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Voice Recognition and Mobility in the Legal Industry

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Voice Recognition and Mobility in the Legal Industry

La Salle University
INL 880 Capstone

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Voice Recognition and Mobility in the Legal Industry

In a typical legal work environment, attorneys work with their staff to generate and send case related legal documents and communications. Traditionally the attorney will dictate to a device capable of recording audio and the legal assistant will transcribe the audio directly from the source. In the early days of recorded dictation audio was recorded and saved to analog tape. Once the technology became available, dictation was saved digitally to flash memory and transmitted to hard disk for playback by the legal assistant. It has been this way for years, and due to advances in voice recognition technology and computer processing there are alternative options to the traditional dictation/transcription process.

The focus of this paper is to examine the traditional process of dictation/transcription and how it compares to the process of using voice recognition software. Analysis of each process as well as an evaluation of voice recognition software will be performed. The document generation process will also be examined as it relates to transcription and creating a document, regardless of the content. The most efficient solution which benefits a small to medium size law firm will be recommended. According to *Understanding How Law Offices Do Business*, a small law firm has between one and ten lawyers and a mid-size law firm has up to 50 lawyers. These firms are the target audience.

The goal of this paper is to determine if the use of voice recognition software can help an attorney and their staff be more efficient, and if so, which voice recognition software and methods work the best. Tests will be performed analyzing both Dragon Naturally Speaking 12 Professional and Windows 7 voice recognition software on the desktop. The software with the higher accuracy rate based on our tests will be used to evaluate voice recognition processes throughout this paper.

Dragon Naturally Speaking vs. Windows Voice Recognition Analysis

To test the accuracy and usage of both Dragon Naturally Speaking and Windows built in voice recognition, two tests were conducted. The first consisted of reading a passage of text of 1,642 words to get a feel for how both programs handled speech recognition without any document formatting or style. Please refer to Appendix 1 for full scope of the document. The second test consisted of dictating an example of a case analysis for an insurance adjuster, a common type of document in the area of Workers' Compensation. Appendix 2 reflects the template that was used to compose the document through voice dictation in Dragon Naturally Speaking and Windows Voice Recognition.

Both Dragon Naturally Speaking Premium Version 12 and Windows 7 Voice Recognition programs have a set up process which checks the microphone levels by reading passages and analyzing the voice. Both program setups require the user to read a passage to ensure the microphone levels. With Dragon Naturally Speaking, a user profile is created which includes the user's age and accent type which will affect speaking dictation. Dragon Naturally Speaking provides six different passages of text to register speaking speed, accent and speaking tendencies to personalize the program to the user's voice. This process allows Dragon Naturally Speaking to have fewer mistakes than Windows Voice Recognition software. With Dragon Naturally speaking, there is the ability to use dictation commands such as select "word" and choose an option to correct the word without having to retype or re-speak the correction.

Also, Dragon Naturally Speaking allows the user to speak more freely and is able to translate words to text faster than Windows Voice Recognition. The user would attempt to speak a few sentences using Windows 7 Voice Recognition software resulting in less text correctly transcribed compared to using Dragon Naturally Speaking. Dragon Naturally Speaking has more commands and better accuracy than Windows 7 Voice Recognition, in part due to the Dragon Naturally Speaking User Profile that is built the first time the program is used. The profile is constantly updated to improve accuracy through scheduled recognition tasks, reviewing existing documents and a feature which allows for vocabulary personalization.

Accuracy

Both programs had high accuracy percentages based on the 1,642 word narrative. Dragon Naturally Speaking performed with 95% accuracy recognizing 1,575 words correctly, and Windows performed with 93% accuracy recognizing 1,532 words correctly. Despite the relatively low 2% difference in accuracy between the two programs, reviewing the Windows dictation was difficult as when it incorrectly identified words it seemed to do so for strings of words making it difficult to understand the complete sentence. Two examples of this from Appendix 1 are “Along the way they saw an Ice Cream parlor” which both programs did not fully recognize as well as “Tom had been to many Phillies games before.” Dragon mistakes were isolated from sentence to sentence which made it easier to understand the narrative with the misspelled words. This is an important distinction since when reviewing a document, the context of the sentence is important when trying to determine misspelled words. As previously mentioned, the need for review cannot be overlooked, even if accuracy consistently performs at 99%. In addition to the voice recognition results it was difficult recording with Windows Voice Recognition as every sentence had to be read one by one and still some words were omitted. Also, the Windows Software would make a loud “thud” if the text box was at capacity or if the program failed to recognize a majority of the sentence being dictated.

Common Mistakes in Both Programs

The following section reviews the common mistakes both Dragon Naturally Speaking and Windows Voice Recognition made. Some of the common mistakes both programs made were recognizing not only certain words, but the context of these words. These examples show that while letting a computer do the tasks of dictation and transcription which historically have been accomplished manually, the human element of proofreading is still critical to document completion and must not be overlooked.

Both Dragon Naturally Speaking and Windows VR did not get the title correct.

Spoken: “A Day at The Ballpark”

Results:

Dragon	Microsoft
I day at the ballpark	I bit the ballpark

There are instances in both programs when what was dictated was not a complete sentence and Microsoft Word did not flag any incomplete sentence structures with a subject, verb or predicate.

Spoken: "Along the way they saw an ice cream parlor"

Results:

Dragon	Microsoft
Along the way this on ice cream parlor	Along the way they saw ice cream parlor

When Dragon Naturally Speaking and Windows Voice Recognition do not recognize a word, it will generate a similar word.

Spoken: "father and son day"

Windows Result: father and Sunday

Spoken: "Tom had been to other Phillies games before"

Results:

Dragon	Microsoft
Tom had been to filter Phillies games before	Tom had been too tough to lose games before

Test Results

Based on the testing and analysis of Dragon Naturally Speaking and Windows Voice Recognition, the product used for the remainder of this paper will be Dragon Naturally Speaking. Based on testing Dragon had the highest accuracy rate at 95%.

Before dictation and transcription models can be examined, the following section provides an overview of the tools used to create and organize case-related documents. The creation of documents through document templates will be reviewed using case-related data through the process of a document merge.

Document Management Systems and Enterprise Content Management

In the legal setting, Document Management Systems (DMS) and Enterprise Content Management Systems (ECMS) are software that allow for the organization and easy retrieval of case-related data. The term data is used broadly to cover legal documents, inter-office memorandums, internal and external (sent and received) emails, voicemails and billing invoices.

These systems can scale from a solo practice consisting of a small workgroup of users to the top 100 law firms in the United States with thousands of users, which gross more than one billion dollars, known as AM100 law firms. As systems get larger, the configurations become more complicated. Searching for data needs to remain a quick process as well as security concerns need to be addressed. While DMS and ECM systems strive to solve the same problems and provide access to data, ECM systems take the process further.

As the Association for Information and Image Management (AIIM) states, ECM focuses on the strategies, methods and tools used to capture, manage, store, preserve, and deliver content and documents related to organizational processes. ECM tools and strategies allow the management of an organization's unstructured information, wherever that information exists (AIIM – What is ECM?).

Document Management Systems will be the software of example used throughout the paper.

Document Management System Features

A Document Management System can consist of features such as a Document Repository, Document Imaging, Multiple user access and Document Creation Templates (Davis, 2014). All case-related documents are saved in a document repository within the DMS. This helps users access and collaborate on documents as well as provides a secure location for client or case-related documents. A “specific location” refers to a folder structure named by case number, case parties, or both. Since not all documents received are electronic there is a volume of material received by the post office, overnight or ground transport and courier as well. This material needs to be treated the same as electronic documents and imaged by way of a scanner and copied into the DMS. The process for this is to scan all documents and “import” into the DMS. Scanned documents can be converted to different formats depending on the mechanism and software doing the formatting, but PDF is a universal format that is used. Many of outgoing documents can have a designated format. Templates can be created which quickens workflow and provides a uniform structure to all documents, regardless of content. For court related documents, they need to be formatted in a style and/or layout each court dictates as acceptable. For letters that go out to clients, opposing counsel, or any other parties related to a case, the outgoing documents need to have a standard look throughout the entire document. The specific format makes each document easy to read and creates brand awareness with the addition of a logo, office locations, and firm web site. These documents are stored in a DMS which provides quick access and are accessible by multiple users at the same time, regardless of geographic location. Some DMS systems will allow for a check-out/check-in process so multiple users can view and edit documents at the same time creating multiple versions once checked back in. In these systems the document is copied to the local machine for edited. Once completed, they are copied back to the DMS as a new version. Other systems will mark

a document as read-only once subsequent copies are attempted to be opened. In this case a system can provide options for additional viewers to be notified once the document is closed or to open as a new version.

Document Management System Tools

Some of the DMS tools which are useful to either generating content or securing content are Security features, Portable Document Format (PDF) functionality, Optical Character Recognition (OCR), Metadata and full text searching and Document Scrubbing.

Security

As a DMS gets larger with various types of cases, security needs to be in place to limit document access to only those who have the rights and privileges set by the Informational Technology Administrator. Security groups can be setup based on the type of law the user works in. This is important since medical records, personal financial information or intellectual property need to be protected from users that do not need access to such content. Similarly related, Health Insurance Portability and Privacy Act (HIPPA) and Freedom of Information Act are two relevant laws set by the United States Federal Government to regulate the amount of information that can be disclosed about private citizens. There are nine exemptions to disclosing information under the Freedom of Information Act. According to 5 U.S.C. § 552(b)(6), one of the nine exemptions is documents which are "personnel and medical and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy" (*FOIAdvocates - Freedom of Information Requests/Appeals/Litigation*).

Portable Document Format

Documents generated and sent out need to be protected from manipulation. A universally accepted document type is the PDF. While standalone products like Adobe Acrobat Standard or Nuance PDF Converter can convert documents to PDF, it's helpful to have the conversion process built into the DMS and it can be cheaper than licensing individual copies of software per users.

Optical Character Recognition

OCR is the process to convert a scanned image into readable text. This is important in a DMS to ensure that when performing a full text search imported documents are searched as well as the internally generated documents.

