Dragon Solutions

From RSI to ROI

RSI – A PAINFUL REALITY FOR COMPUTER USERS

The widespread use of computers in the workplace has contributed to the rise of musculo-skeletal disorders (MSDs), which include repetitive strain injuries (RSIs). MSDs can occur when muscles or tendons are repeatedly overused or forced into an unnatural position, such as keyboarding or clicking and maneuvering the mouse. This repetitive motion can strain and damage muscles and tendons in the fingers, hands, wrists and arms.

According to the U.S. Occupational Safety and Health Administration (OSHA), an agency of the U.S. Department of Labor, MSDs are one of the largest job-related injury and illness problems in the United States. While much of the substantial cost of these disorders is due to the medical care, medications and other treatments required by patients, the bulk of associated costs is due to work loss, which is a frequent consequence of these injuries.

In March 2009 the Bureau of Labor Statistics reported that MSDs accounted for 30 percent of all workplace injuries requiring time away from work. In fact, workers with carpal tunnel syndrome, one of the most prevalent types of RSI, required an average of 28 days away from work. Resulting medical costs and loss of productivity is estimated at $50 billion per year, according to the U.S. National Academy of Sciences.

While most RSI sufferers are able to find appropriate treatment and return to their former positions, workers with severe MSDs can face permanent disability that prevents them from returning to their jobs. But speech recognition software can enable many people with MSDs to regain the ability to use a computer and resume their daily work activities.

Software such as Dragon NaturallySpeaking Professional can be used by staff with MSDs – of any level of severity -- to create documents, emails or spreadsheets entirely by voice. Dragon can also be used for complete command and control of a computer desktop by voice. That means launching applications, opening files, navigating menus and dialog boxes, managing email, and working on the Web – all by voice.

Since Dragon enables hands-free interaction with nearly any Windows-based application, it's a proven tool to help workers with MSDs return to work faster. Proactive implementation of speech recognition software can even help prevent employees from developing repetitive stress injuries in the first place.

Musculoskeletal disorders (MSDs) are injuries of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels, and spinal discs. Some of the more common MSDs include repetitive strain injuries (RSIs) such as carpal tunnel syndrome, muscle strains, tendonitis, trigger finger and low back pain.

THE IMPACT OF RSI ON THE BOTTOM LINE

Although surgery is a common treatment when repetitive stress symptoms become unbearable, it is often not a cure, especially if the patient returns to the type of work that brought it on in the first place. One study in the Journal of the American Medical Association showed 57% of patients reported a return of some symptoms.

RSIs not only create pain and suffering for employees, they also have a painful impact on their employers' bottom lines. Consider the following:

- Recovery from carpal tunnel syndrome requires a longer absence from work (28 median days) than almost every other disabling injury or illness.
- MSD-related claims account for $1 out of every $3 spent on workers' compensation.
- Employers save an average of $27,700 for each severe MSD prevented.
- Conservative estimates of the economic burden imposed by MSDs, including workers' compensation costs, lost wages, and lost productivity, are between $45 and $54 billion annually.

Additional costs may be involved. For example, calculate the expense associated with hiring and training temporary workers to replace employees undergoing surgery for carpal tunnel syndrome, who may be off the job for six months or more.

Companies must also absorb indirect costs associated with work-related RSIs, such as:

- Lost time from work
- Decreased productivity
- Increased health insurance costs
- Low employee morale

SPEECH RECOGNITION: THE PRODUCTIVE ALTERNATIVE

An employee that types 40 words per minute presses 12,000 keys per hour or 96,000 keys per 8-hour day. With Dragon NaturallySpeaking users can simply dictate text at speeds of up to 160 words per minute, eliminating the need to touch the keyboard at all.

Making speech recognition software available to all computer users can help prevent employees from developing repetitive stress injuries and enable injured employees to return to work more quickly.

Speech recognition and related technologies allow users to input text and data into most computer applications by voice, as well as to navigate the computer desktop with little or no use of their hands. Talking instead of typing also helps employees to work in more natural and varied positions (and even standing or stretching while they dictate) instead of being hunched over a keyboard.

Compared to the expense of workers' compensation claims, lost productivity, replacement workers, etc., the implementation of speech recognition software department- or enterprise-wide is a natural choice. The return on investment (ROI) of a speech recognition program can be measured in weeks, not months.

As an added bonus, output and productivity may actually increase, since most people can talk faster than they type. For example, a relatively fast typist who can type 50 net words per minute will produce a 300-word email in 6 minutes. Using speech recognition software, a person dictating 140-160 net words per minute can produce the same 300-word email in about 2 minutes—one third of the time. This does not include the additional time users can save using voice commands to open the email program, looking up an email address from their contact management software programs, and sending the email by voice.

THE AMERICANS WITH DISABILITIES ACT

Title I of the Americans with Disabilities Act of 1990 (the "ADA") prohibits employers from discriminating against qualified individuals with disabilities. A "qualified individual" with a disability is a person who meets legitimate skill, experience, education, or other requirements of an employment position that s/he holds or seeks, and who can perform the essential function of the position with or without reasonable accommodation. If the individual is qualified to perform essential job functions except for limitations caused by a disability, the employer must consider whether the individual could perform these functions with a reasonable accommodation.

The workforce includes many qualified individuals with disabilities who can productively use computers when equipped with speech recognition software and supporting hardware and software. Hiring and retaining qualified workers with disabilities is not only a smart employment practice for most employers, it's the law.

