

# WHITE PAPER.

## **Shareholder value analysis: What does it take to succeed in speech?**

Unisys Communications Market Source Services  
Unisys Global Communications and Media Industry

Call center and directory assistance applications clearly are creating shareholder value for investors, while limitations in current technology are suppressing growth in other areas of network-based speech solutions. This analysis looks at the value-drivers in speech, the levels of investment required, and the levels of revenue and demand required to generate attractive returns on speech investment.

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### The debate on speech technology.

It is hard to tell which way the wind is blowing if you are a network service provider contemplating investment in speech technology.

- ▶ North American railway services provider Amtrak Corporation has increased the portion of satisfied callers to an average of 27% from 16% by upgrading from a touch-tone menu to a speech-enabled solution. “Our payback is within a year,” Robert Hackman, Sr. Director of Distribution Systems Amtrak<sup>1</sup>
- ▶ “As a result [of being first to market with network-based voice-recognition solutions], we’re getting more of the higher-value customers.” Dennis Paschke, Vice President of Product Development, Sprint PCS<sup>2</sup>
- ▶ “We compared the cost of transferring calls via a manual switchboard with the automatic attendant. The automated service cuts costs in half or more.” Tom Fiksdalstrand, Development Manager, Telenor Business Solutions, Norway.
- ▶ “Systems must contend with a multitude of speech patterns and accents not to mention the occasional sneeze, which one program interprets as the Lebanese city of Beirut, according to a published review.” USA Today<sup>3</sup>
- ▶ “Were we expecting too much? Yes. Conversational Hal is alluring but currently impossible. We can make him talk with a convincing synthetic voice, but he doesn't know what his words mean to listeners. We don't know enough about intonation, semantics, pragmatics and many other aspects of spoken communication to make Hal anything more than a mouthpiece.” Dr. Caroline G. Henton<sup>4</sup>

The market is full of testimonials, case studies and solid analyses that seek to convince the reader that speech technology died on the vine, or conversely, that speech is leading a resurgence in shareholder value creation.

Let's summarize the debate.

### Success stories.

Due to the relatively simple speech application design, call center and directory assistance applications are clearly creating shareholder value for investors.

British Airways flight information line, which allows callers to speak their flight numbers and access gate numbers and departing times has reduced the airline's call center costs by 95%. In addition, the speech system has helped British Airways reduce its cost-per-call from \$3.00 to just \$0.16.<sup>5</sup>

<sup>1</sup> Keenan, Faith, “PCs and Speech: A Rocky Marriage”, *BusinessWeek Online*, September 9, 2002.

<sup>2</sup> “IBM and Sprint PCS Team to Develop Voice Command,”  
<http://www-3.ibm.com/software/success/cssdb.nsf/CS/NRIA5CXMLQ?OpenDocument&Site=software>

<sup>3</sup> Yaukey, John, “Voice Recognition Nears Prime Time”, *USA Today*, August 13, 2000.

<sup>4</sup> Henton, Caroline G. “Speaking Out: Fiction and Reality of TTS,” *Speech Technology Magazine*, January/February 2002.

<sup>5</sup> “Nuance and Aspect Communications Speech System Reduces British Airways Call Center Costs by 95%,” press release issued by Nuance, February 4, 2003.

Other call center success stories: <sup>6</sup>

- ▶ Telus (Outsourced call center services)
- ▶ Regional Transportation District for Denver, CO
- ▶ Ministry of Social Development and the Motor Accidents Authority in New Zealand.
- ▶ Lloyds TSB Bank (UK)
- ▶ National Grid (electric & gas distribution)
- ▶ US Postal Service
- ▶ Oppenheimer Fund
- ▶ Delta Airlines
- ▶ Merrill Lynch

Companhia de Telecomunicações do Brasil Central (CTBC) deployed voice-activated directory assistance to more than one million subscribers to the service, in more than 300 cities and four states in Brazil. CTBC achieved an ROI on this project in 2.5 years—despite the fact that much customized work was done to perfect a Brazilian Portuguese grammar. <sup>7</sup>

Japan Multimedia Service (JMS) Corp. is one of the largest directory service providers in Japan. The solution hosts over eight million business listings covering the entire country. Previously, customers would have to pay 100 YEN plus the cost of the call for obtaining information via DA. With the speech solution, JMS was able to offer the service free of charge, so the customer would only have to pay for the time spent on the call. The company receives a portion of the network services revenue, which compensates for the costs. <sup>8</sup>

### Areas of concern.

Limitations in current speech technology are suppressing growth in other areas of network-based speech solutions.