Metadata and Full Text Search

Metadata is useful for searching document properties instead of searching document content. "Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource. Metadata is often called data about data or information about information" (*Understanding Metadata, 2004*). When creating documents, information about the document can be used to find work by a certain author, or types and subtypes of documents. A metadata search can be performed for documents that contain a certain number of words, changes to text within documents, or even the type of operating system and word processing

software used to generate the document. Combining a full text search with a metadata search can provide results based on content and format and/or author. A full text search is possible when the DMS has a SQL process to index all documents for fast search, known as a Full Text Index. As the Full Text Index runs, it indexes all character based columns in each table and stores them for future searching (*Full-Text Search*, 2014). The index has to constantly run as documents are always being created and modified. This is a function related to relational database software, such as Microsoft SQL or MySQL, which a DMS is generally built on - it is not necessarily a function of the DMS itself, although the DMS is the tool used to access the full text searches.

Types of Formatted Documents

Memorandums, status reports, and pleadings are just a few of the many types of documents lawyers need to generate to meet client needs. As demonstrated later in the Appendixes, these documents can completely be created and emailed via voice recognition. Status reports and pleadings have specific formatting which a trained legal assistant can create faster than an untrained lawyer. The idea here is with the proper merge document and the use of voice recognition software, the attorney can create various status reports and pleadings without the use of a legal assistant. The benefits are reduction in overhead including office space, fewer salaries to pay and faster work output – which is addressed later in this paper.

Merge Document Example

As previously mentioned, the DMS is used to merge case data with a document template to quickly create a standard formatted document as part of the work product.

The image in Figure 1 is a breakdown of an Interrogatory document template. An interrogatory is a document which is sent to a party requesting information. The template consists of both static and dynamic data. The dynamic data is referred to as “merged” data. By utilizing templates and merged data the document generation process is streamlined. The need to search for, and enter data is eliminated as is the need to manually format the document into its proper layout. Utilizing a template also eliminates the need to repeatedly type standard language that is commonly generated and sent out. In the below image, red highlight represents a dynamic merge code, green highlight represents the static template and blue represents the static firm data.

Red = Merge Data
Green = Template
Blue = Firm Data

Stephen Malkmus, Esq.
Law Firm Name, LLP
1515 Market St, 26th Floor
Philadelphia, PA 19103
Attorney for Respondent, Ford Motors

Nels Cline
Petitioner,
vs.
Ford Motors
Respondent.

: NEW JERSEY DEPARTMENT OF LABOR
: DIVISION OF WORKERS' COMPENSATION
:
: CLAIM PETITION NUMBER: BWC28943
:
: OCCUPATIONAL INTERROGATORIES
:
:
:

TO: Jeffrey Tweedy, Esq.
Septa
1234 Market Street, Suite 200
Philadelphia, PA 19103

As per Rule 12: 235-5.6(e), respondent demands that petitioner answer the within Interrogatories within forty-five (45) days after service.

ATTORNEY FOR RESPONDENT,

BY: _____

A MEMBER OF THE FIRM

Figure 1 – Interrogatory Template

The merge fields pull both case related data as well as firm data into the document from the DMS. Firm static data is also merged. Instead of having multiple merged docs for various locations, only one template needs to be created. When the data for a case is entered into the DMS, the data pertaining to the case is used for the data merge. In the example, the Law Firm address in the upper left corner is merged based on the office location of the attorney assigned to the case. Figure 2 shows the merge codes highlighted in yellow. Merge codes consist of specific characters which make up a reference to a

field in the DMS database. In the example below, the first code (in red) is <<Assigned_Atty_full_name>> which will pull the full name for the assigned attorney to the particular case. These codes are built into the DMS by the provider and can be used as a reference in Word Processing programs such as Microsoft Office or WordPerfect as well as certain version of Adobe Acrobat. Again, in the below image, red highlight represents a dynamic merge code, green highlight represents the static template and blue represents the static firm data.

Red = Merge Codes

Green = Template

Blue = Firm Data

«Assigned_Atty_full_name», «Assigned_Atty_title»
 Law Firm Name, LLP
 «firm_add_1», «firm_add_2»
 «firm_city», «firm_state» «firm_zip»
 Attorney for Respondent, «Respondent_company_sk»

«Petitioner_full_name» : NEW JERSEY DEPARTMENT OF LABOR
 : DIVISION OF WORKERS' OMPENSATION
 Petitioner, :
 :
 vs. : CLAIM PETITION NUMBER:
 : «Court_court_case_no»
 :
 «Respondent_company_sk» : OCCUPATIONAL INTERROGATORIES
 :
 Respondent. :

TO: «Attorney_full_name», «Attorney_title»
 «Attorney_company_sk»
 «Attorney_address_1»
 «Attorney_address_1_city», «Attorney_address_1_state» «Attorney_address_1_zip»

As per Rule 12: 235-5.6(e), respondent demands that petitioner answer the within
 Interrogatories within forty-five (45) days after service.

ATTORNEY FOR RESPONDENT,

BY: _____
 A MEMBER OF THE FIRM

Figure 2 - Merge Codes

Document Merge Steps

The document merge process is completed prior to transcribing dictation, or using Dragon to dictate directly into a document. The six steps below in Figure 3 function the same regardless of the method of dictation. Figure 3 is an overview of the steps a user will take upon determining which case information needs to be merged. This is before the legal assistant starts typing or the attorney starts using Dragon within the document. The six step process, as demonstrated in the flow chart and images below illustrate a step-by-step process of using a DMS to create a new document. The overall process is searching for a template and merging the template with data to create a formatted document ready for content to be added.

In this specific example a legal assistant is using legal software from a company called Aderant. Total Office (ATO) is the software used to create the documents. As previously stated, templates within a DMS can be used to streamline document generation. This section explains the steps a user goes through to launch and merge a document within the DMS.

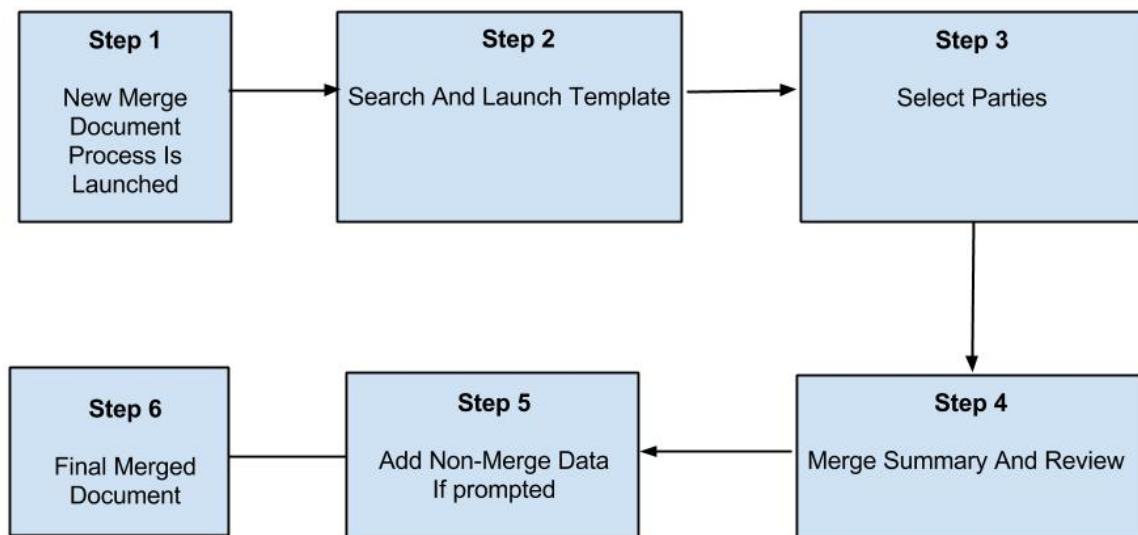


Figure 3 - Document Merge Steps

Document Merge Process

Below is the step-by-step guide of merging a document from a template stored in a DMS to draft a letter. This is an example of the work a legal assistant does on a daily basis to aid in the attorney's preparation of their case, such as contacting an insurance adjuster for a workman's compensation case or a civil court proceeding. In the example, the legal assistant is searching for adjuster within the template description. This is a method used to find a template specifically built for sending a document to an insurance adjuster. As each document is created, it is given a unique Document ID.

Step 1. User launches New Merge Document from within a specific case in the DMS.

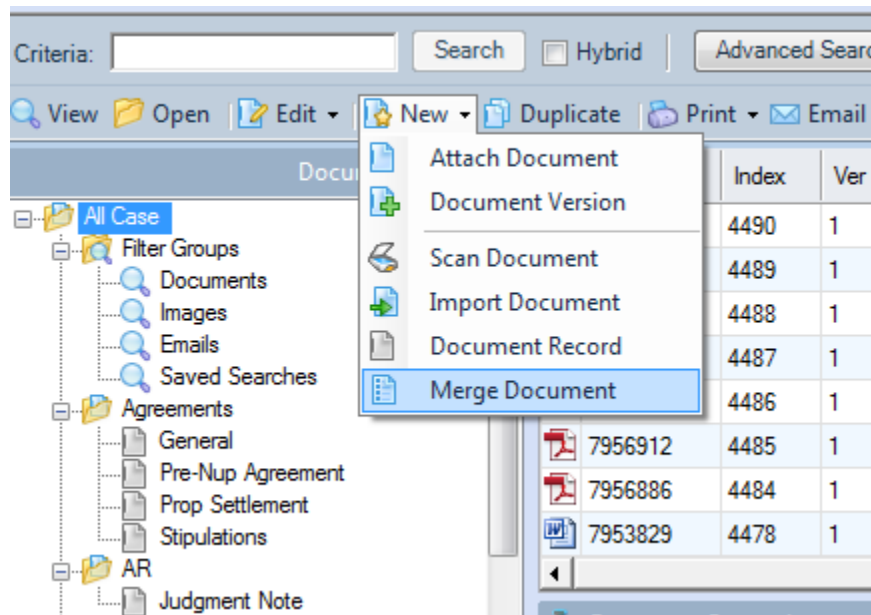


Figure 4 – Launch New Merge Document

Step 2. Search for the template to be merged, launch selection.

