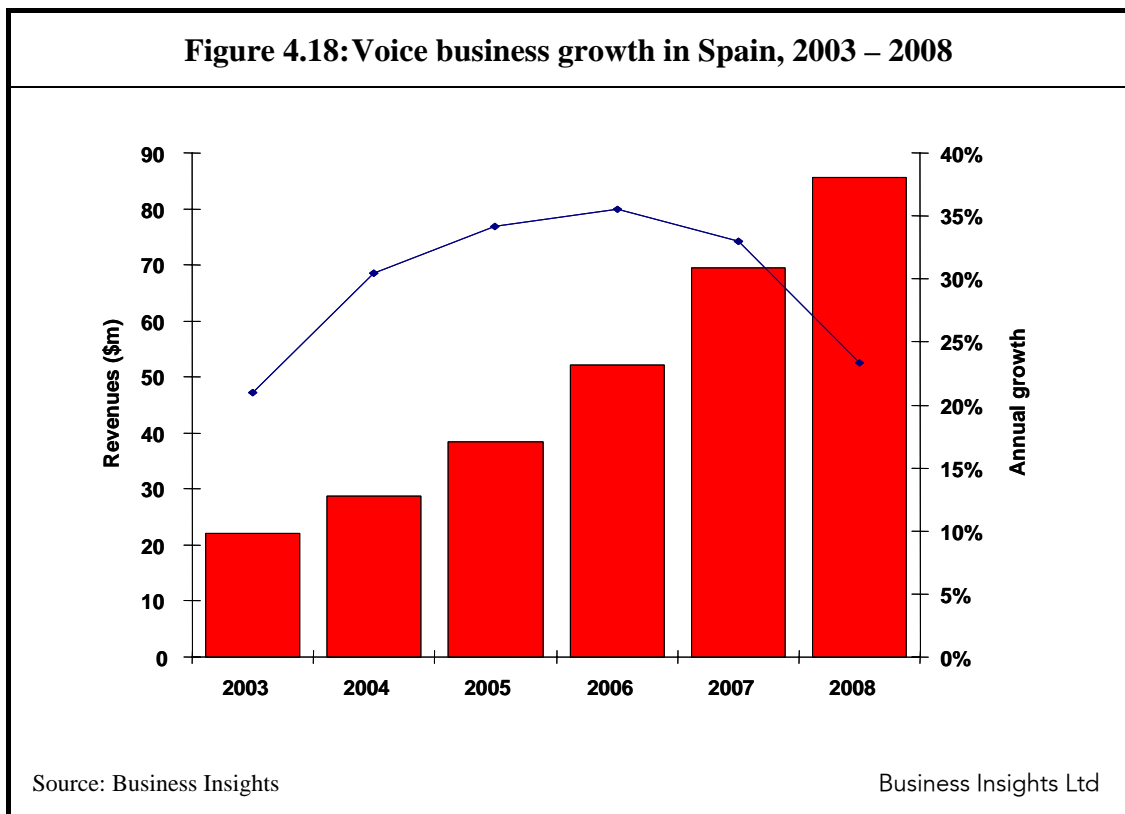
Figure 4.18: Voice business growth in Spain, 2003 – 2008

Source: Business Insights

Business Insights Ltd

Table 4.14: Voice business growth in Italy, 2003 – 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	22.0	28.7	38.5	52.2	69.4	85.6	24.4%
Annual growth (%)	21.0	30.5	34.2	35.5	33.0	23.4	
Source: Business Insights						Business Insights Ltd	

Market characteristics

There are several aspects to the Spanish voice business market, which are discussed below:

Monopoly market: The Spanish voice market is dominated by one or two players that have tremendous market presence, both in terms of verticals and applications. As such, Spain could prove to be a difficult market for new entrants in the near-to-medium term.

Local player advantage: Similar to Italy, Spanish voice business vendors may have a 'home-team' advantage when competing against foreign players. Therefore, it is strongly suggested that non-Spanish firms establish a local presence or find a good local partner through whom they can compete for contracts.

Mobile adoption: The Spanish are ready users of mobile telephony, having one of the highest penetration rates in Western Europe (67%). This bodes well for voice business vendors, especially considering that Internet penetration is quite low, rendering the mobile handset the primary technology interface for most Spaniards.

Poor voice legacy: Despite recent aggressive growth in voice deployments, vendors may find a slight backlash among Spanish end-users, due to the past implementation of poor voice portals, most notably 'Transparent Operators', which soured many on speech solutions.

Vertical markets

Vendors may wish to consider the following industries above others:

Mobile telcos: As mentioned above, Spain has a very high rate of mobile users, and vendors should attempt to sell operators solutions that promote talk-time minutes. Such applications could include handset activation, information provision systems, directory assistance, and voice-activated dialing.

Travel & tourism: This is a very important sector in the Spanish economy, and vendors need to put forward solid end-to-end solutions for both operators and tourists that wish to avail themselves of holiday options. It is also important to note the varied number of languages that require support Spanish tourism so vendors should ensure that engines can handle the tongues and accents of the most frequent tourists.

The Nordics

The Nordic countries (Sweden, Norway, Finland and Denmark) are known for their affinity with technology and self-service. Voice business has been notably strong in this region for sometime, and should remain so, despite particular demographic limitations.

Market context

As shown in Figure 4.19 and Table 4.15, the Nordic market for voice business will grow at a CAGR of 24%, resulting from a rise in revenues of $19.4m in 2004 to $57.5m in 2008. Interestingly, the Nordics voice business market will reach maturity at 2006, and as a result margins will begin tapering off.

Figure 4.19: Voice business growth in the Nordics, 2003 – 2008
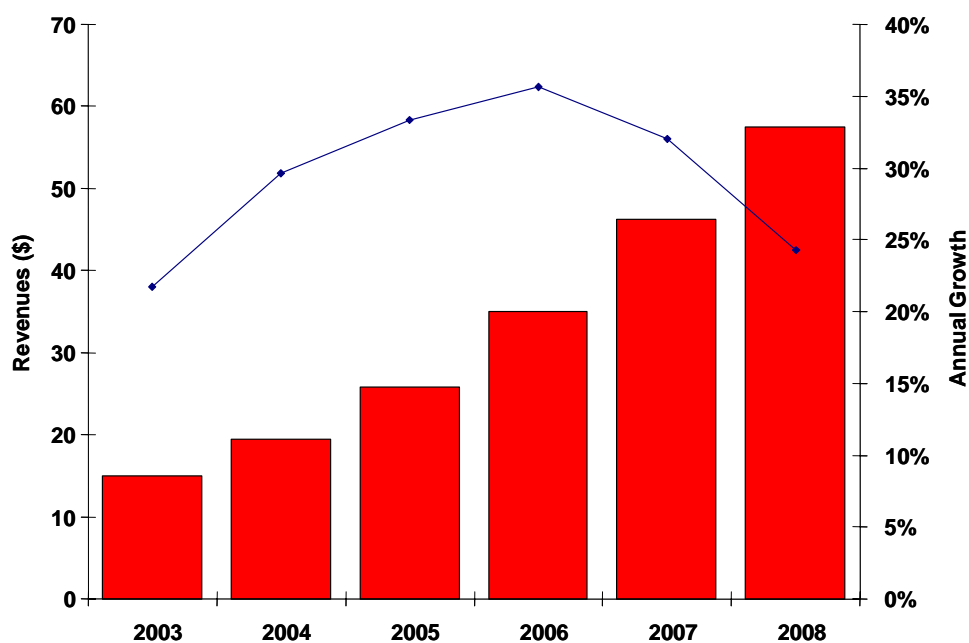
Source: Business Insights

Business Insights Ltd

Table 4.15: Voice business growth in the Nordics, 2003 – 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	15.0	19.4	25.8	35.0	46.2	57.5	24.3%
Annual growth (%)	21.8	29.6	33.3	35.6	32.0	24.2	

Source: Business Insights

Business Insights Ltd

Market characteristics

There are several aspects to the Nordic voice business market, which are discussed below:

Advanced telephony: Nordic residents and businesses are among the most advanced in telephony use across EMEA. In each country, mobile penetration exceeds 70%, and Internet use is also exceptionally high in the context of Western Europe. Thus, given

the strong levels of technology penetration in all four countries, voice solutions are likely to encounter little difficulty.

Limited markets: One possible limitation of voice deployments in the Nordics relates to the minimal economies of scale that can be achieved in each of these countries. All four have populations of less that 10m, and each has its own distinctive language. While major voice vendors have developed engines around these languages some time ago, new players may find the small number of citizens and enterprises in the Nordics a costly market to pursue.

Economic uncertainty: While certainly not unique to the Nordics, economic uncertainty has led to erratic technology spending among the region's enterprises. Many vendors report little in the way of new solution sales, but there has been an upswing in professional services to upgrade current offerings.

Vertical markets

The Nordics' voice deployments are varied:

Government: To date, the public sector in all Nordic countries has made strides in automating various services with voice solutions. It is quite likely that in the current era of cost rationalization, this trend will continue in all four states, and will take into account all aspects of front-line government services.

Financial services: Nordic financial services firms were among the first in Europe to implement self-service via touch-tone IVR, and seem very interested in voice automation. However, it is important to consider the sophistication of the Nordic customer, and ensure that all offerings are full solutions (including voice-verification systems), in addition to information extraction and transactional capabilities.

Telcos: Nordic telcos are excellent targets for voice vendors. Given the high penetration of mobile and fixed line telephony, voice services that augment talk-time minutes and revenue generating services are certain to be well received.

South Africa

While still relatively nascent, South Africa could be an excellent potential market for voice vendors. Its population is relatively at ease with technology, and the growth of the domestic economy means advancements in IT investment. As such, voice players need to remain abreast of ongoing developments in South Africa.