Penetration for voice portal services has been somewhat muted. This is because voice commands and an audio interface give Internet surfers access to small subset of Web content. As a result, we are realizing that voice portal content is materially restricted and diminishes the viability of true “Internet access” from a handset. Further, the rich dialogue many end-users seek to use when browsing the Web exposes the most profound weaknesses in today’s speech technology—poor diction, accents, background noise and bad grammar.

*A key takeaway from this is that speech-enabled solutions are working in limited applications--when the need for simple voice interfaces can help users perform selected tasks more efficiently. Viewing speech-enabling technology as a sort of all-encompassing panacea that increases Internet services penetration, drives up the telco’s revenue per subscriber, and provides all users with personal assistants may be a mistake.*

<sup>6</sup> “Heard from V-World”, *Speech Technology Magazine*, May 7, 2002.

<sup>7</sup> Terry, Mike, “Automated Directory Assistance: Speech-enabling the Next Generation of Customer Service,” *Speech Technology Magazine*, September/October 2002.

<sup>8</sup> *Ibid.*

## A risk assessment.

To start our analysis, we can seek to describe an attractive market in value-based planning terms: what are the value-drivers in speech? What levels of investment are required to provide speech-enabled solutions? What levels of revenue and demand are required to generate attractive returns on speech investment?

Cash is king—again.

We have returned to a new form of discipline in the telecommunications industry. In the past, a focus on growth—almost any form of growth—lead most network service providers to destroy shareholder value by acquiring customers unprofitably. Consider an analysis of AT&T share-price vs. its market share performance and its net income during the days when “body counts” (market share vs. MCI) was covered on AT&T’s quarterly earnings calls with analysts.

The investment community tracks the “price-earnings ratio” of a publicly traded company because, for the most part, we find that a company’s stock price trades at a fairly constant multiple of its quarterly earnings. At AT&T, during the time of its most intense market share wars with MCI and Sprint (1992 to 1998), we find no correlation between share price and net income. However, we find a modest positive correlation between AT&T market share and its share price (see appendix). AT&T’s investor community reacted more strongly to subscriber growth than to fundamental financial performance. The market rewarded firms that grew—even if they grew at the expense of profitability and true shareholder value creation.

The profound retrenchment in the telecommunications industry that has taken hold since 2000 has compelled all network service providers to embrace extreme financial discipline in assessing investments going forward. “Build it and they will come” is no longer in vogue.

In the trenches, network service providers are coping with severe debt loads, heavily diminished capital expenditure budgets and aggressive operating income targets. Some will say that telcos are caught in “the perfect storm:”

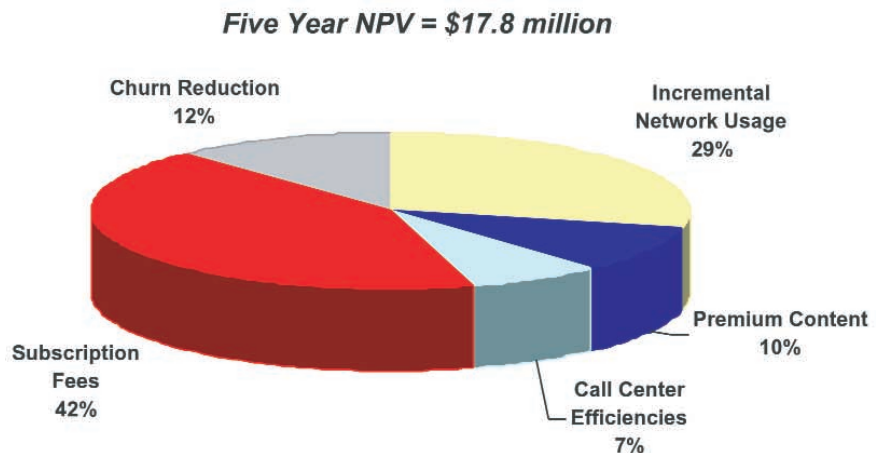
- ▶ Increasing cost of capital as telco share prices continue to stagger and the investment community remains cautious.
- ▶ Diminishing sources of internal operating cash flow.
- ▶ Market requirements to invest in new technology in an effort to move away from commodity-based network services.

The telecommunications industry must invest in only those opportunities that provide clear and compelling opportunities to create shareholder value (in the form of positive free cash flow) - and create it quickly.

Within the context of these newly emphasized criteria, let’s evaluate speech-enabling technology using only the purest of financial measurements—free cash flow creation.

When we look at a North American network service provider that offers three speech solutions and deploys speech technology in their call center, Unisys estimates that network service provider can generate \$17.8 million in new shareholder value and recover their initial investment of \$0.79 million in less than 17 months (see Appendix B).

The following chart summarizes the relative weight of each value-driver.