Merge Form Selection Screen

Search By: Form Name Description

Search Criteria: (Blank for entire list)

Workgroups: WG Admin- You can see all workgroups
 Workgroup(s): All Include Global Forms

Lawtype Selection:
 Individual Law Type
 All Forms

Form Name	Description	Form Type	LT	Applic
BLKADJ1N.DOC	NLH- Blank Letter to Adjuster	Correspondence	ML	WORD
BLKADJ3N.DOC	NLH- Blank Letter to Adjuster	Correspondence	SU	WORD
BLKADJ1NDOCX.DOCX	NLH- Blank Letter to Adjuster (DOCX)	Correspondence	ML	WORD
ACKNODNN.DOC	NLH-Acknow deny Letter to Adjuster	Correspondence	NJ	WORD
ACKLTRAN.DOC	NLH-Acknowledgement Letter to Adjuster	Correspondence	NJ	WORD
ACKREFAN.DOC	NLH-Acknowledgement of Referral Letter to Adjuster	Correspondence	DF	WORD
ACKREFWN.DOC	NLH-Acknowledgement of Referral to Adjuster w/o File Mate	Correspondence	DF	WORD
ACKNOREN.DOC	NLH-Acknowrefer Letter to Adjuster	Correspondence	NJ	WORD
BLKADJ5.DOC	NLH-Blank Letter to Adjuster	Correspondence	PM	WORD
BLLTRADN.DOC	NLH-Blank Letter to Adjuster	Correspondence	NJ	WORD
BLANKADN.DOC	NLH-Blank Letter to Adjuster	Correspondence	CO	WORD
BLKADJN.DOC	NLH-Blank Letter to Adjuster	Correspondence	DF	WORD
BLKADJGN.DOC	NLH-Blank Letter to Adjuster GB	Correspondence	DF	WORD
BLKADJNN.DOC	NLH-Blank letter to Adjuster No Direct Dial	Correspondence	DF	WORD
BLADJIE.N.DOC	NLH-Blank Letter to Adjuster re: initial evaluation	Correspondence	DF	WORD
BLKADJBW.DOC	NLHBW- Blank Letter to Adjuster	Correspondence	ML	WORD

Items Found: 73 Form Names listed in Italic were not found in the system. Display all, even if application is not installed

Figure 5 - Template Search and Launch

Step 3. Select Party information to be used.

The screenshot shows a software dialog box titled "Information to be used for merge". The dialog is divided into two main sections. The left section, titled "Select Appropriate Parties", contains five dropdown menus: "Select Adjuster" (set to "Adjuster: Adjuster, Addy - Client"), "Name of Attorney Signing the Document" (set to "[Attorney/3rd Party Cnsl]: Clooney, George"), "Select Petitioner" (set to "Arbitrator: Simpson, Lisa"), "Select Court" (set to "Court: Bureau of Workers' Compensation"), and "Select Insurer" (set to "Insurer: Grime's Insurance Company"). The right section, titled "Select Date of Accident/Incident", is currently empty. Below this section is another empty area labeled "Select Scheduled Events". At the bottom right of the dialog, there is a "CC List Selection" field showing "1 Selected" and a "Modify" button. An "OK" button is located at the bottom right corner of the dialog box.

Figure 6 - Select Parties

Step 4. Make any necessary changes to recipient or from lines, document type or add any notes. When ready select Merge.

The screenshot shows a software window titled "Document Summary" with three tabs: "Document Summary", "To-Do Items", and "Attachments". The "Document Summary" tab is active. The window contains the following fields and controls:

- Matter: (Fake-4321) Homer Simpson v. Moe's Tavern et al.
- To: Adjuster, Addy
- From: Clooney, George
- Type: Correspondence
- Sub-Type: Adjuster
- Doc Name: NLH-Acknow deny Letter to Adjuster
- Date Sent: 7/5/2014
- Notes: (Empty text area)

At the bottom right of the window, there are four buttons: "Merge", "Change Matter", "Change Data", and "Cancel".

Figure 7 – Merge Document Summary and Review

Step 5. Some merge documents will require additional information; this letter needs to know the delivery method. E-Mail is the method which is manually typed. Notice the header consists of codes (and a blurred firm logo).



<firm_add_1>, <firm_add_2>
<firm_city>, <firm_state> <firm_zip>

T<FIRM_PHONE>
F<FIRM_FAX>

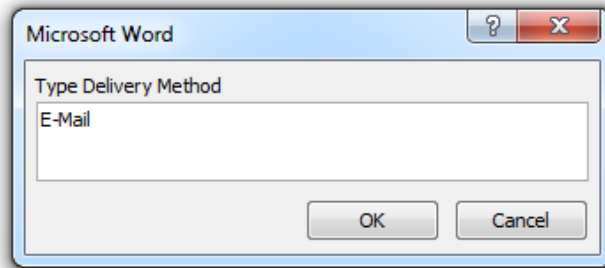


Figure 8 - Additional Non-Merge Document Information

Step 6. Final merged document

1515 Market St, 26th Floor
Philadelphia, PA 19103

r(215) 555-1212
r(215) 555-1987

July 5, 2014

E-MAIL
VIA FEDERAL EXPRESS
Addy Adjuster
Grime's Insurance Company
123 Adjuster Way
Ad, PA 12345

Direct Dial: (214) 555-1213
Email: gclooney@hotmail.com

RE: Homer Simpson v. Moe's Tavern et al.
C.P. No.: BWC28943
Claim No.: 7891044511
Our File No.: Fake-4321

Dear Ms. Adjuster:

Thank you again for your kind referral of the above captioned matter. Please find enclosed a copy of the Answer we have filed in response to the Claim Petition denying all material allegations and putting petitioner to his/her proofs with respect to this claim. Please accept this correspondence as our initial file review.

I. REVIEW OF FILE MATERIAL

Pursuant to the Claim Petition, petitioner alleges sustaining

Figure 9 - Final Document

Generating Content

Next is an examination of the current process a legal assistant goes through when transcribing dictation using a digital dictation system and the DMS. After the examination of the current process, a breakdown of two alternatives using voice recognition will be examined. These two alternatives are using Dragon Naturally Speaking on a PC to generate documents and using a mobile solution with Dragon software transcribing dictation on the server side and sending completed voice recognition files to legal assistants for review.

Current Digital Dictation System Process

The current process, shown below in Figure 10, relies on an attorney to dictate to a handheld device, which initially stores the dictation on its memory card. Once in the office the attorney can dock the device to their computer which initiates the upload process and sends the dictation to the dictation system queue. This is the Dictation Database shown on Figure 10. Prior to uploading, the attorney can add notes to each dictation to specify which case the dictation is for or any special instructions. A level of priority and/or a due date can be added as well.

The legal assistant accesses the attorney's dictation queue from the transcription software which launches at startup/login. Once the legal assistant reviews the dictation notes, the next step is to go into the appropriate case within the DMS and launch the necessary merge template. Once the document merge has completed, the playback of the dictation can start as the legal assistant transcribes the recording by typing into the word processing software. The image below breaks down the process which starts when an attorney uploads their dictation to the system, making it available for transcription. The transcription is stored in a SQL server along with case related notes and any special instructions. Once the dictation is available for transcription, the legal assistant will see it in their queue. The information in the queue displays the case information and the type of document to be generated so the legal assistant knows which case to open and which template to use in the DMS. After the legal assistant transcribes the dictation the document is sent to the attorney for review. The attorney can approve the document and add a signature to be sent out, or the attorney can request changes to the document. If changes are necessary the legal assistant makes the changes and then submits the document to the attorney for review. The cycle will continue until the document is ready to be signed and sent out.