Market context

To date, South African voice implementations have been minimal, confined mainly to telcos and financial services early-adopters. As indicated in Figure 4.20 and Table 4.16, revenues will continue to rise through 2008, at a CAGR of 16%. While this expansion is lower than in Western Europe, it should be noted that voice penetration will be somewhat limited in South Africa, due in part to a small market, coupled with very low contact center agent costs. Despite this, annual growth will peak in 2006, and diminish between 2007 and 2008.
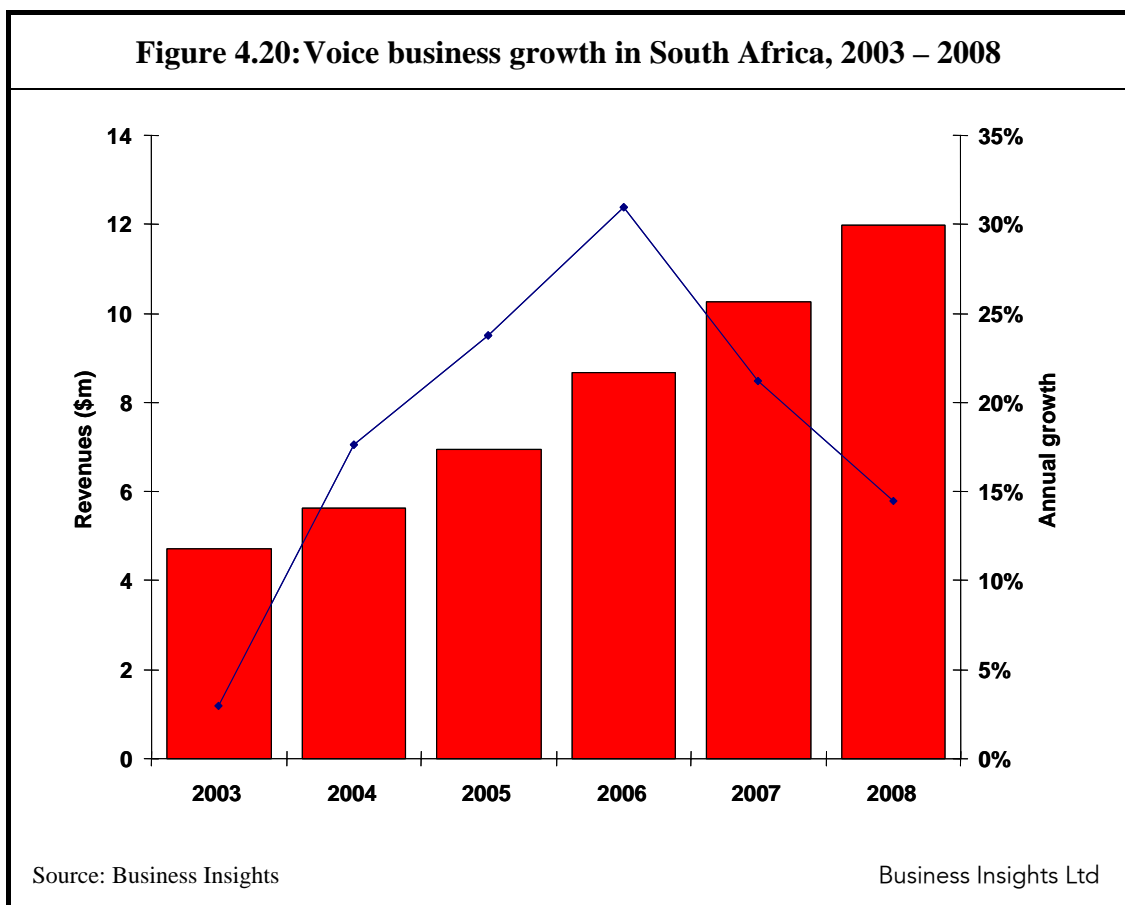

Figure 4.20: Voice business growth in South Africa, 2003 – 2008

Source: Business Insights

Business Insights Ltd

Table 4.16: Voice business growth in South Africa, 2003 – 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	4.7	5.6	6.9	8.7	10.3	12.0	16.4%
Annual growth (%)	3.0	17.7	23.7	31.0	21.2	14.5	

Source: Business Insights   Business Insights Ltd

Market characteristics

These are the highlights in the South African voice business market:

Technology-prone: South Africans tend to be very comfortable using technology, and this is exemplified in their high degree of mobile telephony adoption, relative to the rest of the continent. In fact, it is acknowledged that South Africans generally use their mobile devices as their main technology interface. As such, South Africans should be comfortable using voice systems as a means with which to access information and conduct transactions.

Multiple languages: What could prove a difficult issue for voice vendors in South Africa relates to the 11 official languages found in that country. While English is the most predominant, Xhosa, Afrikaans and Zulu are also widely used. Thus, developing engines around such complex tongues could prove problematic and costly (It is noted, however, that CatchWord, a commercial operation associated with Stellenbosch University, is currently developing an Afrikaans engine). It could also make selling voice solutions to government bodies very costly, should they seek functionality in each official language.

Developing economy: Despite tremendous advances made since 1994, South Africa's economy is still developing, and faces tremendous challenges in the domain of social unrest, health care and crime. Thus, taxes are relatively high, which could make investment in voice solutions by enterprises difficult over the short-to-medium term.

Minimal self-service legacy: South Africa is also noted for low self-service penetration. In fact, while voice solutions are still in their infancy, touch-tone IVR is also a relatively new phenomenon. It is also noted that Internet penetration is less than 7% in South Africa, meaning 'e-Commerce' proliferation has been minimal. Therefore, vendors may find it costly to educate enterprises and end-users on the benefits of self-service voice solutions.

Vertical markets

There are a number of vertical markets in South Africa upon which voice business vendors need to focus, which include:

Financial services: Currently, several institutions have end-to-end solutions in place from the standpoint of retail banking, and insurance companies are also examining the feasibility of voice for detail capture. One of the most exciting areas of voice use in South African financial services relates to voice verification. Currently, most major financial institutions are examining the possibility of implementing these solutions for customers using telephone banking. Given the high degree of financial fraud occurring in South Africa, vendors should be especially conscious of the potential voice printing may have in the future.

Telcos: The telecoms sector is also a good target for voice vendors looking to sell into South Africa. Solutions around information provision and services are the favored choices, especially considering that for many South Africans, the telephone is the prime technology interface method in which to access data and information. However, it should also be noted that the South African telcos sector has not yet been deregulated to the extent of Western Europe, which could mean a cumbersome procurement process. As well, telcos in South Africa have been reluctant to invest in new technology, which could also be challenging from a market development perspective.

Travel & tourism: The tourism sector has grown tremendously in South Africa, and major firms in this area are using voice technology to coordinate flight arrival times, hotel reservations & tour bookings, as well as basic information provision. Given

projections for tourism to continue flourishing, this vertical is likely a strong target for voice vendors.

Utilities: South African utility companies have begun adopting voice solutions for notification of problems relating to services. Vendors could also promote B2E ticket management, which has been successfully used in North America.

Eastern Europe

The eastern European voice business market is in its infancy, and to date has had a minimal number of deployments, relative to Western Europe. Maturing economies, inexpensive contact center labor and varying technology levels have limited region-wide expansion of voice business to date, which explains this region's relatively small portion of the total EMEA marketplace.

Market context

The voice business market in Eastern Europe will continue to grow, but at a slower pace that other regions, as noted in Figure 4.21 and Table 4.17. Specifically, voice business revenues will grow from $4.2m in 2004 to $9.4m in 2008, at a conservative CAGR of 18%. It is also important to note that the growth will be relatively strong through 2003 – 2006, but will taper through 2008. This will be due to the limited geographic and vertical markets that voice solutions can penetrate in this region. Please note that the following countries comprise Eastern Europe:

The Czech Republic;   The Baltics;

Poland;   Bulgaria;
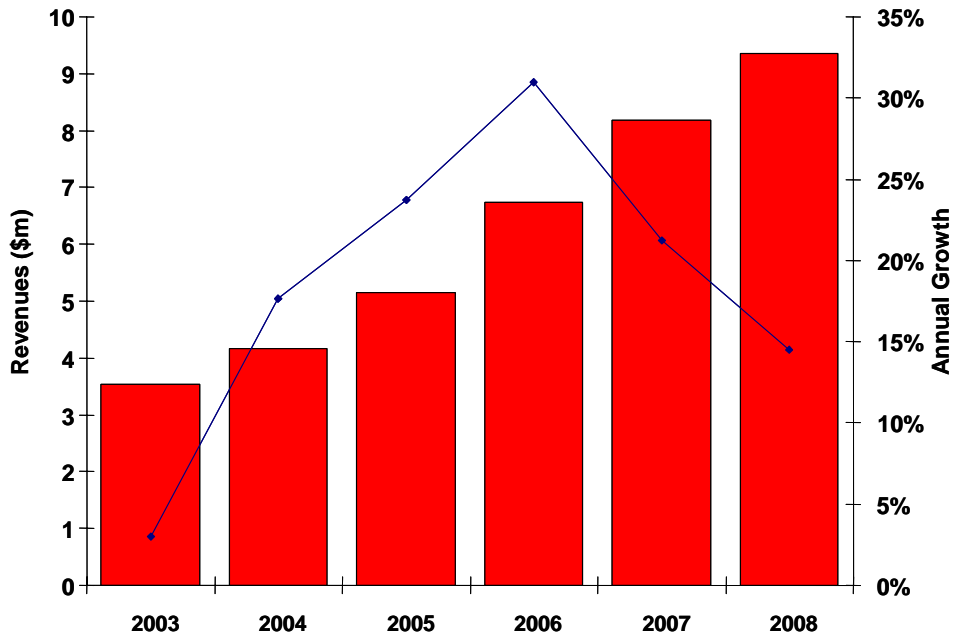
Hungary;   Romania;

Russia;   Croatia;

Slovakia;   Slovenia.

Figure 4.21: Voice business growth in Eastern Europe, 2003 – 2008

Table 4.17: Voice business growth in Eastern Europe, 2003 – 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	3.5	4.2	5.2	6.7	8.2	9.4	17.6%
Annual growth (%)	3.0	17.7	23.7	31.0	21.2	14.5	

Market characteristics

Competition with contact centers: Due to the very low costs associated with contact center labor in Eastern Europe, many companies across verticals find that that it is more economical to employ live agents than invest in the expensive and time-consuming hardware and applications associated with voice business.

Limited self-service legacy: With few exceptions, throughout Eastern Europe, technology-based self-service has had little traction. In many countries, both mobile &

fixed line telephony still has limited penetration, and basic IVR touch-tone deployments are not common. As such, the possibility of selling into vertical markets on the basis of improving telephone customer service will have marginal resonance among enterprises in this region.

Cost considerations: Vendors see Eastern Europe as a difficult prospect due to the heavy costs associated with developing voice engines around region's languages, many of which have less than 10m speakers. Not only does acoustic development count for a large expense, but the actual establishment of a market presence in terms of developing partnerships and local presence is also a fear.

Limited national markets: To date, vendors see only a small number of national markets as good prospects for voice solutions. The country most frequently mentioned is Poland, due in part to its population, as well as its growing consumer purchasing power. While the Czech Republic and Hungary are also mentioned, their overall size is limited, and may not be viable from the standpoint of developing engines around their respective languages.

Vertical markets

Despite the limited potential for voice solutions in Eastern Europe, vendors should examine the following industries:

Telcos: Vendors should pursue Eastern European telcos for basic information provision and IVR services, in order to cultivate the domestic marketplace, and gradually migrate customers to value-added services, as well as transactional capabilities.

Financial services: Already, many retail banks in Eastern Europe have deployed IVR touch-tone solutions around personal account management. A logical step for vendors would be to migrate these solutions to full speech enabled systems. Already, a number of banks in Poland are undertaking such a move.

CHAPTER 5

Voice business market overview: North America

Chapter 5 Voice business market overview: North America

Summary

❑ As one of the earliest adopter of speech recognition, North America remains the largest global market for speech technology and services.

❑ North American spending on speech technology will grow to roughly $1.2bn by the end of 2008 at a CAGR of 25% between 2004 and 2008.

❑ As the largest voice business market in the world, the US accounts for 43.4% of the global market revenues, growing from $440m in 2004 to over $1bn by 2008 at a CAGR of 24.3%.

❑ Speech penetration in the US market is primarily for call center automation. As the largest call center market in the world the US has over 50,000 call centers and 2,840,000 agent positions.

❑ A growing number of solution providers are introducing packaged application suites for vertical markets such as retail banking, utilities and healthcare, while platform vendors are focusing primarily on horizontal packaged applications such as auto-attendant, bill pay, address capture and pin/password reset.

❑ Financial services institutions in the US have invested heavily in speech technology in efforts to reduce costs and improve customer service through increased automation.