What are the value-drivers in speech? Why are they important? How important is each one?

- ▶ **Churn improvement:** Every time a network service provider acquires a new customer, it incurs costs in the form of a promotional pricing offer (e.g.: free first month's usage), sales channel expense and provisioning expense. Telcos can greatly improve their cost structure by reducing churn and thereby reducing "winback" expense. Speech solutions enhance customer satisfaction, increase subscriber stickiness and reduce churn.
- ▶ **Subscription fees:** Particularly in the U.S., network service providers rely upon subscription fees to create shareholder value when investing in value-added services. This is because many types of network service are un-metered in the U.S. Early value-added speech solutions are generating subscription fees of at least \$1 per month in the U.S.—adequate for quick recovery of a speech technology investment.

- ▶ **Call Center efficiencies:** Speech-enabled auto-attendants can handle routine customer service center inquiries at a fraction of the cost of live customer service representatives (see case studies, above). Network-based speech value-added service infrastructure is highly extensible into the call center.
- ▶ **Premium voice portal content:** Even if it is infrequently used, a per-event charge for accessing premium Web content (such as local traffic reports) using a voice portal can be lucrative.
- ▶ **Increased network usage:** Speech solutions drive up the average length of a call. Users are more engaged in the call. The ease of use of features compels subscribers to access more features (such as voice-controlled call-back). If the subscriber is using speech solutions on a metered service, this drives up billable network service. In the U.S., some connect time will occur in non-metered rate bands such as the user's free local service area. For that reason, U.S.-based network service providers also charge fixed subscription fees for their service. On networks where all calls are metered, incremental network usage is extremely lucrative.

*An important pricing consideration for U.S. based network service providers is: What is the optimal mix between network usage revenue per minute and fixed subscription fees that maximize shareholder value creation?*

### **Required performance levels for success.**

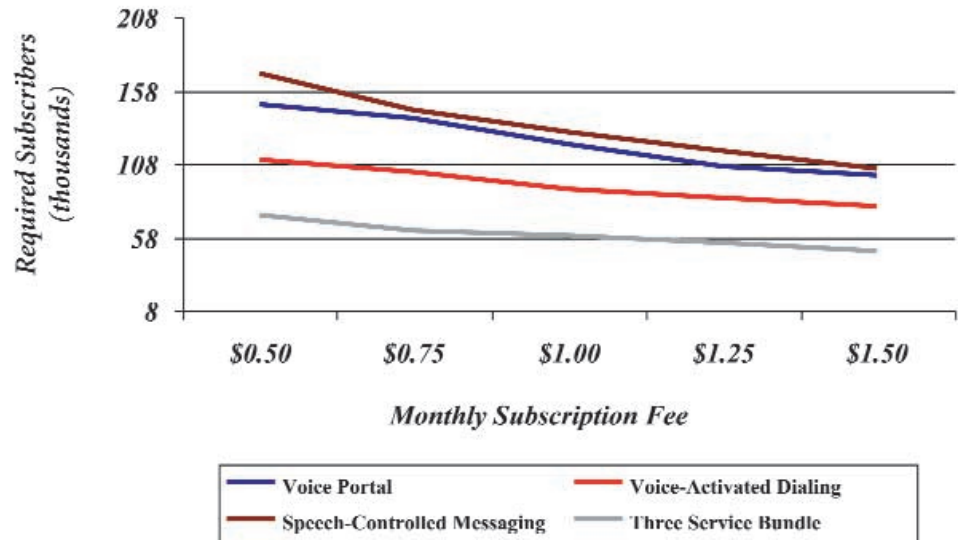
Before any network service provider invests in advanced value-added services, they ask a fundamental question: "How many subscribers must we add to this service in order to be successful?" The following analysis addresses this.

To further our discussion, let's assume that all network service providers require a 24-month discounted payback period. That is, network service providers must generate enough new free cash flow to recover their initial investment in speech, plus their required return on that investment, within two years.

We have developed a shareholder value model that can quickly evaluate the trade-offs between speech solutions subscriber demand and price. We can determine what subscriber volumes are required to generate adequate incremental shareholder value over a range of different subscription pricing.

In the following scenarios, we assume:

- ▶ The network service provider sells *only one speech solution*. The economics become much more favorable if the telco is successful in selling new subscribers more than one speech service.
- ▶ The network service provider charges \$0.20 per minute of network usage.
- ▶ The speech solution subscriber places an average of 0.5 calls per day using speech.
- ▶ The percentage of subscribers on the speech solutions platform at the busiest hour of the day is 9.5%.