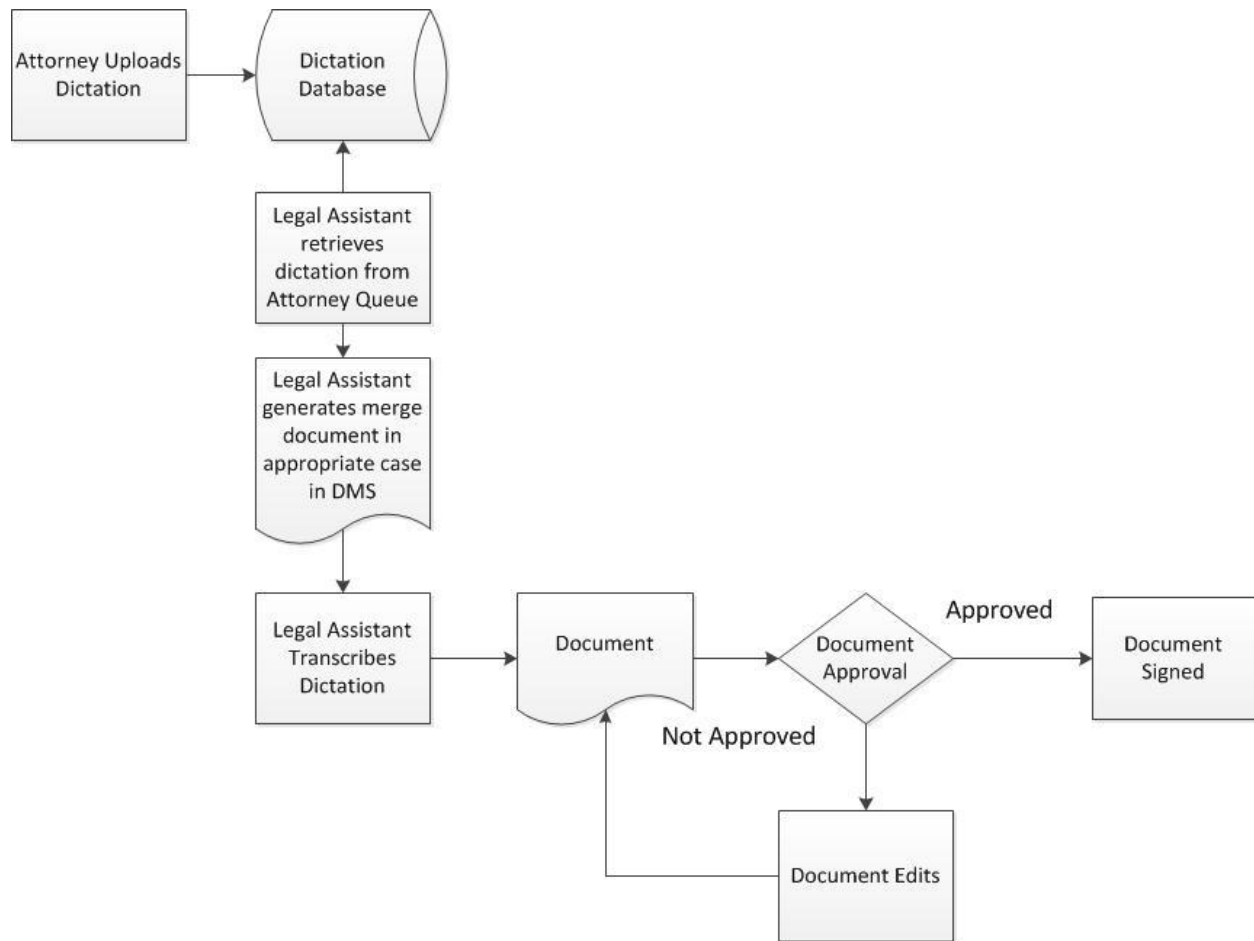


Figure 10 - Digital Dictation Process

Dragon on the Desktop

The second method used to add text to a document as generated in Figures 3 through 9, and the first using voice recognition, is to use Dragon Naturally Speaking on the desktop. With this method, first an attorney completes the document generation process on their own. Then, after launching the merge document through the appropriate case within the DMS the attorney can use Dragon to dictate directly into the document and bypass the traditional method of dictation/transcription with a legal assistant. Using built in Dragon correction options, as well as the mouse and keyboard, the attorney can edit the document as they dictate or review the document once initial dictation has been completed. Since there is no recording of the dictation, it is not practical to send the dictated but not reviewed document to a legal assistant to make corrections. It can be difficult for the legal assistant to make corrections for words that are misspelled as well as words that are correctly spelled but incorrectly recognized by Dragon.

Once the attorney has finished the dictation, there are two options. Depending on the content and type of document, the attorney can email the completed document out. If it needs to be formatted a certain way that wasn't part of the merge template the attorney can have the legal assistant review. If there is no need for review, and it must be sent via fax or regular mail, the legal assistant can do this. Since the document is in the DMS, there is no need for the attorney to send the document to the legal assistant via email and have them open, save, review, save, and attach back to the attorney. All the attorney needs to do is provide the document ID and the legal assistant can update the document directly from the DMS. Once done, the legal assistant can notify the attorney that the review has been complete, and from there the document can go out. If a signature is required, it can be applied electronically through various methods.

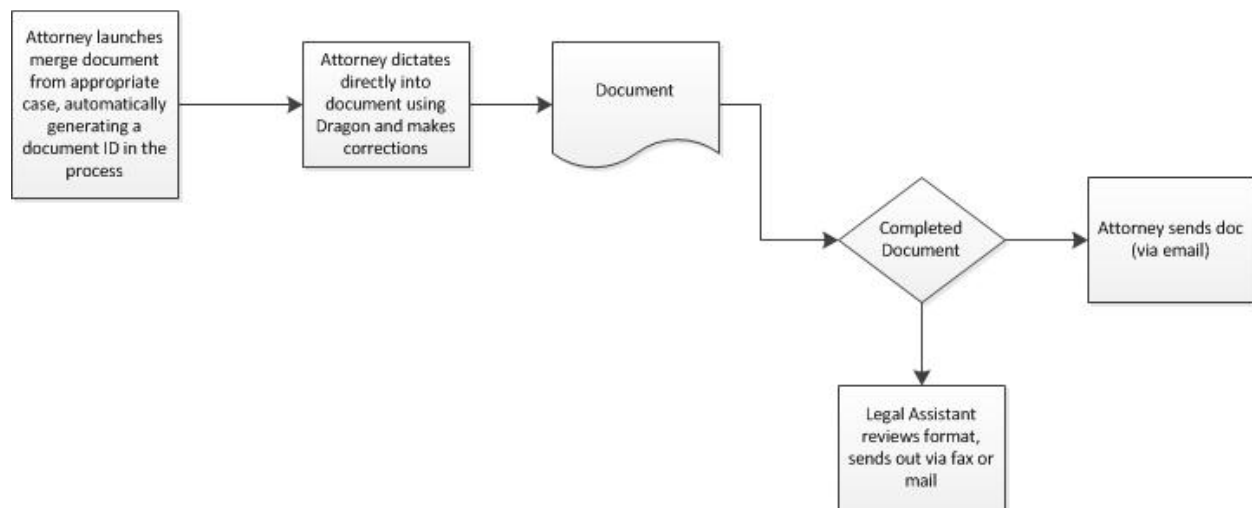


Figure 11 - Attorney Using Dragon on the Desktop

Dragon via Mobile

The third method used to add text to a document as generated through Figures 3 through 9 and second using voice recognition is to combine the use of software to send dictations from a mobile device with Dragon Naturally Speaking running on the backend as a software service. By using software from a company called Big Hand, the attorney can dictate to, and send from the phone over either cellular or Wi-Fi. The mobile software has the same functionality as the desktop software, providing relevant case information the attorney can enter prior to sending.

As shown below in Figure 12 once the dictation is received by the Big Hand server, Dragon processes the file for voice recognition and adds the completed file to the legal assistant's queue.

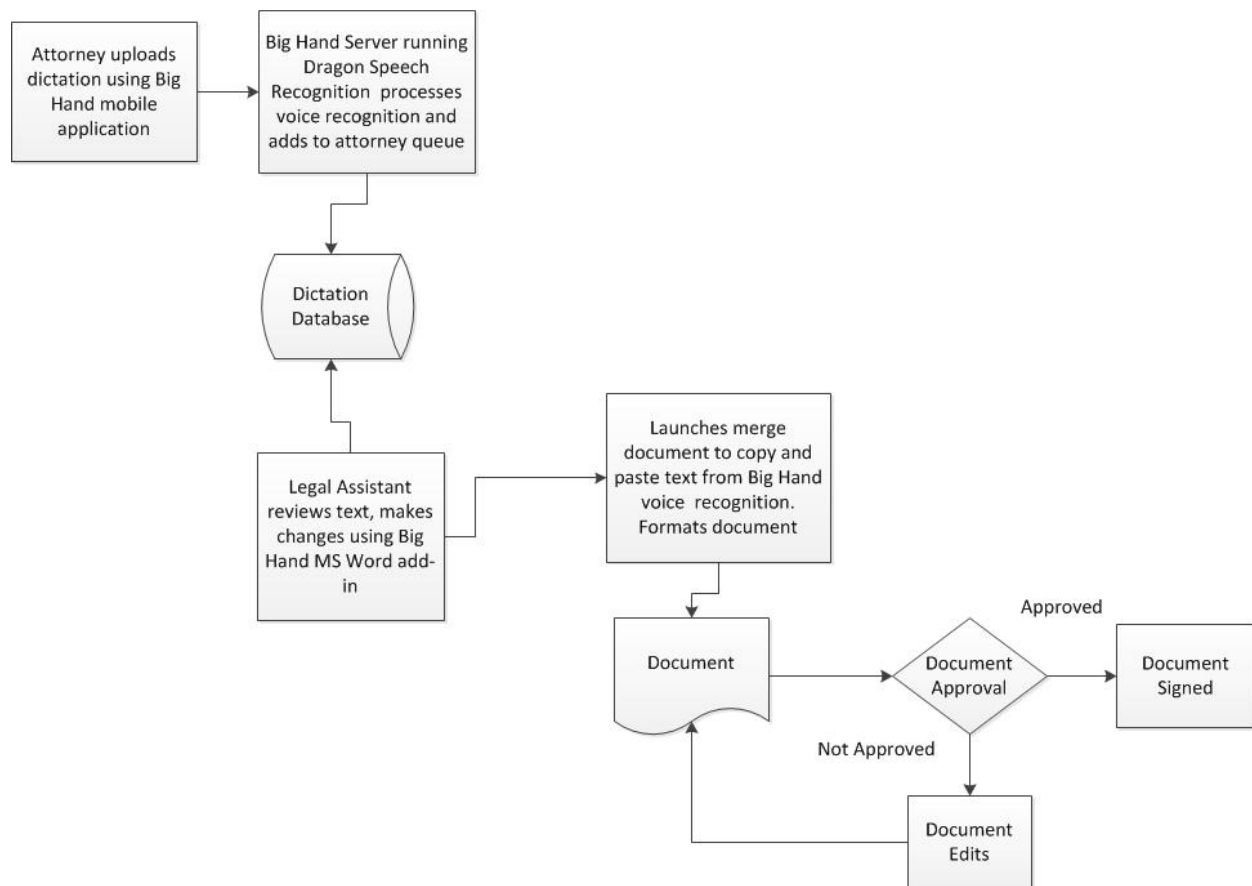


Figure 12 - Attorney Using Dragon on the Server

When the legal assistant opens the voice recognition file, the transcribed text is viewed while listening to the dictation. As each word is played back, Big Hand highlights the word on the document. This is important for two reasons:

1. If the voice recognition fails to properly recognize the word and substitutes a similar word that also makes sense within the context of the dictation, the legal assistant can catch the error.
2. If the voice recognition fails to properly recognize the word and instead adds a word that makes no sense within the context of the dictation, the legal assistant can catch the error.

Once the voice recognition has been reviewed, and the document has been properly formatted the document options are the same as previously described; the document can be sent out as is, or it can be reviewed by the attorney prior to being sent out.

Below is a screenshot of the view the legal assistant has when playing back dictation that has been recognized by Dragon through Big Hand. Notice the word “advised” highlighted in blue as it was the active word being played back at the time of the screen shot. This is step “legal assistant reviews text, makes changes using Big Hand MS Word add-in” previously shown in Figure 12.