Since speech recognition software effectively levels the playing field for qualified workers with RSI and other disabilities, this technology could play an important role in employers' ADA compliance strategies. Speech recognition tools are particularly aligned with the needs of federal agencies which face the additional requirement of Section 508 of the Rehabilitation Act to give disabled employees and members of the public access to information that is comparable to the access available to others. Dragon NaturallySpeaking Professional is Section 508-certified.

THE ABCs OF SPEECH RECOGNITION SOFTWARE

Speech recognition software uses the human voice as the main communication mechanism between the user and the computer. Users speak naturally into a microphone connected to the computer. The software "recognizes" the spoken words, converts them into text, and displays them on screen. Relatively simple to use, speech recognition software is very sophisticated technology that uses "language modeling" to recognize and differentiate among the millions of human utterances which make up any language.

Upon initial use of Dragon, individuals create and "train" a user profile. Each profile contains information about the unique characteristics of that person's voice, which Dragon uses to recognize their dictation and voice commands. Dragon starts with general models of how English is spoken (including "regional" accent models). It then adapts to how an individual speaks (acoustic model) and which words and phrases they use (vocabulary and associated language model). This approach accommodates users with varying accents and speech patterns.

As the individual uses the software and corrects recognition errors, Dragon becomes increasingly accurate. Dragon includes more than 300,000 words in its vocabulary, but users can further boost accuracy by customizing the Dragon vocabulary to include the names of products, unusual proper names, industry- or company-specific terms, acronyms, abbreviations, etc. An enterprise-wide vocabulary can also be centrally managed by the IT administrator.

Dragon NaturallySpeaking Professional users can also create "voice macros," custom voice commands that can execute complex sequences of keystrokes and mouse movements to automate and simplify frequent tasks and boost employee productivity. For example, users can create template blocks of text and graphics that can be inserted into documents or e-mails using a single voice command (e.g., insert a signature at the end of a letter, add recommended steps to a treatment plan, or insert boilerplate text into an assessment report – all by saying a simple voice command). The ability to quickly insert standard text yields immediate results for faster, easier document creation.

More advanced voice commands can also be created so that a single command could, for example, save a report file, email it as an attachment to all standard recipients, and print out a hard copy at the central office — all with a single spoken command such as "Submit Report." Repetitive tasks take far less time when they're automated with simple voice commands.

IMPLEMENTING A SPEECH RECOGNITION PROGRAM

Many companies first get involved in speech recognition by purchasing the software for a few individuals who request it. Once the organization sees the productivity benefits, they often decide to make speech recognition available department- or company-wide. Other companies become involved with speech as part of their overall ergonomics, RSI prevention, and ADA compliance strategies. These organizations begin with a cross-functional committee made up of representatives from the key departments involved in the implementation of Dragon – including human resources, IT, and purchasing – to help ensure that everyone understands the program's goals and has a stake in its success.

The committee's first step is to study the software and understand how it can benefit the company. The committee then develops a comprehensive needs assessment. The human resources department may already have information such as the number and type of injury reports or workers-compensation claims. This information can help with a needs assessment, but an additional evaluation is required in order to uncover the scope of RSI treatment and prevention opportunities, hardware and software needs, training and support issues, and related needs.

If you are only planning to provide the software to a few employees, you may not need to test the software first. But for enterprise-wide deployments, most organizations conduct a comprehensive pilot. Based on its 10+ year history of successful enterprise speech deployments, Nuance has developed an effective deployment methodology that has delivered proven results for organizations across multiple industries. The pilot phase of this deployment process generally lasts one to two months.

DEMONSTRATING A RETURN ON INVESTMENT

The amount of time required to achieve proficiency with Dragon depends on the user. Although the software itself is easy to install and operate, users who are not accustomed to dictating their thoughts may need practice learning how to dictate. Doctors, lawyers, and other experienced dictators can become comfortable right away, while the learning curve for those who are new to dictation may range from two to four weeks.

Although users can begin dictating immediately with Dragon, most people increase their productivity when they receive training and the product is customized for their needs -- for instance, by importing into all user profiles a list of the organization's jargon, divisions, employee names, and other specialized vocabulary. Providing ongoing helpdesk support ensures that users continue to achieve the maximum benefit from the product.

Implementation costs will vary, depending on the vendor, the Value-Added Reseller or consultants, the size of the program, related hardware (including PCs that meet Dragon's minimum system requirements), and the level of customization, training, and support desired. Most companies find that providing customization, training, and support results in greater employee satisfaction and productivity. It also provides a stronger return on investment (ROI).

In most cases, enterprises that purchase Dragon NaturallySpeaking Professional realize improved productivity and ROI almost immediately. What makes this rapid ROI possible?

• **It's easy to use.** For a sophisticated tool, Dragon is remarkably easy to use leading to high adoption rates with minimal support costs.
• **It saves time.** Dragon enables users to create reports and other documentation three times faster than typing. Macros automate and streamline repetitive manual processes for hands-free PC use and productivity increases of up to 300%.
• **It's accurate.** With recognition accuracy rates of up to 99%, Dragon allows users to quickly create detailed and accurate reports – without ever touching the keyboard or mouse if necessary.
• **It works the way you work.** Dragon Professional offers powerful customization and administration capabilities. Cus-

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tomizations crucial to productivity can be made in advance and centrally managed over time.

By leveraging the power of speech, Dragon quickly eliminates potentially significant personnel-related costs:

- Estimated annual cost of noncompliance with American Disabilities Act in computer operations (legal fees, lawsuit awards/settlements, lost business opportunities, etc.)
- Cost of computer-related RSI and similar claims
- Estimated annual loss of personnel productivity from RSI

When the benefits of Dragon are multiplied across dozens or even hundreds of users enterprise-wide, the cost savings and productivity gains add up quickly.