❑ Canadian voice business revenues will rise from $41m in 2004 to roughly $135m in 2008.

❑ The Canadian market is expected to exhibit strong growth in 2006 and 2007 as the market awareness of the business benefits of speech technology are more widely recognized by newer vertical markets and early adopter verticals deploy across other areas in the enterprise.

Introduction

As one of the earliest adopter of speech recognition, North America remains the largest global market for speech technology and services. The region boasts the largest number of call centers in the world with 54,900 and over 3m agent positions. These factors place North America as the main regional pipeline of business for most global speech vendors.

Market context

In 2001 and 2002, the doldrums of the economy impeded significant spending growth in voice business but tentative market conditions have improved and enterprise and service provider companies have freed up spending on IT. As a result, investment in speech has been on the rise in the past couple years. In 2004, spending on speech technology reached just over $480m in 2004, representing a 26% year-on-year growth rate. And in the next three years, spending will grow to roughly $1.2bn by the end of 2008 at a CAGR of 25% over this time frame. Figure 5.22 and Table 5.18 illustrate voice business revenues from 2003 to 2008.
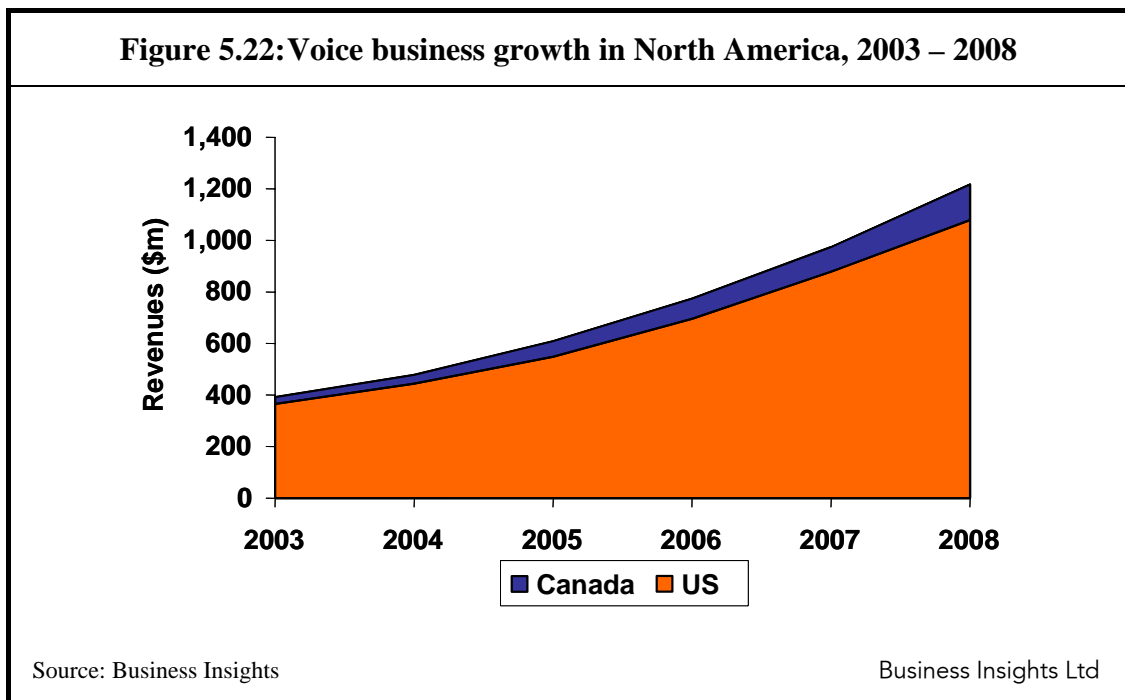

Figure 5.22: Voice business growth in North America, 2003 – 2008

Source: Business Insights

Business Insights Ltd

Table 5.18: Voice business growth in North America, 2003 - 2008							
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**CAGR**
Revenue ($m)	394.9	482.1	605.4	770.0	977.6	1,213.4	25.2%
Annual growth (%)		22.1	25.6	27.2	27.0	24.1	

Source: Business Insights   Business Insights Ltd

Voice business in North America is dominated by the US market, which currently accounts for over 90% of regional revenues in the North American region. However, Canada is expected to exhibit a strong uptake in speech through the next several years and account for roughly 12% of voice business in North America by the end of 2008. The following two sections detail the US and Canadian markets with regards to verticals and local issues.

The United States

The United States is the largest voice business market in North America and the world. Since its inception in the early 1990s, network-based speech technology has had over a decade of visibility within the US and has penetrated about 30% of the Fortune 500 companies. Yet a large number of these companies have only deployed one or two speech applications. This is expected to change as speech technology evolves from a technology-driven product to a business-process solution through the next five years. As such, vendors will transition their sales message to target a wider audience that includes CXOs, IT executives and business line managers.

Market context

As the largest voice business market in the world, the US accounts for 43.4% of the global market revenues. As illustrated in Figure 5.23 and Table 5.19, the US market will grow from $440m in 2004 to over $1bn by 2008 at a CAGR of 24.3%. In comparison to Canada and other countries in Latin America and the Caribbean, the

yearly growth rates for voice business in the US are lower; however, revenues will continue to increase at an aggressive rate of over 20% per year. This is a reflection of the level of market maturity of the country's voice business industry.
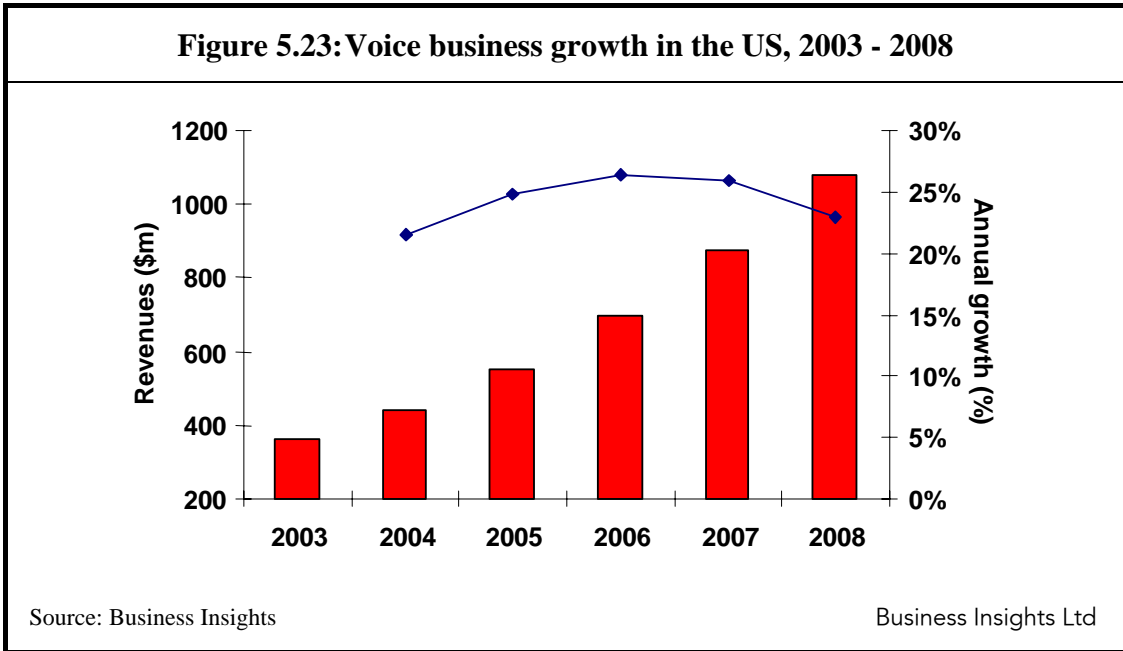
Figure 5.23: Voice business growth in the US, 2003 - 2008

Source: Business Insights   Business Insights Ltd

Table 5.19: Voice business growth in the US, 2003 - 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	362.9	441.1	550.9	696.1	876.9	1,078.8	24.3%
Annual growth (%)	22.4	21.5	24.9	26.3	26.0	23.0	

Source: Business Insights   Business Insights Ltd

The offshore movement and speech automation

Speech penetration in the US market is primarily for call center automation. As the largest call center market in the world the US has over 50,000 call centers and 2,840,000 agent positions. These figures are expected to decrease through 2008 due to offshoring, the federal Do-Not-Call list and an increased uptake in web and speech self-service technologies.

For the next five years, US businesses will continue to move call center operations offshore and invest in self-service technology to leverage labor arbitrage while increasing first-call resolution rates. However, the offshore movement is a temporary solution to reducing call center overhead. As call centers become more adept with self-service applications – more specifically speech automation – and offshore locations such as India and the Philippines become more mature the offshore movement is likely to taper off among US businesses in the long-term. A renewed focus will be on automating low-value routine transactions while intelligently routing higher-value complex queries to highly skilled agents. However, for multinational companies that service a global customer base, speech would complement offshore call center strategies. For companies that are planning to invest in offshore call centers in the mid-to-long term, speech provides a compelling alternative from investing in offshore call centers.

Currently, a US-based business with a call center in an offshore location, like India, saves approximately 25% to 35% per transaction, in comparison to a transaction handled in a US-based call center. A call serviced through speech automation costs approximately 15% to 25% of the cost of a call handled by an agent in India. Therefore, a transaction handled by a speech-enabled solution presents a highly cost-effective approach for transactions in the call center. In addition, to date the vast majority of higher-value calls in the US are still handled by US-based agents while lower-value calls tend to be directed to offshore agents for those businesses that have offshore call centers. This is primarily due to the sharpened focus on customer service and customer retention in the US. In the future speech automation will present a viable long-term alternative to offshoring call centers.

Market characteristics

As the largest and most mature industry, the US voice business market exhibits several trends that extend across the voice business value chain:
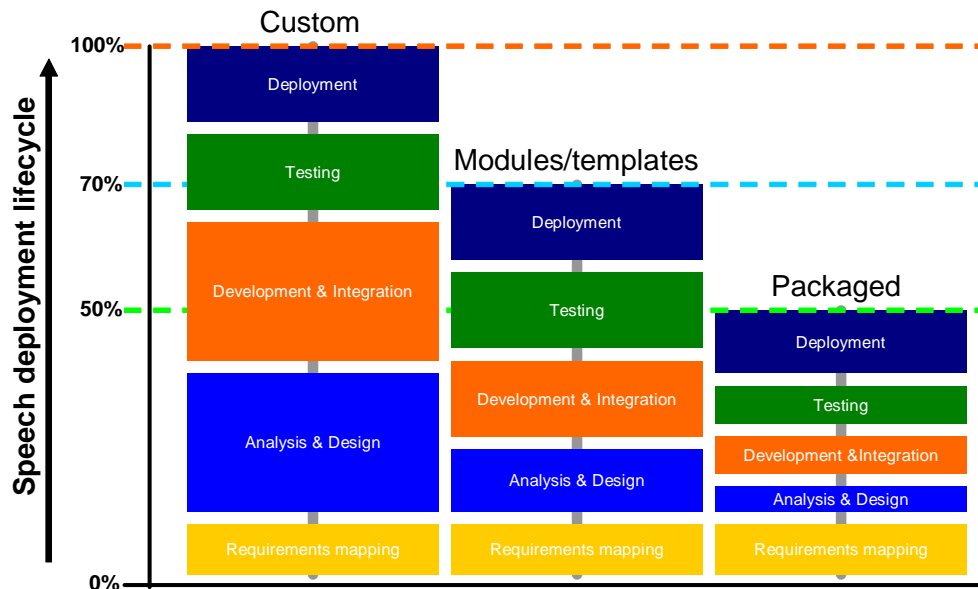
Voice-XML – The Voice-XML open-standard continues to gain greater momentum as more businesses understand the benefits of this open-standard platform from a technical and business perspective. Voice-XML currently has positioned itself as the

dominant open-standard protocol for speech applications among service providers and enterprises.