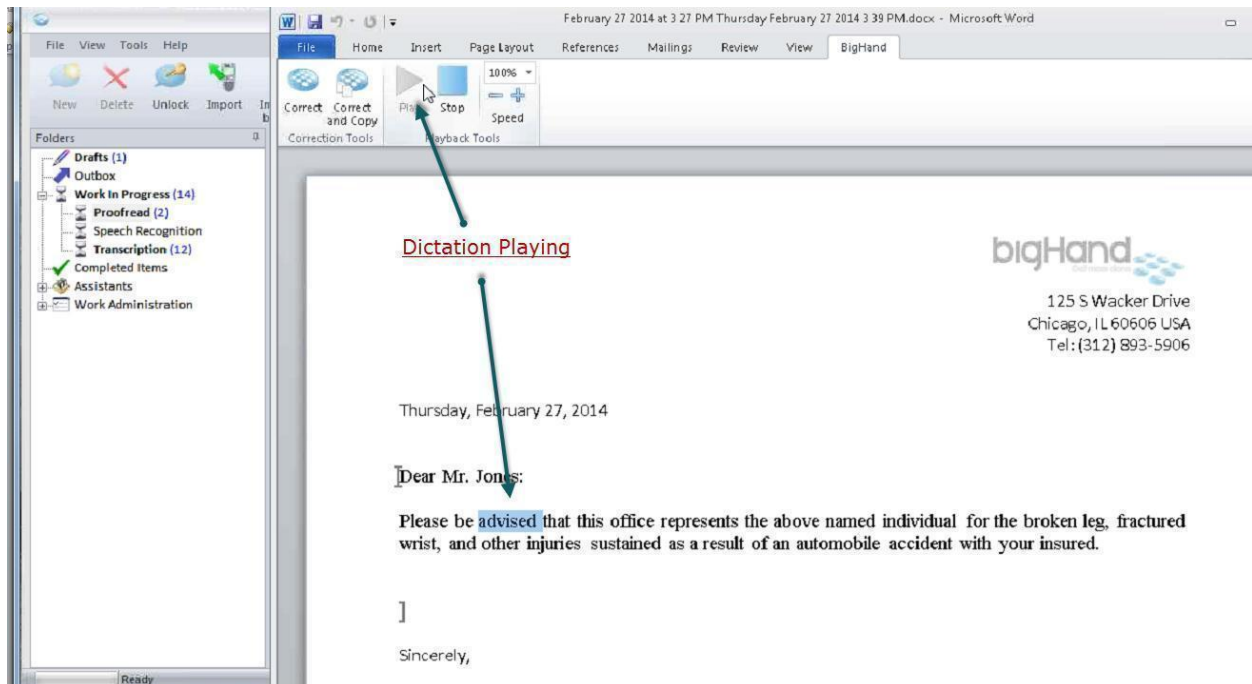


Figure 13 - Screenshot of Dictation Playback with Voice Recognition

By utilizing both Big Hand mobile software and Dragon on the server side, attorneys can dictate and send from anywhere as long as they have a cellular signal or are connected to Wi-Fi. By using the mobile application there is no need to purchase new dictation devices such as USB microphones or mobile recording devices which can cost up to \$450 each. Using the mobile application also eliminates the need to purchase Dragon software (at a minimum \$100) for the PC or Mac Desktop for those attorneys that don't want to use the software to enter time, draft emails, or for any other functions other than dictation. Also, when using Dragon on the server side, voice profiles are stored on a networked server and backed up. Local Dragon installs do not have this functionality and the profile is lost if the computer is subject to a catastrophic event. And one final point, voice recognition processing is done on the server

side which does not impact performance on the user computer or other applications as running Dragon on the local computer can do.

Analysis of Dictation Workflow

Dragon on the Desktop

Three methods of dictation have been reviewed.

1. Traditional dictation and transcription
2. Dragon on the desktop
3. Dragon on the server side

By focusing solely on the workflow the quickest way to have completed dictation is for the attorney to use Dragon on the desktop. The completed process with Dragon on the desktop consists of the least amount of steps. Dragon streamlines the document generation process and eliminates the need for another user to review and cleanup the document which can reduce overhead and facilitate a faster process to get documents out the door quicker. Eliminating the document approval process shown below in Figure 14 can drastically save time since every change needs to be reviewed which can cut into the attorney's work day. The document approval process occurs in both the Digital Dictation Process (Figure 10) and Attorney Using Dragon on the Server Process (Figure 12).

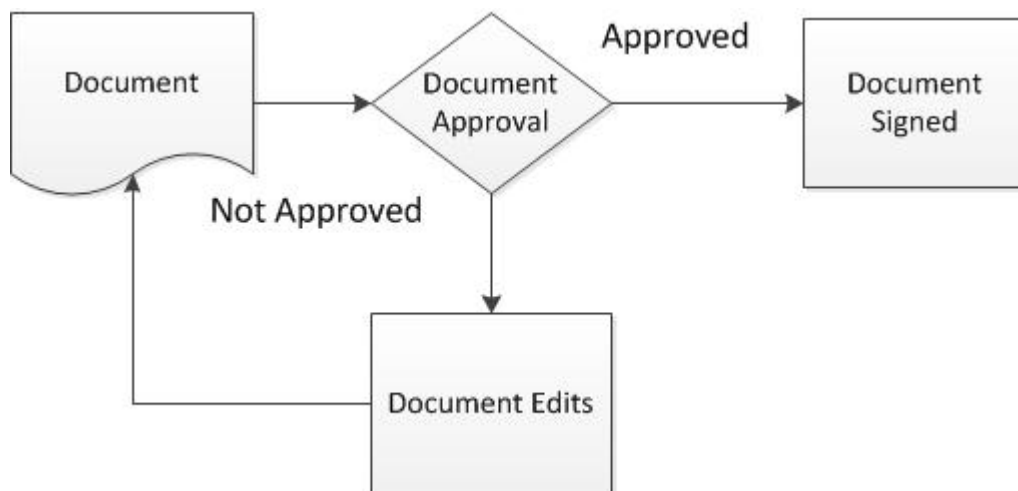


Figure 14 - Document Approval

Attorneys dictating using Dragon directly to the computer have the ability to create and correct more documents than the traditional attorney/legal assistant model. Dragon can process 160 words per minute (WPM) once a profile has been correctly built over time. It's challenging to find documentation for a legal WPM standard, but the average of 70-80 WPM is backed up (Arif, 2009) and acceptable for the use of comparison.

If an attorney is dictating on average 160 WPM to Dragon, on average they are speaking a total of 9600 words per hour. A legal assistant that averages 75 WPM will type an average of 4500 words per hour.

Dragon corrections can take between four and 15 seconds per correction (Alexandria, 2011). If using the average of 10 seconds per correction (the split between 4 and 15 seconds rounded up) as well as the example of 67 corrections needed to be made after dictating a 1,642 word document the result is 388.6 corrections for a 9600 word document. The voice recognition testing took roughly ten minutes, so the number of corrections in the example is accurate. 388.6 corrections will take an average of 38.9 minutes. By adding the additional time to an attorney's 8-hour day, they dictate for an hour and correct for 40 minutes with a result of 48,000 completed/fixed words per day. A legal assistant typing 8 hours per day at 75 WPM corresponds to 36,000 words before any proofreading is done.

Put another way:

1,642 words dictated at 160 WPM (10.2 minutes) + correcting 67 errors at 10 seconds each (7.10 minutes) = 17.3 minutes. The charts below display same.

	Words Dictated	Words Per Minute (Dictated)	Time to Dictate (Minutes)
Attorney	1,642	160	10.2

	Number of Errors	Time to Fix Each Error (Seconds)	Correction Time (Minutes)	Final Time Including Typing Corrections (Minutes)
Attorney	67	.10	7.10	17.3

1,642 words typed at 75 WPM = 21.8 minutes

	Words Dictated	Words Per Minute (Transcribed)	Final Time to Transcribe (Minutes)
Legal Assistant	1,642	75	21.8

The example of 67 errors is from initial use. As accuracy improves, those 67 errors (per 1,642 words) will likely decrease over time. Dragon will never be 100% accurate. If accuracy can improve and reduce the errors in half to 34, the time to complete a document using the example will decrease from 17.3 minutes to 13.6 minutes. Chart below displays same.

	Words Dictated	Words Per Minute (Dictated)	Time to Dictate (Minutes)
Attorney	1,642	160	10.2

	Number of Errors	Time to Fix Each Error (Seconds)	Correction Time (Minutes)	Final Time Including Typing Corrections (Minutes)
Attorney	34	.10	3.40	13.6

Measuring the Success of Dragon on the Desktop

Using Dragon on the desktop is an individual software solution and not an enterprise software solution. Enterprise software solutions can provide usage reports and tools to manage and monitor the software from a higher level. The use of Dragon on the desktop has no “higher level” capabilities. One of the drawbacks of this is it is difficult to measure or evaluate its success. Success for Dragon on the desktop is best evaluated by firm management from the top down. Partners that have a stake in the business side of the firm need to use Dragon on their own as a means to lead by example. These partners also need to enforce the use of Dragon on the desktop through the mentoring of associates. Associates need to understand the financial benefits of Dragon and partners need to use monetary incentives to enforce its use. It needs to be made clear to the associate that by relying less on the legal assistant and building the business without additional staff can lead to an increase in salary for the associates as well as partners. Lastly, an attorney that is evaluated yearly with an annual review can be reviewed on their contribution to less overhead by using Dragon, in addition to other attorney review staples such as billable time and client development.

Measuring Return on Investment of Dragon on the Desktop

Using Dragon on the desktop ultimately allows for a higher ratio of attorneys to legal assistant. Assume the baseline ratio is two attorneys to one legal assistant. With attorneys doing most, if not all of their dictation, it is possible to increase the attorney to legal assistant ratio to four to one. For every two attorneys a legal assistant can support, it is one less legal assistant a firm needs to hire. This means a firm can grow the business and hire additional attorneys without needing to hire additional staff, creating less need to spend at a minimum \$56,750 for a new legal assistant.