In the graphic above, the higher the function on the y-axis, the riskier the investment. For example, at a 75¢ monthly subscription fee roughly 102,000 subscribers are required on voice-activated dialing in order to have a positive return on investment (ROI) in 24 months. By comparison, almost 140,000 voice portal subscribers are required at that same subscription rate. This is because voice portal is more capital-intensive and will require more operations and maintenance support because of its more robust infrastructure.

Most compelling of all is the required threshold by selling a three-service bundle. Only 60,000 subscribers purchasing a three-service bundle are required to generate a positive ROI in 24 months. This is because of the tremendous value created by up-selling and cross-selling existing customers.

#### Sensitivity analysis.

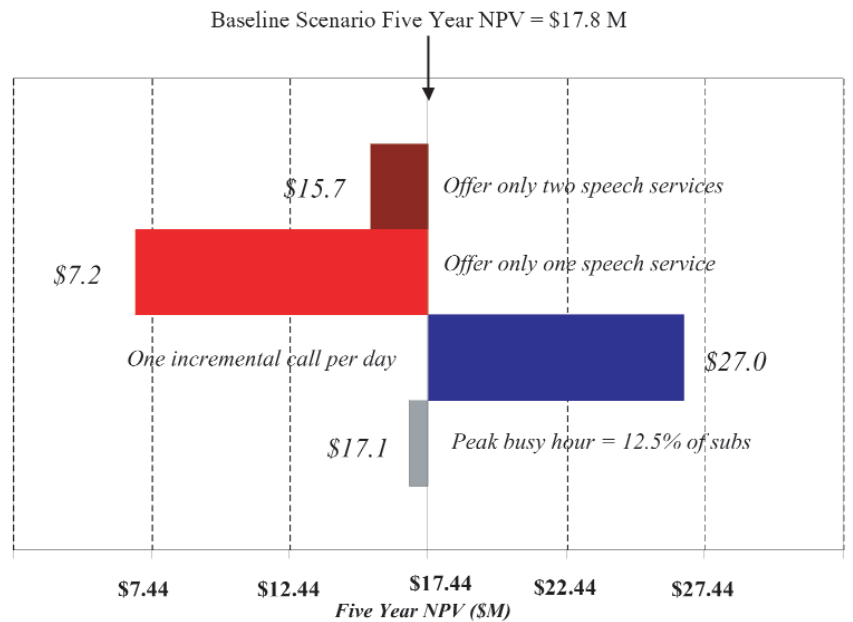
The answers we have discovered are dependent upon a few key variables. As these change, so too does our risk assessment.

The peakedness of network traffic (the percentage of subscribers who are on the solution at one time during peak busy hour) can greatly affect required capital expenditures, because any network platform must be able to handle peak loads with minimal blocking. If most of the speech services users access the service at the same time of day, then a very large system that is built to handle a high amount of concurrent sessions must be deployed for use during that short time. This large platform remains relatively dormant for the rest of the day, generating little value.

The amount of incremental network traffic generated by subscribers using speech solutions is critical. Incremental network traffic from an existing customer is highly profitable, because it generates no incremental provisioning or sales expense, as does incremental network traffic from a new subscriber. In addition, the number of speech services the average subscriber purchases is critical. Customers who subscribe to two or three speech solutions are extremely valuable when compared to a subscriber using only one.

Our baseline scenario assumes:

- ▶ Growth to 200,000 subscribers by the end of year three.
- ▶ Subscribers are using voice portal, voice activated dialing and speech controlled messaging.
- ▶ The speech technology is extended to automate the telco call center.
- ▶ The percentage of subscribers on the network during busy hour is 9.5%.
- ▶ The average subscriber generates 0.5 incremental calls per day.



Clearly, we see the solution is highly sensitive to the number of speech services the customer purchases as well as the amount of incremental billable network traffic generated.

## **Moving forward.**

This analysis is helping our clients understand what is required to be successful in speech. And because their success is our goal, we recommend that before making the investment our clients should:

- ▶ Define their target market segments.
- ▶ Identify what solutions their primary competitors are offering currently to these same segments.
- ▶ Develop a wide array of potential speech solutions that their subscribers may wish to purchase.
- ▶ Conduct primary research on their target subscribers to estimate the real demand for these services at a variety of price points.
- ▶ Determine what mix of pricing maximizes shareholder value for them.
- ▶ Based on primary market research survey results and business case projections, determine if adequate shareholder value will be generated.
- ▶ Launch customized speech solutions targeted at their high value clients.

It's not all bad news in telecommunications. Better and better technology, coupled with increased insights into subscribers' burgeoning needs, help us all to continue to find new ways to grow the business profitably.

**To learn more about creating value for your business through speech technology, contact Unisys today.**

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