SALT – With Microsoft's release of their speech server solution earlier this year, SALT has been placed on the radar of some US businesses. However, the market has yet to experience any significant interest or uptake of this open-standard as it is relatively new. Looking towards 2005, Business Insights expects a growing focus on SALT due to its market penetration pricing and the large presence of Microsoft's .Net infrastructure among enterprises.

Packaged applications – Preconfigured packaged applications have emerged in the US market with incredible promise as they serve to reduce complexity, development time and costs through the use of component reuse and simplified integration efforts. A growing number of solution providers are introducing packaged application suites for vertical markets such as retail banking, utilities and healthcare, while platform vendors are focusing primarily on horizontal packaged applications such as auto-attendant, bill pay, address capture and pin/password reset. There are however, a handful of platform vendors that also provide vertical packaged application suites. The bulk of applications are still built from packaged modules/templates and custom endeavors. But, much has been focused around what constitutes a packaged application. This report defines a packaged application as a pre-built, configurable, platform independent, off-the-shelf speech application with an integrated telephony interface that reduces the speech deployment lifecycle by more than 50%. A packaged application will also support open-standards and contain the entire voice user interface (VUI). In comparison, packaged modules/templates reduce the deployment lifecycle by 30%. This is measured against the time it would take to develop and deploy a custom application. For example, if it takes a company one year to develop and deploy a custom application, it would take the company about eight months using modules/templates and 6 months using packaged applications. This report segments applications into three different categories illustrated in Figure 5.24.

Figure 5.24: Comparison of custom, modules/templates and packaged applications

Custom

Speech deployment lifecycle

- 100% — Deployment
- 70% — Testing
- Development & Integration
- 50% — Analysis & Design
- Requirements mapping
- 0%

Modules/templates

- Deployment
- Testing
- Development & Integration
- Analysis & Design
- Requirements mapping

Packaged

- Deployment
- Testing
- Development &Integration
- Analysis & Design
- Requirements mapping

Source: Business Insights

Business Insights Ltd

NLU routing – Paralleling the improvement of speech recognition technology, VUI and call flow design, natural language understanding (NLU) routing is gaining greater visibility in the US market as indicated by RFPs and company inquiries. Businesses are beginning to understand the benefits of direct dialogue prompts that provide less prohibitive VUIs for customers, increase efficiencies and cost effectiveness by eliminating the need for multiple phone numbers. Business Insights expects an uptake in NLU routing through direct dialogue through 2008.

Toolsets – A recent trend, development tools and application management of speech solutions has grabbed much attention from end-users and vendors alike. Vendors are providing greater programming flexibility to their customers by either OEMing, reselling or partnering with development tool vendors such as Audium, Fluency Voice and Voice Objects. This provides end-customers with the choice to develop and monitor applications using simplified GUI-based drag and drop tools or utilizing the vendor's own development tools for low-level programming and monitoring. Business

Insights expects a growing number of US vendors to engage in more partnerships with the tools vendors.

Hosting – A rising number of businesses are looking to hosted speech solutions as a viable alternative to investing in often expensive premise-based speech systems. US companies such as 1-800-Flowers.com and Continental Airlines have indicated their strong liking for managed services model as it transforms capital expenditure to operational expenditure and outsources complexities associated with speech application management. It also provides a secure way of piloting a speech solution with a live customer base. A recent survey of 200 US contact center managers found price to be the leading inhibitor for investment in speech solutions. As such, hosting is expected to increase through 2008 as more businesses evaluate speech as a self-service solution.

Sales channels – Vendors in the US market typically employ a 60% direct, 40% indirect sales model, and this vastly differs with the size and type of vendor. Some traditional IVR vendors employ a larger sales force and often have a 70% direct and 30% indirect sales channel for the US. While, smaller vendors must engage heavily in partnerships and resell channels to cultivate sales opportunities, it is not uncommon to find a 50% direct and 50% indirect sales channels among smaller vendors. Looking forward more vendors will concentrate on increasing their indirect sales channels to cover a wider market in the US.

Sales cycles – The average sales cycle for speech-enabled solutions in the US is six-to-nine months with deployment cycles ranging from three months to one year. Although IT spending has freed up due to better economic conditions the sales cycle is prolonged due to the lack of market awareness on the benefits of speech. However, on average upselling speech solutions to the installed base ranges from one month to three months.

Large Latino population – In 2003, the US had an approximate population of 290m residents according to the US Census Bureau. With the large English speaking population, speech has had success in penetrating the US market. However, a growing trend among businesses has been the need to support Spanish. Figures from the 2002 US census show that the US Latino population has reached 38.8m, over 12% of the total US population. But of greater importance is the purchasing power of this growing

population. Strategy Research Corp. estimated that the total US Latino purchasing power was more than $420bn in 2002, a figure that exceeds that of populations in Latin America's largest countries. As such there has been an increasing need for the support of the Spanish language in speech applications among businesses in the US.

Advanced telephony – The US has a high Internet penetration rate of 60% and a mobile phone penetration of 54%. Given the strong levels of technology penetration in the US, voice solutions are likely to encounter less resistance from customers as US residents and businesses are more apt to migrate easily from DTMF to speech than countries that have low technology penetration rates.

Partnerships – The voice business market has undergone a significant change in the partnership landscape as vendors who have traditionally competed have forged relationships with each other on the speech component level in order to leverage joint sales and marketing efforts while bridging technology gaps. In the past year notable partnerships have been between Intervoice and Microsoft, Genesys and IBM and most recently IBM and Avaya. In the next year, IBM will continue to aggressively approach IVR vendors with significant contact center experience to engage in partnerships to support their Reusable Dialog Component initiative. This initiative is designed to open-source a Java-based framework of pre-built speech application components to expedite, improve and drive down costs of speech deployments in the industry.

Vertical markets

There are a number of vertical markets in the US that are the largest users of voice business technologies:

Financial services – In comparison to other verticals, financial services institutions in the US have invested heavily in speech technology in efforts to reduce costs and improve customer service through increased automation. This trend is expected to continue, as more institutions migrate from DTMF-IVR to speech-enabled solutions that provide greater transactional capabilities. The financial services vertical can be segmented into four categories: retail banking, investment & securities, insurance and other financial. The following highlights the sub-verticals that account for 100% of financial services revenues.

Retail banking – This sub-vertical accounts for about 42% of US revenues from voice business in financial services. Speech deployments will typically have one or a combination of the following applications: internal phone directory, account payment, account information, account enrollment, billing, ATM/branch locator, fund transfers, name and address capture, and loan/mortgage status and tracking.

Investments & securities – This sub-vertical accounts for about 32% of US revenues from voice business in financial services. Speech deployments will typically have one or a combination of the following applications: internal phone directory, account payment, account information, stock quotes, stock performance, account enrollment, billing and name and address capture.

Insurance – This sub-vertical accounts for about 16% of US revenues from voice business in financial services. Of recent importance in this vertical is HIPPA. With this new regulation in place, the processes that entail security and patient privacy will likely include voice authentication. Speech deployments will typically have one or a combination of the following applications: internal phone directory, account information, account enrollment, account payment, claims processing, name and address capture, billing and rate finder.

Other financial – This sub-vertical accounts for about 9% of US revenues from voice business in financial services. Mortgage lender and credit card businesses fall into this category. Speech deployments will typically have one or a combination of the following applications: account information, account enrollment, account payment, billing and loan/mortgage status and tracking.

Communications – This vertical comprises ILECs, CLECs, IECs and wireless carriers for fixed-line local and long-distance voice services, in addition to DLECs, cable companies and wireless companies for broadband services. On the enterprise side, voice business in this vertical is gaining traction in the US, as companies are slowly rebounding from financial difficulties resulting in increased IT spending. Moreover due to deregulation in 1996 and the more recent Wireless Local Number Portability Act, companies are competing now more than ever on customer retention through customer service, value-add services, pricing and technology. In fact, customer acquisition is more expensive than customer retention for most of the carrier companies. With the increased focus on customer service the US carriers will continue investing in speech technology to improve customer service, automate calls and reduce overhead. Speech self-service among carriers have been gaining momentum in areas such as billing, repair and service activation through applications such as NLU routing, account information, account enrollment, account activation, bill payment and FAQ/troubleshoot.

Travel & Tourism – In the US, speech deployments in this vertical have been heavily concentrated among airlines, railways and travel websites. The US airline industry has been crippled due to the aftermath of '9/11' and more recently soaring fuel costs. There has been an increasing uptake in managed services for voice solutions as well, as seen in TellMe's solution for American Airlines and Voxify's solution for Continental Airlines. This stems from the airlines' desire to outsource more functions outside of security in efforts to reduce costs. Speech applications in this vertical typically include one or a combination of the following: schedule information, booking, account information, flight reconfirmation and baggage claim information. In the next five years the US travel & tourism vertical will witness an increasing number of speech deployments.

Outsourcing Bureaus – US call center outsourcers are facing difficult times as pricing pressures from offshore providers have depleted profit margins for these businesses. There has been a recent movement among major US call center outsourcers to host more network-based technology (such as speech) on a VoIP infrastructure in order to drive profit margins higher. Traditionally, the large US outsourcers have been early adopters of speech technology as it served as a competitive differentiator. In the future, speech will become commoditized among large outsourcers and become one of several value-add services offered in their technology hosted solutions. Speech applications in this vertical are common to those found in communications, financial services and technology

Utilities – Deregulation in the US utilities industry has led businesses in this vertical to automate several phone-based customer service functions in efforts to improve customer service, increase scalability and reduce costs. In addition, there have been a growing number of field-service speech deployments for functions outside of the call center catalyzed by the availability of packaged applications from companies such as Datria. The combination of vertical packaged application suites and the increasing level of the market awareness of the benefits of speech will help drive speech investment in the utilities market. Speech applications in this vertical typically include one or a combination of the following: billing, meter readings, account enrollment, service outage, disconnect service and field service automation.

Figure 5.25 highlights the vertical market segmentation of the US voice business market from the 2003 to 2008. As illustrated the early adopter verticals – Financial services, Outsourcing bureaus, Communications and Travel & Tourism compose the majority of voice business revenues in the US. Overall, the market is expected to grow at a tremendous CAGR of over 24% through 2008.