Salary	\$55,000
Benefits	Varies
Office space	Varies
Computer equipment	\$1,000
Software Licensing	\$500
Bandwidth	Varies
Phones and phone lines/extensions	\$250
Total	\$56,750

Dragon via Mobile with Voice Recognition on the Server Side

As for the other two methods discussed, traditional dictation and transcription and Dragon on the server side via mobile, the mobile process using Big Hand software can increase dictation efficiency as well. In those situations when an attorney is travelling and without the ability to send dictation to their legal assistant, the mobile app will prevent an attorney from having to go out of their way to get back to the office to upload the dictation. The mobile app also allows the attorney to continue to dictate without creating a backlog of work and helps facilitate a steady stream of work for the legal assistant who might find themselves with less work when the attorney is out of the office for extended periods of time. Of the three methods, Dragon on the server side via mobile is a highly effective process, despite the extra

steps needed for review as shown in Figure 12. The mobile option ensures that an attorney's work will continue to be transcribed and/or reviewed regardless of where the attorney is working from and it's the best option when Dragon on the desktop isn't available.

With using voice recognition on the server side the process shifts for the legal assistant from a creator role to a reviewer role. In this reviewer role the Legal assistant needs to focus on mistakes that are already made by voice recognition, which is a shift in how they are traditionally trained but not too far removed from their overall responsibilities. The shift from traditional transcription to document reviewer does not require any extensive training nor are there any hidden costs associated. The training to use the Big Hand add-in is minimal as it is an easy process to click play and listen back to the document while reviewing. As for hidden costs, Big Hand only charges a Dragon license for the dictation component, not the transcription side. For example, a firm with five attorneys and 10 legal assistants to handle the review would only require five Dragon licenses.

After a legal assistant transcribes from dictation the document should be given a "once over" to proofread prior to sending back to the attorney for review. This is a "best practice" approach that applies to everyone in any industry or setting that relies on document generation and exchange.

Once the finished text is reviewed, the process to complete the document begins with a new merge process and ends with sending the document back to the attorney for review. Below in Figure 15, the voice recognition review process is reiterated. While using Big Hand to process voice recognition is an efficient process, one of the drawbacks is the reliance on typists to become reviewers either in addition to or instead of typists. While some Legal assistants can "go with the flow" and adapt, others that are more resistant to change could provide some "pushback" as a defense mechanism to the fact that they aren't typing anymore and that a software application could replace them. This is an unfortunate criticism of the individual and not a reflection of the software. Obviously, with the outlined process it is not entirely true but the reality is that with attorneys using Dragon on the server side to transcribe their dictation, the text review process takes less time than traditional transcription so more attorneys can be assigned to a legal assistant. This knowledge can instill fear in the legal assistant which can result in "pushback". The term pushback is used here to describe a legal assistant not adapting to change and speaks to an overall theory of the use of the term "legal assistant" compared to "secretary". When using the term legal assistant, it can be assumed that the support being provided is more than just a standard typist/transcriptionist. The legal assistant needs to perform other duties such as court filings and maintaining schedules. There are legal assistants that only act as secretaries – they just want to type dictation and everything else related to the job is a chore. If you remove the primary function of transcription and make it a job to review then the good legal assistants understand the value, take on more attorneys and can work as a true assistant. The ones that pushback and resist change complain about the new process and don't adapt. Once pushback begins the legal assistant could be moved to a pure secretary position if available. In some cases the legal assistant could be considered for termination and in response the attorney whom the legal assistant works for can step in and tell firm management that despite the issue, due to a positive working relationship no changes should be made and the attorney can resist the use of voice recognition.

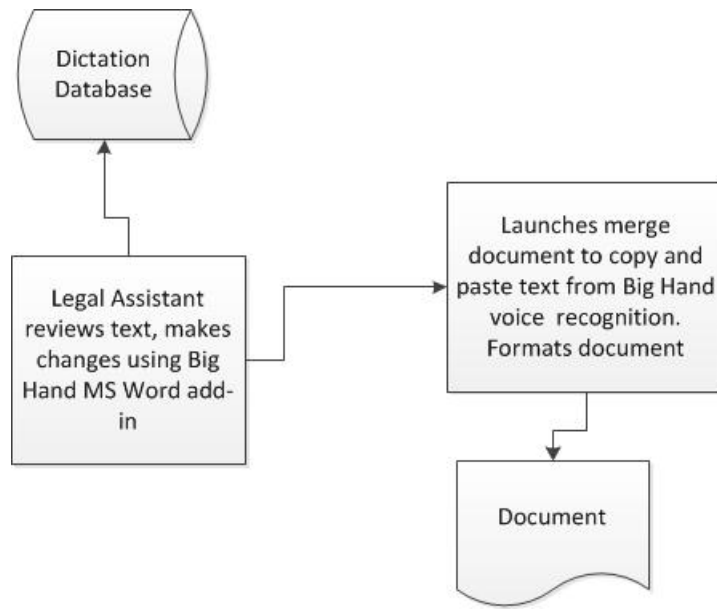


Figure 15 - Dragon Review

Big Hand Costs

Big Hand is an enterprise solution, and like most enterprise solutions pricing is per user and per component, along with a server licensing expense as well. Pricing includes support, and since Big Hand is server/client based, support is critical.

A Big Hand user license is \$495 and the Server license is \$5,495. Every user, regardless of author (Attorney) or assistant (Legal assistant) requires a license. Hourly on-site support is \$225 sold in blocks of 8 hour days. Options for on-site support, which is all billable, include project management, technical implementation and training. Once the implementation is completed, support is handled by remote access, via email or by phone. Annual maintenance, which includes support, is 18% of the total system price.

Using Dragon on the server side via the mobile application requires additional licensing. The mobile app is free, but each user license is \$150. The mobile app provides the ability to send traditional dictation direct to the attorneys queue or to the Dragon server which processes the voice recognition before adding to the attorney queue. While the standard app will do either, a license for Dragon on the server side is required per attorney at \$595 each. Additional licensing costs are Microsoft SQL server and Microsoft Windows server licenses. Voice recognition requires its own server to process the files, so at a minimum two servers (hardware) as well as server licenses are required. These costs can vary due to a law firms existing licensing agreement with Microsoft as well as physical vs virtual server implementations.

Big Hand Vs Dragon Cost Breakdown

Big Hand User License	\$595
Big Hand Server License	\$5,495
Hourly Support	\$225
Big Hand Mobile User License	\$150
Dragon Server Side User License	\$595
Annual Maintenance	18%

Dragon Naturally Speaking	\$199
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Using the example of a small firm with 25 attorneys and 10 legal assistants, the initial cost to implement Big Hand is \$57,283 before any server expenses.

	Each	Licenses	Total
Big Hand User License	\$595	35	\$20,825
Big Hand Server License	\$5,495	1	\$5,495
Hourly On-Site Setup Support	\$225	16	\$3,600
Big Hand Mobile User License	\$150	25	\$3,750
Dragon Server Side User License	\$595	25	\$14,875
Subtotal			\$48,545
Annual Maintenance	18%		\$8,738.10
Total Year One			\$57,283

The cost to implement Dragon Naturally Speaking using the same size firm is \$4,975.

	Each	Licenses	Total
Dragon Naturally Speaking	\$199	25	\$4,975

Compare the costs associated with Big Hand with the cost to purchase Dragon on the desktop, and it's easy to justify Dragon on the desktop, especially for a solo or small practice.

Dragon Naturally Speaking Implementation

Hardware Requirements and Cost

If a user is serious about using voice recognition to be more efficient, then an investment in the basic version of Dragon Naturally Speaking Professional should be made. You get what you pay for is the old adage, and that applies to the free version of Windows Voice Recognition.

Dragon Naturally Speaking Premium 12 retails directly from Nuance for \$199.

There are numerous Microsoft operating systems which Dragon Premium 12 can run on. They include Microsoft Windows 7 and higher, 32-bit and 64-bit; Microsoft Windows Vista SP2, 32-bit and 64-bit; Microsoft Windows XP SP3, 32-bit only; Windows Server 2008 SP2 and R2, 32-bit and 64-bit.

Dragon recommends having 2GB RAM for Windows XP, Windows Vista, Windows 7, and Windows Server 2008 32-bit and 4GB for Windows 7 and Windows Server 2008 64-bit. The minimum system requirements are 1GB for Windows XP and Windows Vista, and 2GB for Windows 7 and Windows Server 2008.

Dragon also recommends a 2.2GHz Intel dual core or equivalent AMD processor. The minimum requirement is a 1GHz Intel Pentium or equivalent AMD processor or 1.66 GHz Intel Atom processor. For the processor cache, 2MB L2 cache is recommended, with the minimum requirement at 512KB L2 cache. In addition to RAM and CPU specifications 3.2GB of free hard disk space (or 4GB for localized non-English versions) is necessary (Duffy, 2012).

Our tests were conducted using Windows 7 64-bit with 4GB of RAM and an Intel Dual Core i5-2410M CPU @ 2.30GHz.

Installation and Training

Given the ease with which Dragon streamlines the installation process there is no need for small law firms without a dedicated IT staff to outsource the installation. Since each user needs to be involved with setting up the voice profile, they can be part of the install process as well. The guided install and profile setup can be completed by anyone regardless of technical ability.

An attorney at a larger firm attempting to install Dragon on their own could have an issue due to a firm policy that has locked down the computers on the network. In this situation coordinated install would need to be performed between the IT department and the user to first install the software, second ensure the microphone is working and third, have the user complete the voice profile setup.

Once the setup has been completed Dragon goes through an overview which explains the various commands to use while dictating; moving throughout a document, applying text styles and various correction options. Also, shown below in Figure 16, Dragon makes use of a sidebar which changes as the user changes applications. The sidebar will automatically show commands for Microsoft Word, Internet Explorer and the Windows desktop as each application is made active. This sidebar is an excellent resource as a user guide and reference as it automatically opens each time Dragon is launched.