Figure 5.25: US vertical market revenues, 2003 – 2008
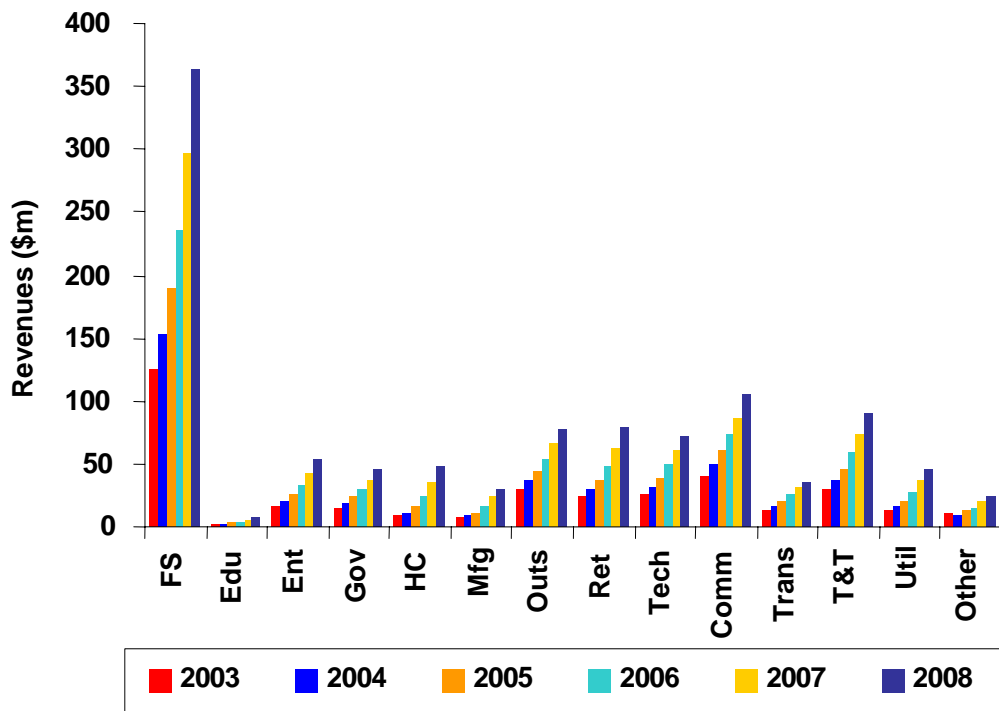
Canada

Canada's vibrant economy and widespread adoption of technology has nurtured opportunities for voice business in the country. Speech deployments in this country are highly concentrated in the early adopter verticals such as Financial Services, Communications and Outsourcing Bureaus. Canada is also a prevalent 'nearshore' call center destination for US companies. The growing number of US companies opening up call centers in Canada to service both the US and Canadian markets has contributed to the country's increasing penetration of speech.

Market context

As indicated in Figure 5.26 and Table 5.20, Canadian voice business revenues will rise from $41m in 2004 to roughly $135m in 2008. The Canadian market is expected to exhibit strong growth in 2006 and 2007 as the market awareness of the business benefits of speech technology are more widely recognized by newer vertical markets and early adopter verticals deploy across other areas in the enterprise. In 2008, growth is expected to taper off slightly, paralleling growth in the US, as both markets begin to mature. Nevertheless revenues will continue to increase at a tremendous year-on-year rate.

Figure 5.26: Voice business growth in Canada, 2003 - 2008

Source: Business Insights   Business Insights Ltd
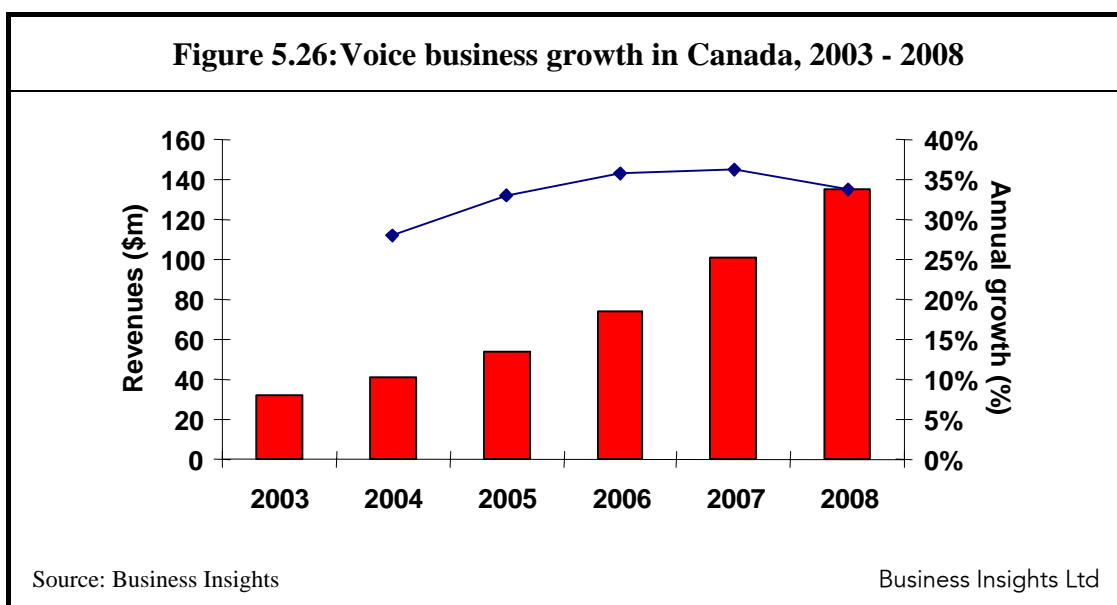
Table 5.20: Voice business growth in the US, 2003 - 2008

	2003	2004	2005	2006	2007	2008	CAGR
Revenue ($m)	32.0	41.0	54.5	73.9	100.7	134.6	33.3%
Annual growth (%)	28.6	28.1	33.0	35.7	36.2	33.7	

Source: Business Insights   Business Insights Ltd

Market characteristics

There are a number of factors that characterise the Canadaian voice business market:

Small size: Canada houses an estimated population of 32m residents that in comparison, is over 9 times smaller than that of the US. In terms of call center agent positions, Canada is over 13 times smaller than that of the US market. Yet the country's voice business market shares many of the same traits as that of the US.

Advanced telephony: Canada has a high Internet penetration rate of roughly 60% and mobile phone penetration rate of about 48%. Given the strong levels of technology penetration in Canada, voice solutions are likely to encounter less resistance from customers as Canadian residents and businesses are more apt to migrate easily from DTMF to speech than countries that have low technology penetration rates.

Similarity to the US: Due to its close geographic proximity to the US, favorable economic conditions, adoption of technology and large English speaking population, Canada's voice business market and business practices bear close resemblance to that of the US market. In fact most voice business vendors classify Canada and the US as one market unable to draw any significant distinctions between the markets.

Bilingual population: Canada is home to a predominately English speaking population, a large-sized bilingual population that speaks a mix of English and French, and a smaller French only speaking population. Although the English speaking population is highly concentrated in large metropolitan areas such as Toronto, Vancouver and Calgary, businesses still have a strong focus in supporting both the English and French languages for their speech applications.

Trends

Similar to the trends of the US voice business market, Canada's primary trends reflect the following:

Voice-XML – The Voice-XML open-standard continues to gain greater momentum as more businesses understand the benefits of this open-standard platform from a technical and business perspective.

Packaged applications – Preconfigured packaged applications such as auto-attendant and phone directory have begun to take a foothold in Canada as the lure of reduced integration efforts, faster development time and lower application development costs begin to attract more businesses to speech.

Vertical markets

Communications: As early adopters of speech, Canadian telcos run the gamut of the different levels of speech application sophistication implemented globally today. Deployed applications will include: bill payment, and account activation to the more advanced NLU routing and voice portal solutions. Hosting and managed services is likely to become a growing focus among telcos as speech solutions are still viewed as expensive.

Financial services: Financial services institutions in Canada have adopted speech primarily for call-routing and information provision functionality. The majority of deployments have been in the investment and securities organizations and retail banks. This trend will continue, as more institutions migrate from DTMF-IVR to speech-enabled solutions that provide transactional capabilities. Insurance companies are currently beginning to evaluate speech to automate routine customer information harvesting, such as name and address capture.

Government: Municipalities and provincial government agencies are leveraging the speech to provide information services for their citizens with initiatives similar to the "311" information services in the US. Expect a growing number of government agencies deploying speech solutions for information provision and call routing

functionality delivered through Canadian telcos and their vendor partners from a hosted and managed services model. The city of Montreal recently launched a bilingual speech application that provides Montrealers with an enhanced 87-ACCES automated telephone service system. The implementation voice-enables the city's web site providing citizens 24/7 access to information on municipal services previously available only on the Montreal web site.

CHAPTER 6

Voice business: Vertical market overview

Chapter 6   Voice business: Vertical market overview

Summary

❑ Travel and tourism investment in EMEA will increase steadily through 2006, after which it will slow as this technology becomes increasingly mature within this vertical market. But the market will still reach just under $45m by 2007.

❑ Growth in US travel and tourism will be most aggressive during 2005, tapering off after that.

❑ Aggregated, voice business revenues in North American government are expected to rise from just under $11m in 2003 to nearly $27m at the end of 2007.

❑ EMEA's public sector spend on voice solutions will grow from just over $10m in 2004 to $23m by the end of 2007.

❑ Voice solutions in the North American healthcare and pharma vertical will grow at a significant CAGR of 37.4% to represent over $24m of enterprise voice revenues in 2007.

❑ The EMEA healthcare and pharmamarket is growing at an exceptional CAGR of 44.3%, albeit slightly smaller in revenue share than the NA market at approximately $22m in 2007.

Travel & tourism

Key pain points

Pricing pressure

Squeezed margins and the growth of discount travel options have led to increased pressure on all sectors in the travel & tourism industry to cut prices as far as possible. This is further illustrated when examining segments individually:

Airlines: In the airline industry, the advent of short-haul carriers such as Easyjet, Ryanair, and JetBlue have forced major airlines to drop prices in an effort to remain competitive. However, in many cases, passengers may opt for less costly transport methods, including the train or motorcoach.

Car rentals: Major automobile rental agencies including Hertz and Avis have felt squeezed by new low-cost options such as Easycar, which have capitalized on the growth of e-commerce and demands for lower prices from customers.

Hotels: Luxury accommodation providers, which experienced a period of high-growth in the late 1990s thanks to prolific business expense accounts have lost market share to mid-to-low priced vendors such as Holiday Inn, Travelodge and Red Roof Inn. Travelers no longer seek the cushy extras that luxury hotels are known for, preferring to stick to just the basics.

Travel agencies: With little in the way of overhead costs, web portals can offer deals that would be impossible for most travel agencies. The exception to this would be package holiday providers, who still court significant trade, due to brand presence and efficiencies in organizing large-scale holidays.

For each of these categories, voice solutions would reduce customer care costs, freeing cash resources for hard-hit travel & tourism firms to invest in aggressive campaigns to regain market presence. In the future, transactional and voice authentication products would further reduce costs and actually increase revenue volumes, providing customers with a new channel in which to purchase travel & tourism products.

Information provision, transactions, and call center agents

One of the main customer complaints relating to the travel & tourism industry is the inability to access pertinent information or make purchases over the telephone. Overwhelmingly, this comes about as firms in this vertical have reduced the size of customer care staff, preferring to direct customers to web portals, where information access and purchases/reservations can be facilitated.

However, there remains a sizeable segment of the general population which does not have access to personal computers, or that is not Internet-literate, and for whom the telephone is their main method of commercial contact. By delivering frustration and long queue times, travel & tourism players put at risk customer goodwill, and could push business to other vendors.

Changing distribution models

Travel and tourism's business model has shifted drastically with the advent of Internet technologies over the past decade, moving from an indirect to a direct model. A large amount of purchases for transportation, automobile rentals, and accommodation are done via web portals, owned by independent agencies such as Expedia or Travelocity, or by actual vendors. However, there exists a customer segment that would like to use the direct model, but who do not use personal computers or have knowledge of the Internet. For these clients, voice solutions would be optimal and increase the total size of the market for tourism goods and services.

Security

Concern over passenger identification has become a major issue in the past three years for both transport security and transportation vendors. New schemes have been put in place in some countries (including The United States) to record passenger fingerprints in addition to passport data. While an improvement in security, this and similar schemes have led to increased security costs that travelers have incurred in the way of charges added to transportation tickets, which some travel vendors feel has inhibited growth in this vertical.

Selling voice to travel & tourism

Transactional solutions

Voice technology provides an excellent opportunity to generate increased revenues from travel & tourism players. By developing solutions that leverage existing web portals, firms in this sector can reach out to customers that do not use Internet technologies but still wish to take advantage of lower costs provided by direct sales

channels. Be it reserving a rental car, purchasing an airplane/train ticket, or making a hotel reservation, travel & tourism firms will benefit from the enlarged customer base, as well as reduced overheads in terms of call center agents that have traditionally dealt with these interactions.

Transactional applications also have potential from a business-to-business standpoint. Travel & tourism vendors could benefit by installing dedicated lines for travel agents to make purchases on behalf of clients, without having to wait in a general queue or needing to speak to a human operator. This would lead to both increased revenues, shorter wait times, as higher levels of customer satisfaction.

Voice vendors need to impress upon travel & tourism firms the potential reduction in overhead costs that transactional voice solutions will enable, and the increased revenue made possible by addressing the needs of a new segment of non-Internet based customers.

Voice authentication

Some feel that voice authentication solutions are good compliment to transactional applications. By combining these two functionalities, travel vendors can use voiceprints to authenticate customer details including personal identification when completing purchases using credit cards. This biometric method is significantly more secure than entering a PIN via IVR or by verbally giving it to an operator.

Call-center automation

A concern that many customers have expressed when dealing with travel & tourism relates to long wait times while operators route calls to the correct agent. By installing voice-enabled call center automation, customers will be able to be directed quickly to the correct queue without having to wait for an operator to route them. This will reduce waiting times and improve customer satisfaction.

Voice vendors need to promote call-center automation solutions vigorously with travel & tourism firms, outlining the specific benefits of enhanced call routing in terms of

reduced wait times and increased customer satisfaction. The potential to reduce overhead costs is another key selling point, as agents will no longer be necessary, and improved ROI will also result from such an investment.

Information

Travel and tourism firms must increase their ability to provide telephoning customers with information that is as precise in detail as what is available on their web sites. This will increase customer satisfaction and help drive repeat business – an asset critical to companies competing in this vertical.

Firms with existing web sites can easily leverage their Internet investments to facilitate voice solutions, and this is precisely how voice vendors need to position this technology. It is also wise to accentuate reduced overheads, due to the fewer number of agents required to provide detailed information to customers.

Market opportunities

North America

With the North American economy rebounding, discretionary spending on leisure and business travel is set to rise, which will necessitate investment in customer care operations.

Travel & tourism firms are already investing aggressively in voice solutions in order to increase customer satisfaction by reducing waiting times, information provision, and in the longer-term, voice authentication and transactional solutions to compliment existing web offerings. Growth will be most aggressive during 2005, and will slow somewhat after that as the technology becomes more mature within this vertical (see below).

**EMEA**

Travel and tourism investment in EMEA will increase steadily through 2006, after which it will slow as this technology becomes increasingly mature within this vertical market. But the market will still reach just under $45m by 2007 (see Figure 6.28). This trend is similar to that of North American and takes into account the projected recovery this region is expected to experience over the coming years.

Efforts around cost reduction and increased information provision capabilities in the near to medium-term will be the main drivers of voice investment by travel & tourism companies. However, transactional and voice authentication technologies will be significant drivers toward the end of the examined period.

Figure 6.28: Total voice business revenues in the EMEA travel & tourism sector, 2003 – 2007
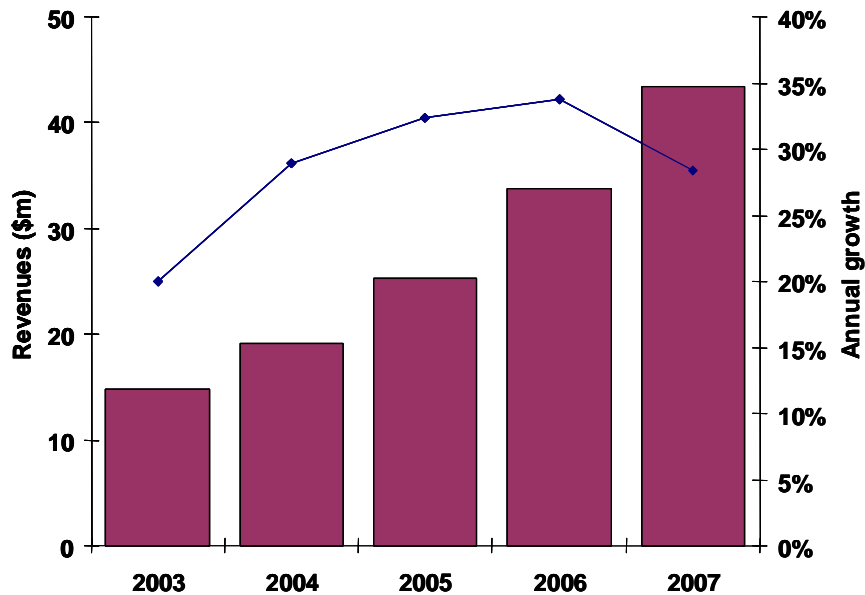
Strategic recommendations

Voice technology has excellent potential in the travel & tourism sector, both in its ability to generate new market opportunities and to render firms in that vertical more competitive. These are the recommendations for voice vendors selling to firms in this segment:

Focus on cost reduction: One of the immediate drivers of any firm in travel & tourism has been the need to stave the flow of red ink brought about by poor sector performance during the past three years. By positioning voice solutions as a means of reducing agent positions and facilities costs, possible customers will see their immediate concerns addressed in a straightforward business manner.

Customer satisfaction is crucial: Vendors need to impress upon travel & tourism clients the ability of voice solutions to improve customer satisfaction. This is because end-users will incur lower waiting times in queues and the ability to complete commercial transactions out of regular business hours, which will lead to increased

loyalty. Repeat business is crucial in the recovery period for travel & tourism companies and leveraging the power of voice is an excellent way to facilitate this.

Make sure solutions are migratable: A major concern surrounding any voice investment relates to long-term scalability; cash-strapped IT and marketing budgets cannot afford repeated large investments. Voice vendors need to ensure that existing legacy systems and new purchases can be easily upgraded at little cost in terms of cash resources or time.

Transactions and voice authentication solutions are long-term drivers: Voice vendors need to inform travel & tourism clients the capacity transactional and voice authentication solutions have to increase their customer base. Voice solutions can easily fit alongside existing web technologies which will expand their overall to offline users, while at the same time reducing total existing agents that deal with transaction-based calls.

Public sector

Key pain points

Cost pressure

Governments are under constant pressure to reduce expenditures. Opposition politicians and taxpayer lobbies have been successful in placing bureaucratic largesse at the forefront of public debate, and the general public have made it clear that they want officials to reduce public expenditures. This has been compounded with rising tax rates across the Western world, which has further enraged the public at large.

Customer service

Governments have also come to recognize the fury of the general public when it comes to the level of customer care they receive from civil servants. While not to question the abilities of bureaucrats manning telephones, the era of cost-cutting has led to under-staffing of customer service representatives. The result has been angry members of the

public, who are forced into long wait times in order to get query resolution. As such, government operators are forced to deal with customers that are frustrated and angry when they reach the front of the queue, which has a negative effect on employee morale and productivity over the long run.

Procurement

The public sector is known for slow purchasing procedures, which makes bringing in new solutions arduous. However, the general public's demand for greater transparency, as well as the most optimal pricing means an exhaustive procurement process is likely to remain a hallmark of government tendering.

Legislative

Over the past decade, the move to provide the general public with government information has taken on increased importance, and has been centered on a number of different areas, which include:

Transparency: To date, very few jurisdictions in the developed world are without access-to-information legislation. As such, citizens are able to obtain government information in person and by post. However, in each of these cases, human interaction is required, meaning a drain on finite public resources. As well, information can be obtained electronically through the web, but this limits access to those that have access to internet-savvy PC users.

Paperwork elimination: Several jurisdictions (most notably the United States) have passed laws that center on the reduction of 'red-tape' in processing various interactions between government departments and the general public. Thus, statutes are in place that mandate public bodies to seek electronic methods for accessing, distributing and submitting information. However, as discussed above, using the Internet for this would constrain the elements of the general public that could take advantage of such proposals.

Equal access for all: Public officials have demonstrated increased empathy for those with disabilities over the past several years, in regard to transportation, educational

facilities, employment, and accommodation. The focus now appears to be around providing disabled citizens with complete access to information, at the same level of those without disabilities.

Offshore not an option: Given the sensitive nature of government information, reducing costs by outsourcing to lower-wage environments is not a viable option for public sector bodies. However, taking on more taxpayer-funded agents in the domestic environment is also unfeasible. Therefore, voice solutions can provide low-cost self-service alternatives that do not compromise security.

Selling voice to the public sector

Ensure appropriate solutions

There are a number of voice applications that are already being used in the public sector, as well as several that have excellent potential. The following are the most promising, both in their capacities to reduce public expenditure, but also in their ability to increase transparency for public bodies:

Call center automation: Governments at all levels can benefit from call steering applications. Interacting with a voice interface, the caller will be able to identify their specific need or contact point, and then be routed to the appropriate department. This will reduce:

Customer waiting times: Callers will be less hostile to government operators after long periods in queues, thus helping to prevent declining employee morale. As well, the element of human error in directing the call will be greatly reduced;

Government expenditure: Call center automations will mean less need for front-line switchboard agents, who currently route calls. Therefore, it is important for vendors to promote call center automation solutions for improving caller satisfaction and cost rationalization. It should also be noted that such applications can be easily migrated from existing IVR (Touch-tone) applications already in place.

Information provision: One of the current uses for voice solutions in the public sector relates to providing callers with various types of information. While this is a basic

application, it is effective because it frees government resources by reducing the total number of operators required to provide general or detailed information requests. It also ensures that callers are provided with the maximum level of transparency necessary, while reducing wait times, thus increasing caller satisfaction.

Directory assistance: This is also a very basic service in terms of voice technology, but it is one that is in dire need for public bodies at all levels. In essence, implementing a directory assistance solution in government departments would also remove the need for human operators to provide callers with the direct extensions of individuals or departments. As well, by reducing personalized service, transactions are much faster, thereby increasing caller satisfaction.

Voice authentication: These solutions have excellent potential for governments of all levels. Specifically, citizens could use their own voice biometric print to gain access to personal information, removing the need for cumbersome touch-tone IVR solutions, as well as the insecurity of saying their PIN out-loud to an ASR engine.