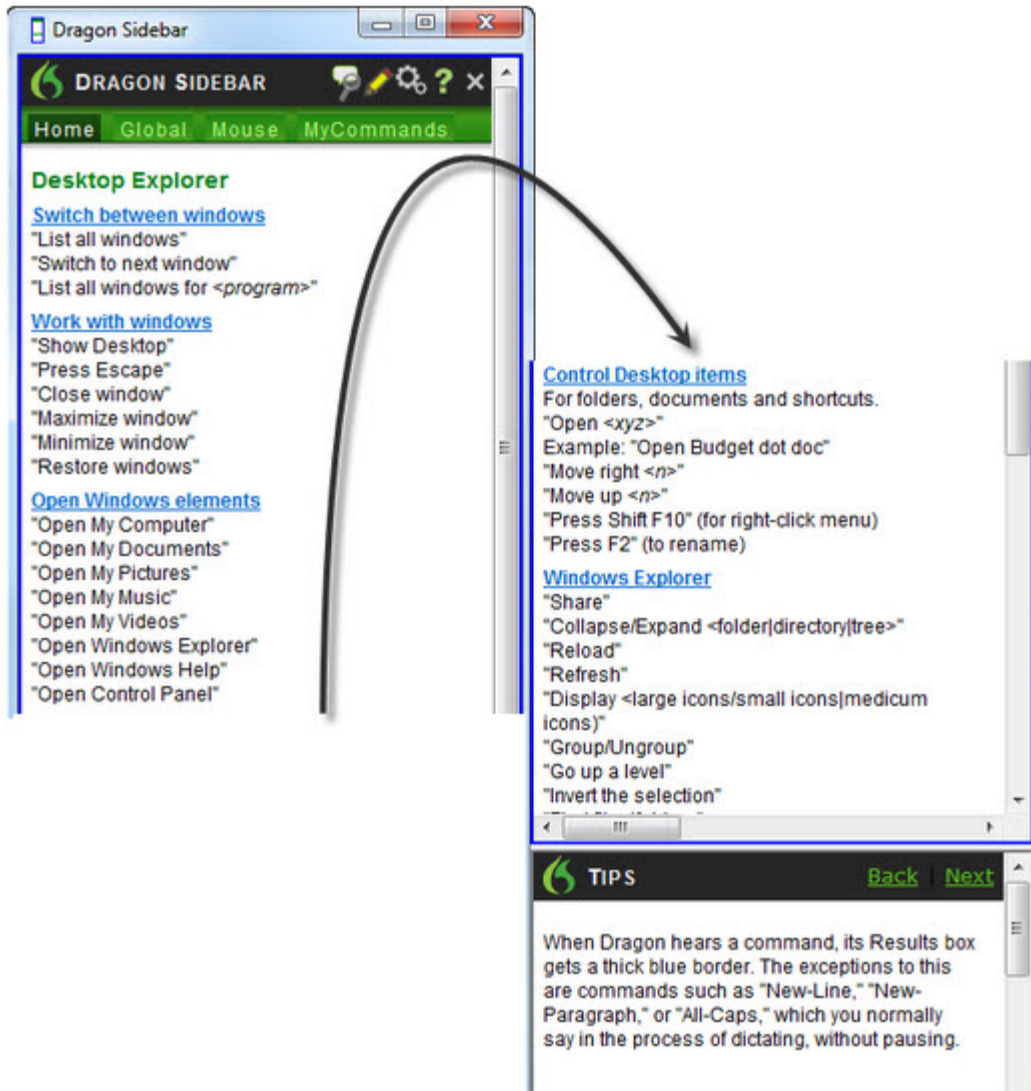


Figure 16 - Dragon Sidebar

Voice Recognition vs Manual Transcription Pathology Lab Study

According to the *Medical Laboratory Observer* from September 2012, a surgical pathology lab performed a study to determine if replacing manual transcription with voice recognition software was cost effective and created a series of tests to determine the effectiveness of voice recognition compared to manual transcription. The study also focused on the annual costs of the voice recognition solution and the Return on Investment (ROI) based on a payback period of at least five years.

The study used two comparable surgical pathology departments. One department used voice recognition and the other used manual transcription with dictation.

Workflows for both voice recognition (VR) and manual transcription (MT) methods were created and a Cycle Time (CT) for each component of the workflow was collected for all personnel. The timed studies accounted for

- Pathologist Assistant Grossing
- Pathologists Microscopic Dictation

Once the CT's were collected, a result of average cost per word (CPW) was created and equations were used to compare both methods of VR and MT. By using salary.com to estimate average salaries of the PA, labor costs were calculated per process using the below equations. The term "specimen" relates to each completed histopathological report and is the basis for all analysis.

- Average Word/Specimen (total words for all specimen/number of specimens)
- Average Time/Specimen (total time for all specimens/number of specimens)
- Average Cost/Specimen (salary (per min) for each person performing a task x)
- Average Cost/Word (average cost/specimen / average word/specimen)
- Labor Cost for Process (average cost/specimen x number of specimens)

Based on these formulas it was determined that while completed times for finalized reports was less for VR (2.21 min) than for MT (3.09 min), the overall cost for VR per specimen (\$3.89) was significantly higher than MT (\$2.43). This resulted in a difference of \$1.46 per specimen when using VR. The article states that "the criteria for rejection is a calculated payback period of greater than five years, and in our situation payback would never occur."

This study does not address the added expense of hardware, software or training. The potential savings related to hiring less staff, which can consist of salaries, benefits and office overhead is not factored as part of the ROI. The ROI is based solely on the cost of time difference (per specimen) and that is not the complete picture. As reports were completed on average 47 seconds faster using voice recognition, this study confirms that voice recognition as a process compared to manual transcription can produce the same efficiencies tested in this paper, and in a different industry. The study demonstrates that voice recognition software solutions can span multiple industries, especially those that rely on traditional dictation and transcription methods.

Conclusion

The classic combination of dictation and transcription has been in place for years because it was the only method that worked. As technology increased, attorneys moved from dictating to tapes to dictating to a digital source. Hardware for legal assistants continued to evolve as dictation moved from analog to digital so transcription could continue as the processes changed. Dragon software has been around since 1997, but not until the last few years has computer hardware caught up with what Dragon set out to initially accomplish. It's always worked, just not at an acceptable level to change the process – until now. Because of this, Dragon is the future of document transcription and voice recognition.

Of the three proposed methods of dictation; traditional dictation and transcription, Dragon on the desktop and Dragon on the server side via mobile, the selection of Dragon on the desktop as the most efficient of the three could be viewed as somewhat controversial within the legal industry, especially for those older attorneys that rely heavily on dictation. Shifting the responsibility from the legal assistant to the attorney for document generation is controversial due to the change in process, responsibility and thinking. The change in process is an attorney using Dragon would need to sit at their computer and dictate instead of standing or walking around while dictating. If dictating includes referencing documents, the attorney would need to get used to the task of referencing documents either printed or electronic and then switch to the active document that is being dictated to. The most controversial aspect could be for those older attorneys that have struggled to accept how technology plays an integral role in the practice of law. Attorneys that refuse to keep an electronic calendar, that don't know how to type, or those that refuse to learn the basics of firm software, such as a DMS, are the ones most likely to not accept the transition from traditional dictation to using Dragon on the desktop. In these cases, it must be understood that if an attorney is refusing to use Dragon and not taking the necessary steps to reduce overhead in the form of hiring less legal assistants, then the attorney could be penalized financially in the form of less bonus money, or less profit sharing if the attorney is a firm shareholder.

When examining the workflow of all three solutions Dragon on the desktop is the most time efficient way for an attorney to generate any type of document that is traditionally dictated and transcribed. It is the only workflow that does not rely on the repeated process of document review between attorney and transcriptionist. It is the only workflow that provides a completed document to the legal assistant to be sent out. As mentioned earlier, with a properly configured Dragon voice profile the software can recognize 160 words per minute which is more than twice as fast as a legal assistant typing 75 words per minute. As Dragon is continually used it becomes more accurate. Dragon has built in voice recognition commands and when learned and used will contribute to an attorney's efficiency as they can recite commands at the same time as speaking. This can greatly reduce the time to clean up and review once dictation has been completed.

Dragon on the desktop is also the most cost effective method for an attorney to dictate a letter. Attorneys can bill their time to draft the letter, as well as the time it takes to make corrections. Dragon on the desktop reduces dependencies on staff and can cut overhead expenses as there is less need to hire additional staff as firm business increases with the hiring of additional lawyers. Due to these two examples, it is difficult to debate the \$199 cost of the software.

Moving forward, Dragon Professional 13 is slated for release (August, 2014) and claims to be 15% more accurate than version 12 (which is the version we used). Accuracy is the area Dragon will need to continue to improve on and will end up being the game changer that law firm management needs to

take to the attorneys for wide spread implementation. As it becomes even more accurate it will continue to gain market share, becoming the standard in voice recognition on the desktop. By doing so Dragon could potentially eliminate the old dictation/transcription model not just in the legal profession, but in any other professions that follow the model. Future review of this project will be to continually evaluate new versions and upgrades of Dragon, along with advances in hardware, such as faster processors. Each new release should be tested using the same standards as this paper. Attorneys should collaborate on exploring new features, especially those smaller firms that do not have dedicated IT staff.

Lessons Learned

Initially, the idea of Dragon on the server side delivering completed transcription to a legal assistant seemed like the obvious choice as the most efficient process of the three examined. The process eliminated any typing, and provided a legal assistant the tools to listen back to the dictation and make the changes that the server didn't process correctly. As further examination occurred it became apparent that despite the completed transcription the review process was going to take just as long as the traditional method of dictation and transcription. Once that was realized, Dragon on the desktop became the clear front runner as the most efficient process since the attorney could complete a document on their own and eliminate the lengthy back and forth process of review.

Another lesson learned was how important correct voice recognition needs to be viewed within the context of a sentence. One of the major reasons for choosing Dragon Naturally Speaking over Windows Voice Recognition was due to not only did Windows incorrectly transcribe more words incorrectly, but it would incorrectly transcribe more words in a row within a sentence making it much more difficult to determine what was actually said.