Governments can also use voice authentication solutions in the area of internal information management. As there is much government data that is classified and limited in its audience, voice biometrics can be used to designate the individual(s) who are able to gain access to the information, and filter out those who are not. There are targeted government agencies for voice authentication, most specifically corrections as it relates to the whereabouts of paroled inmates.

Hosting and managed services: Governments conscious of optimizing front-line service while not sacrificing large amounts of money may be interested in hosting public sector solutions. By taking on the ownership of all applications, maintenance and hardware, the provider would enable to furnish the government with an ongoing operational cost. Thus, the public body could forego any large-scale capital expenditure.

Managed services are also an avenue for vendors to pursue, as they also allow for public bodies to reduce their overhead costs. There are several examples of managed

services in operations the UK at the national level. However local governments have yet to adopt this possibility on a wide scale.

Promote open-standards

The use of VXML mark-up language is becoming mainstream in the development of voice solutions. It is compatible with HTML, and users can easily migrate existing web solutions into voice. This is ideal for the public sector, involving little integration of Internet-based information into voice, so limited expenses and maximum transparency.

Market opportunities

North America

Aggregated voice business revenues in North American government are expected to rise from just under $13.5m in 2004 to nearly $27m at the end of 2007. This will be at a pace of 25% through the period. Note that growth will begin to taper towards 2006-7, a reflection of the maturing nature of this vertical as it relates to voice business adoption.

Figure 6.29: North American public sector voice business revenues, 2003 - 2008
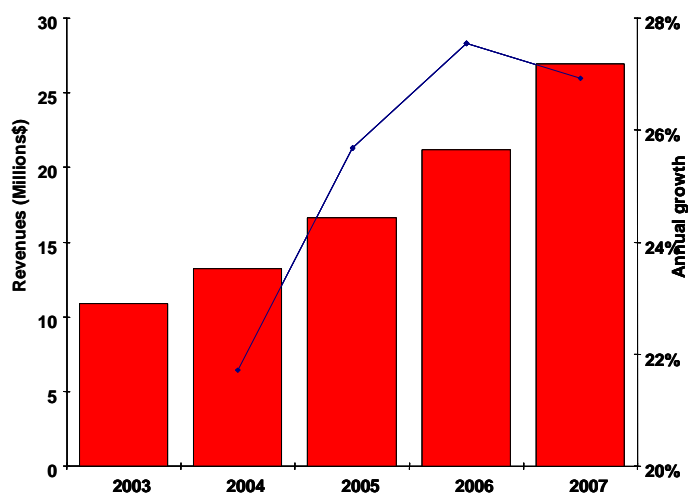
Source: Business Insights

Business Insights Ltd

There are several sub-segments of North America's public service that have excellent potential for voice solutions, which include the following:

Municipal governments: Qualitative evidence suggests that municipalities are beginning to see voice solutions as a means to efficiency (Note: local school boards are also included in this category). This is especially important for two reasons:

Decentralization: In both the US and Canada, state/provincial and federal governments are shouldering more responsibility on the backs of local administrations. Thus, there will be pressure on municipalities to ensure optimal service levels without spending large amounts of money.

Late-adoption: Municipal governments have been slow in taking up technology, as compared to state/provincial and federal administrations, due mainly to budget constraints. However, as more local authorities find the need to streamline costs over the long term, budgets for technology investments that can improve productivity are being developed.

Canadian healthcare: Canada's health care system is socialized, and completely controlled by the federal and provincial governments. Thus, not only has a lack of adequate funding become an issue for health providers, but it is also one for public officials. Voice solutions can play in a number of areas, which include:

Patient information access: Using voice information programs, patients can obtain important data relating to appointment scheduling, prescription refills and test status.

Physician information access: In this instance, physicians can remotely contact a health facility and use a voice solution to find out the current condition of a patient.

Front-line service: Solutions including directory assistance and call center automation can be used to help callers get directed to the area of a health provider that they require or get their extension, in a minimal amount of time. In each of these instances, human interaction is reduced, which frees more resources for investing in direct patient care.
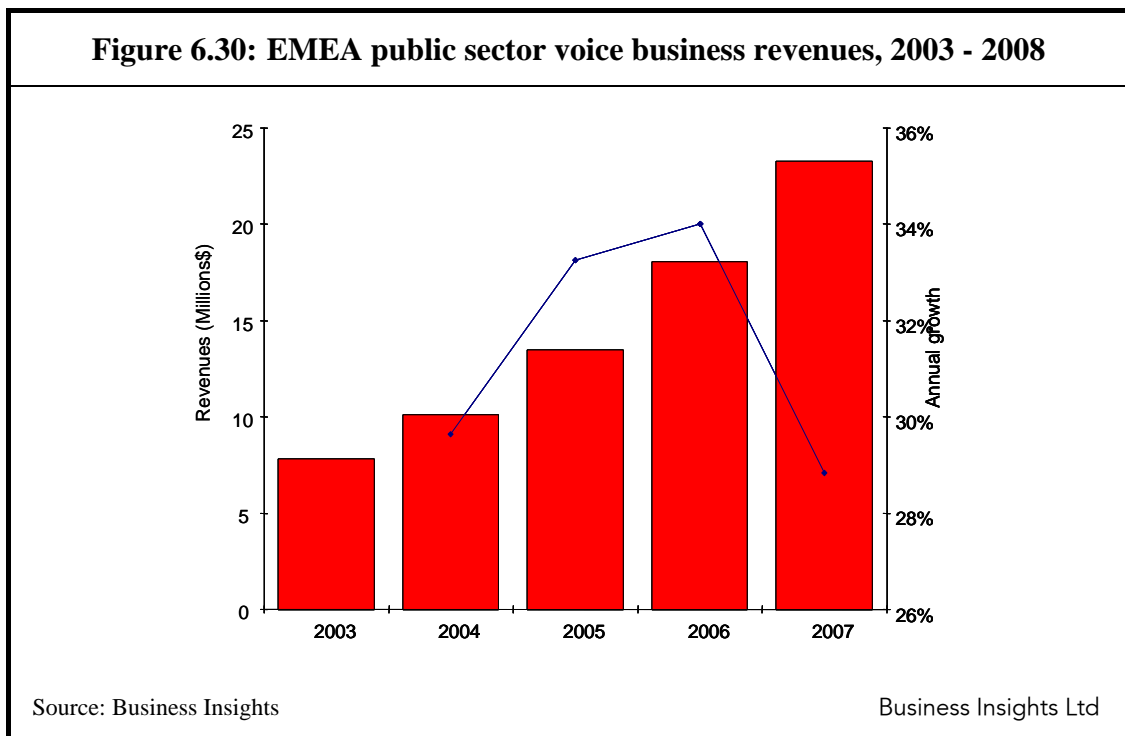
Government agencies: Voice applications have good potential to increase levels of customer care in public agencies of a semi-commercial nature. These include tourist

authorities, airports, internal revenue and postal services. By providing callers with information related to scheduling, account details and general data, caller queries will be expedited quickly, while reducing the need for public employees.

Emergency notification: There is obvious concern among North Americans about ongoing terror attacks, as well as concerns over natural disasters. Governments of all levels should be targeted by vendors that may have solutions in place that address the need to notify citizens of potential critical issues. These come in the form of information provision applications, which can be used in the context of both inbound and outbound calling.

EMEA

EMEA's public sector will spend just over $10m on voice solutions in 2004, compared with $23m by the end of 2007. This will occur at a CAGR of 29% (2003-2007), significantly higher than that of North America's. However, the rapid acceleration will dissipate by 2006-7, but will still be very aggressive.

Figure 6.30: EMEA public sector voice business revenues, 2003 - 2008

Source: Business Insights

Business Insights Ltd

While there are some EMEA potential public sector opportunities that mirror those of North America, there is also potential for vendors in several unique possibilities.

European Union: The EU has become a reality in the lives of citizens in 25 European countries, and is taking steps to make sure that all information and legislation is transparent. Thus, providing EU data through a voice portal is an ideal way to reach member-country citizens. As well, this poses an excellent chance for vendors with multi-language capabilities, given the large number of mother tongues in the EU.

National governments: In EMEA, federal governments are adopting the same cost cutting and transparency measures found in North America. Therefore, vendors could benefit by promoting the ability of voice solutions to reduce costs, while improving the level of transparency and caller satisfaction.

Local administrations: Similar to North America, many municipal governments are looking for tools to improve communication with citizens. Voice solutions are an excellent method of doing so, while reducing costs. This will be especially important for those new EU members seeking methods of public transparency, despite budget limitations.

Strategic recommendations

Focus on the vertical

Voice vendors are realising that the best way to sell their solutions is to develop a vertical-specific approach. The public sector is no different, and it is crucial that applications take into account the general nuances of government.

Vendors need to develop specific formats for different elements of the public sector. This could mean generating solutions for municipal, state, and national levels of government, as well as for particular agencies, such as postal services or internal revenue.

Finally, vendors in EMEA should investigate designing applications specific for the EU, given the sheer size and purchasing volume of the entity. However, it will be crucial that all potential bidders for EU contracts ensure multilingual capability.

Dedicated sales force

As discussed above, the public service is particularly difficult to sell into, given its very lethargic nature, with long sales cycles in excess of what are found in the private sector. As well, the specifications in RFPs are known to be cumbersome and overly bureaucratic. Therefore, voice vendors that are serious about courting business from any level of government should establish a dedicated element of their sales force that deals specifically with selling into this vertical. Individuals on such a team should have considerable experience with selling to public bodies, thus ensuring limited frustrations at government procurement's bureaucratic nature, and who understand how to navigate deals through complex procedures.

Another tactic in selling to public bodies is to use indirect channels through partners that have experience in this domain. This would not only provide vendors with a proven route to market, but it would also reduce overhead costs associated with distribution.

Strategic partnerships

In order to ensure efficient use of taxpayers' money, public sector bodies are wary of buying anything from any vendor with a limited business pedigree. Therefore, voice vendors need to come to the negotiating table with a list of strong references of partnerships across the voice value chain. This will enhance their credibility in terms of their ability to deliver quality solutions, which is certain to reassure public sector prospects. Notable systems integrators that already have solid experience with government bodies include EDS, CSC, and Logica.

Take into account regional opportunities

Each national market has different uses for voice, and the public sector is no exception to this. Thus, vendors need to look at each targeted region, and understand specifically

where the demand in government lies. Also, examining immature EMEA markets for voice solutions is also strongly recommended, as they could yield considerable opportunity.

Healthcare and pharma

Key pain points

There are numerous issues that currently face the healthcare industry, and there will be a number of other pain points to arise in the coming years.

An ageing population

Both in NA and Western Europe (and the majority of the developed economies of the world) the population is ageing. This is creating economy-wide challenges, not least in the provision of healthcare services. For healthcare organizations this means more patients, more enquiries and more data. While the Internet is, in many regards, the ideal medium for dealing with much of this new data flow the propensity of older age groups to use the Internet is low. Speech has a role to play here. While clearly a relatively young technology, communication through voice is natural and familiar to all age groups.

Presciptions

As the volume of patients increases, so does the volume of prescriptions and necessary re-filling of prescriptions. This is certainly an area ripe for automation, both for reasons of cost, and volume. It is a repetitive and autonomic process, which doesn't require expensive live agents. A fully integrated voice portal should serve this purpose well; an example is 'speechifying' existing patient records then pushing this data across to pharmaceutical providers via the web.

Regulation

Regulation is a strong feature of healthcare systems the world over. The monitoring, tracking and assessment of services plays an important role in the provision of healthcare to populations globally. New ways to ensure information access hold special significance in the heathcare industry.

Information

Information liberalization is clearly an issue of all the above points, it deserves special consideration more generally in terms of healthcare. A significant proportion of the interactions to be found between patients and various heathcare systems are information-related. These include, appointments, test results and many others, including travel vaccination advice. Doctors and other healthcare workers also need access to patient information, often from different physical sites. Much of this is currently handled either through face-to-face interaction, or via healthcare professionals. Equally, much of it is simple information delivery, and therefore highly suitable to automation. Diverting this traffic though voice solutions will allow resources to be re-allocated more efficiently.

Application examples

Below are some examples of applications voice will be particularly suited for:

Prescription re-fill;

Appointments, both hospital and local;

Test results. For reasons of privacy, removing further human interaction from this process can be seen as highly desirable;

Medical data access. Granting medical professionals access to this information through voice portals at different sites will aid in the timely treatment of patients.

A common theme throughout these applications is the need for integration into existing information services. This should not present an insurmountable barrier, especially with the current drive toward industry standards like vXML.

Selling voice to healthcare and pharma

Information liberalization

Information plays a central role in the provision of healthcare services. It is also often standardized, repetitive and time consuming for both patient and provider. Information provision is one of the strongest uses of voice technology and an area in which vendors in this space are highly familiar. There are numerous applications for this technology and Business Insights believes often this could be packaged. The process by which appointments are set, for example, varies little between different sites. A packaged application deployed with minimal customization could be widely adopted, at a low and affordable cost (giving even small units such as doctors' offices access).

Call steering

Another 'classic' voice solution, call steering can help both patients and healthcare professionals navigate the often long lists of departments and areas found in heathcare systems. This may mean doctors' names, or departments dealing with medical records or test results. These solutions not only improve access through reduced wait time and more accurate routing, but also reduce the strain on front desk services.

Prescriptions

As discussed, prescription re-fills are likely to increase in volume and put an ever-greater strain on heathcare systems. Voice solutions are already being developed in this area, with unique patient identifiers being used to ensure the accuracy of order fulfillment. The benefit is double, providing patients with convenient and quick access, while reducing the burden on healthcare workers.

Voice authentication

Voice authentication technologies have a role to play in several areas within healthcare. For information retrieval by doctors, say test results, or patient records voice authentication allows another level of security to be introduced ensuring patient confidentiality. For patients calling in to re-fill prescriptions, or obtain information pertaining to treatment, authentication technology again provides both a further assurance of accuracy, and security.

Hosted and managed services

A balance must be struck by healthcare providers in giving the best possible service to their patients, while at the same time controlling cost and promoting efficiencies. Hosted and managed services in speech provide users with the benefits of access to a varied range of solutions, while simultaneously removing the often strenuous technical requirements associated with voice solutions. Multi-tenanted solutions look particularly good in the healthcare vertical as often these systems will be providing an almost identical service to the different subscribers, making them an attractive proposition to vendors.

Market opportunities

The two key markets considered by this brief are North America and EMEA. Both show exceptionally fast-paced growth in this vertical, providing ample opportunity for voice vendors.

North Amerca

North America presents the largest opportunities in pure revenue share terms. Growing at a CAGR of over 30% the healthcare vertical will represent over $24m of enterprise voice revenues in 2007. As shown in Figure 6.31, the market is expected to start maturing around 2006 as adoption becomes more widespread.

Figure 6.31: North America voice business revenues in healthcare and pharma, 2003 - 2007
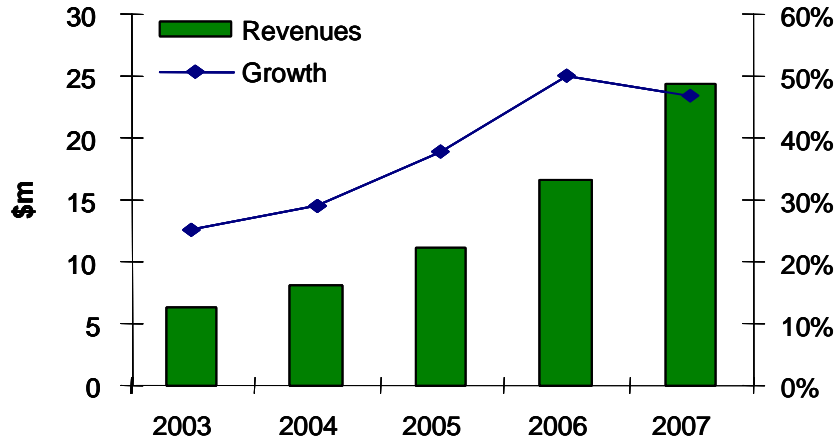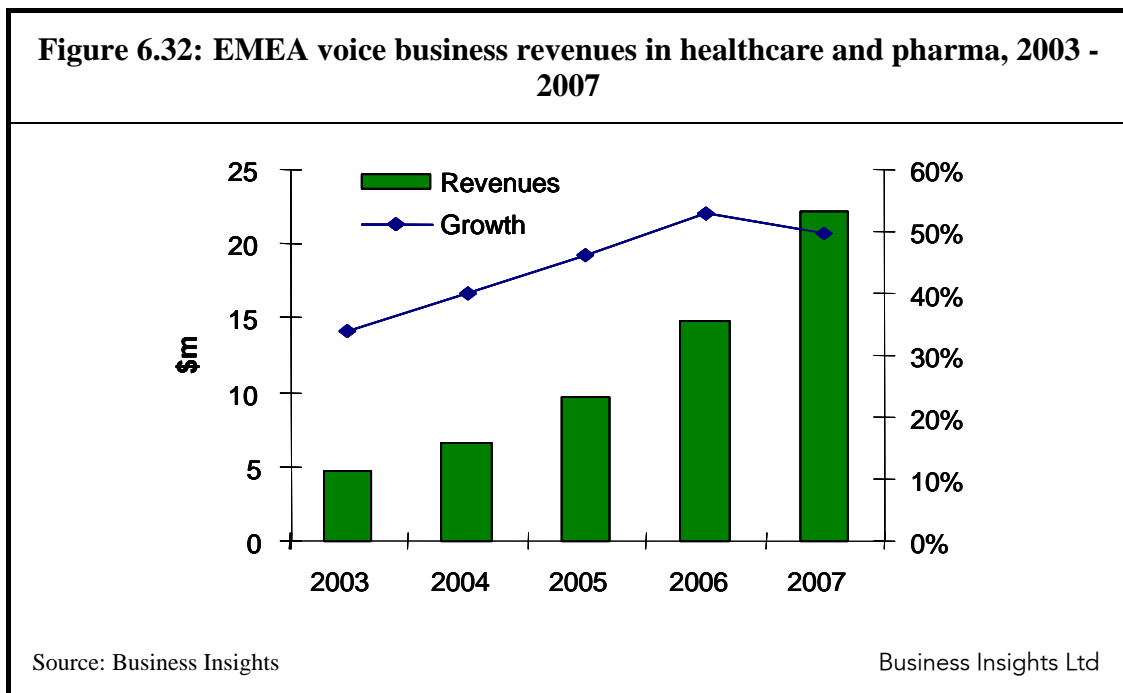
Source: Business Insights

Business Insights Ltd

The North American market can be split in two with regards to the healthcare industry. The private system found in the USA, and the single-payer system found in Canada. While fundamentally different in ideological terms, these two systems face similar pressures in the provision of services to the general population: increasing patient numbers and pressure on cost and efficiencies.

In Canada, several provincial governments are facing healthcare budget crises, and technologies which can ensure quality delivery at a lower cost are likely to be attractive to provicial health authorities.

In the US, private insurance companies have more influence and sway over healthcare delivery and often local hospitals or doctors' offices will implement technologies to meet the increasing burden and pressures placed upon them by health insurers.

EMEA

The EMEA market is growing strongly, albeit slightly smaller in revenue share than the NA market at approximately $22m in 2007. Maturity is slightly behind NA; overall this market will be slightly smaller as a result of its mostly public healthcare systems.

Figure 6.32: EMEA voice business revenues in healthcare and pharma, 2003 - 2007

Source: Business Insights   Business Insights Ltd

EMEA is a much more fragmented market, subject to both region-specific legislation and pan-European directives. For voice vendors to realize the potential in this market careful attention must be paid to the many differences.

In the UK, the NHS (National Health Service) is the primary care provider and a relatively high degree of centralized decision making means that voice vendors must have a presence throughout key Department of Health planning processes. Digitizing all patient records throughout the UK is in mid-stream, yet such 'low-hanging fruit' as automating specialist appointments had not yet occurred. Voice vendors with local UK IT partners should be well-placed to win some business.

On the Continent, mutual compulsory insurance systems prevail. In those cases, much as in the US, voice vendors will need to approach the large mutual insurers in order to persuade them to force technology uptake at the provider level.

Strategic recommendations

This report has highlighted a number of different opportunities in the heathcare & pharma vertical, many of which involve the use of already established voice solutions. It is not, however, suggested that selling into this vertical is easy; depending on the geography in consideration, heathcare may either represent the public, or private sector.

Sales force

There are two particularly good reasons for having a dedicated healthcare sales resource:

Where the healthcare sector is in public hands, it will be one of the most cumbersome verticals into which to sell. Long sales cycles, complex tendering and lengthy public over-sight all make for an arduous selling process. This does not mean it should be ignored, especially when the size of some public sector deals is taken into consideration, but rather professionals with experience in this space should be employed.

Regardless of the deal being public or private, healthcare is a sector which demands specific knowledge. An understanding of the fundamentals of healthcare provision, from local surgeries through to hospitals and national initiatives is pivotal. This process becomes even more complex when considering the differences between regions. Voice vendors should consider partnering with healthcare-specific CRM vendors in order to gain access to the right decisionmakers in healthcare organizations. For those vendors who are unable to support such a dedicated function, or perhaps supply products which do not warrant them, local partners with vertical experience offer a good competitive advantage.

Strategic partnerships

A feature of public sector health system deals is often that they're conducted through a global consultancy or systems integrator. Partnership with these firms can yield considerable benefits, for example drawing in voice solution as part of a much larger project.

Regional focus

In the same way that healthcare demands specific knowledge of service provision and the associated structures, legislative sensitivity and local knowledge is of equal importance. This need also provides further proof to the value of local partnerships.

Packaging and hosting

Many of the applications considered in this market brief are established voice solutions, or close to becoming so. For those pain points which involve the automation of information access, packaged applications make a great deal of sense. There is little in the way of customization required for these solutions, with pre-configured hooks into established database standards and Internet services providing quick deployments.

Hosting seems a natural solution for many voice systems in the heathcare vertical. Hosting dispenses with often complex and expensive on site deployments, replacing upfront capital expenditure with 'smooth' operational expenditure. It also negates the need for any on site technical expertise in voice. Vendors should also find cost advantage in multi-tenanted voice solutions, especially with the homogeneity expected in many of these deployments.

Index