As for the Return on Investment for Dragon on the server side via Big Hand, it has a place in the legal environment, but maybe only in larger firms that can afford the expensive software as well as afford to NOT enforce Dragon on the desktop. A larger firm that has a high number of older partners is most likely going to resist the change from traditional dictation to using Dragon on the desktop. For these firms, the move to Dragon on the server side via Big Hand could make sense. The larger firms can afford it, and some of the "forward thinking" older partners can see the value in the software and use it to limit hiring additional legal assistants when using the server side transcription component.

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Appendix 1: Narrative

In this exercise, our team composed a narrative story about a common day when a father takes his two sons to a baseball game in a word document using both Dragon Naturally Speaking and Windows Voice Recognition. The first step was composing the script in Dragon Word Pad by dictating the story through a microphone. Afterwards, the content was edited using Dragon Naturally Speaking and reread using Dragon Naturally Speaking in Microsoft Word as well as Windows Voice Recognition in Microsoft Word. Below is our original script with the unedited versions of the content from both programs, highlighted in **bold** are the initial miss-spellings Dragon and Windows Voice Recognition made. Not all spelling and grammar mistakes are highlighted, just a selection in both.

Dragon Naturally Speaking (Unedited)

I day at the ballpark

it was not a typical Sunday afternoon in the Wilson household. Mr. Wilson wanted to treat his two sons Charlie and Tom to a beautiful day at the ballpark after finishing another school year. Charlie, and Tom, age 12 always wanted to go to citizens Bank ballpark in Philadelphia PA, but have never gotten the chance to go. Charlie, Junior at Central Bucks East high school, never got the opportunity to go to a Philadelphia Phillies baseball game because he was so studious. Charlie's younger brother Tom had been to **filter** Phillies games before, but this time he was very excited to have a father and son day at his **neck** ballpark. Mr. Wilson thought it was a great idea to take the septa train instead of driving to the ballpark because it's very hard to park at the stadium and parking is cheaper at the train station. Mr. Wilson, Charlie and Tom got in the car and drove to the train station. Along the way **this on** ice cream parlor. Mr. Wilson wanted to treat his two sons to an ice cream cone before the game because it was a very hot and humid day. Mr. Wilson's **finishing** flavor is mint chocolate chip, Charlie's favorite is **by recon**, and Tom's favorite is cookies and cream. After ordering their ice cream Mr. Wilson and his two sons sat in nearby picnic table and enjoy their ice cream cone while taking about who would be the starting pitchers for today's game. Charlie and Tom were very excited to spend time with their father because during the school year they really do not have a chance to bond. After finishing their ice cream cone, the Wilson's got back in the car **we** continue driving to the train station. Once they got there, they boarded the orange line, which is known as the Broad Street line. Charlie wanted to sit in the back of the train, but his brother and father wanted to sit in the front. Solve this dilemma, Mr. Wilson flipped a coin. Charlie chose heads, but the coin landed tails. Tom had won the coin toss, leading them to sit in the front of the train. On the train there were a lot of Philadelphia Phillies fans, **Beverly** was very happy and anxious to get to the ballpark early. The reason why everybody on the train wanted to get to the ballpark early was because it was picture **today** with the Philadelphia Phillies and their mascot, the Philly Phanatic. Charlie and Tom had taken a photography class in school this past semester wanted to show off their talents. On the way the train had to stop at several stops as it made its way to a T and T station, which is the transition for all Philadelphia stadiums. Once **every** got off the train, the **road to** the escalator up to street level. As **a** went through the revolving doors, to their left they saw the beautiful and magnificent citizens Bank ballpark. It was only a short walk to the ballpark and **only** along the way they saw street musicians and street vendors. After eating their ice cream cone, Mr. Wilson, Charlie, Tom were very thirsty. They decided to each **by** a bottled water to consume as they waited to get inside the stadium area once they finish their bottled water it was time to open the gates and go inside. Mr. Wilson pulled out the three tickets that he bought from stub hub the night before and gave one tickets each of his

sons. Before they enter the gate, Charlie wanted to buy a program with a scorecard to keep track of the game. This is something that he always enjoyed doing when watching a baseball game at home. The program was scorecard cost five dollars and Charlie pulled out a \$20 bill that he earned for getting straight A's on his last report card. Her Charlie it felt so rewarding to work hard at school would be able to spend his money this time with people he enjoyed being around. As Mr. Wilson, Charlie and Tom were walking into the stadium after hitting their tickets to the stadium attendee, they saw the Philly Phanatic. Charlie and Tom were very excited and waited in line to take the phanatics picture as a got to the front of the line, one of the stadium attendee's **offer** to take Mr. Wilson, Charlie, Tom's picture together with the Phanatic. As they continued down the hallway, they saw some of the Philadelphia Phillies at a table signing autographs. There were former or current Phillies there, such as Mike Schmidt, Jimmy Rollins, Greg Lubinski, and Dominic Brown, as well as the **filter** Phillies TV broadcasters Tom McCarthy, Matt stairs, and Jamie Moyer. This was a thrill for any Philadelphia Phillies fan **is** everyone waited patiently in line to get their picture taken and to get an autograph. Mr. Wilson, Charlie and Tom were able to get everyone's autograph **their** and had a permanent souvenir to treasure. As they were finishing up in line they still had about an hour 50 minutes ago before the first pitch. Mr. Wilson, Charlie and Tom were still hungry and wanted a ballpark Franks hot dog. The Wilson's weaved in and out of the crowd to get to the hot dog stand located at the above concourse. Once they got to the hot dog stand, everyone had to choose what toppings they wanted. Mr. Wilson chose mustard, relish and onions on his hot dog while his two sons chose **catch up** and onions. Mr. Wilson paid for the hot dogs which included a soft drink and they made their way up to their seats one of the most fun things to do in going to a baseball game is watching batting practice the visiting team, the New York Mets, were on the field taking batting practice and fielding flyballs. With the binoculars that Mr. Wilson brought, he was able to see all the players up close, even though their seats were 30 rows back from first base. For about another 20 minutes, the New York Mets continue to take batting practice while the Phillies were **whiting** to take the field. After the Mets went back to their dugout, the Phillies took the field. Mr. will supersede Dominic Brown, Carlos Ruiz, Jimmy Rollins and Chase Utley waiting behind the batting cage. It was a sunny day, about 80°, and was a beautiful day for a ballgame. For about 30 minutes, the Phillies practiced her fielding and batting swings and it was time to change into their game uniforms. While both teams are making last preparations before the game, on the Jumbotron they were showing highlights for the previous week in Maj. league baseball. Mr. Wilson, Charlie and Tom were very fascinated with the highlights and clapped after the video was over. The Philly Phanatic then came onto the field on his four wheeler and drove around the entire infield waving to the fans. The Phanatic then went off on his four wheeler and walked to the pitcher's mound were two children were waiting to throw out the ceremonial first pitch. Behind home plate were Philadelphia Phillies catchers Carlos Ruiz and will be Ava's. The two children through the first pitch with varying strength as a two catchers attempted to catch the balls. After the two children throughout the pitch, the two Phillies catchers went to the pitcher's mound to greet the children and the Phanatic. The public address announcer from citizens Bank ballpark announce that the Philadelphia squire would be singing the national anthem. All the fans of the ballpark rose to their feet as a audit America afterwards, the two teams managers met at home plate, truck hands and exchange batting lineups. The briefly discuss the rules of the ballpark with the umpire at home plate. The game was about to begin the starting pitchers were Cliff Lee for the Phillies and Jonathan needs for the Mets the first batter for the Mets was Curtis Granderson. After a four pitch at-bat league ended up striking Granderson out. The following two hitters provided to be no match for Lee, as a lot of the first quickly approached. Nice also brought his a game, and so the game quickly became a pitcher's duel with both Lee and Nice only giving up a few hits, both teams is offenses found it difficult to score. It wasn't until the bottom of the seventh inning when the Phillies finally put one up on the scoreboard, thanks to Carlos releases sac fly that brought home Marlon Byrd. The Phillies hung on to their one run lead long enough for their closer Jonathan Topol Kuan to calm in the top of the ninth and

close it out with two strikeouts and one groundout. The Phillies get a once enough victory at home Mr. Wilson his two sons clap and cheer as a wanted to congratulate each other on their win. They excitedly watch on the Jumbotron a recording of the late Harry Kalas singing high hopes as a ballpark crucially plays after home victory. All this excitement and cheering seemed to stir up an appetite Mr. Wilson and his two sons, so they decide to separate the victory the satisfying meal from Philadelphia's very own chickie and Pete's. They all enjoy their cheesesteak and fries as they discuss the highlights of the game. After their male Mr. Wilson, Charlie and Tom head back to AT&T station then that is they have boarded the train were on their way back to the train station Mr. Wilson probably looks at his two sons, as well their faces when satisfaction and memorable day spent at the ballpark.

Windows Voice Recognition

I bit the ballpark

It was not a typical Sunday afternoon at the Wilson household. Mr. Wilson wanted to **trade** his two sons Charlie **and talk** to a beautiful day at the ballpark after finishing another school year. Charlie, a junior at central **box** east high school two of the top league baseball game as he was so studious. Charlie's younger Brother Tom had been too tough to **lose** games before, but this time he was very excited to have a father and **Sunday** at the ballpark. Mr. Wilson thought it was a great idea to take **sap** to training and **said** drive into the ballpark because **is** very hard to park at the train station. **Esther** Wilson, Charlie and Tom got into the car and drove to the train station Mr. Wilson wanted to **trade** his two sons to ice cream cone before the game because it was a very hot and humid day. Mr. Wilson's **favor** ice cream flavors mint chocolate chip, charlie's favors. Along the way they saw ice cream parlor. **better pick on and tom's favors code using cream**. After ordering their ice cream Mr. Wilson and his two sons Saturday by picnic table And injure their ice cream cone will talk about who would be the starting pitchers for today's game Charlie and Tom we're very excited to spend time with their father 'cause during the school year they really do not have a chance tube on. After finishing their ice cream cone, The Wilsons got back in the car into new driving to the train station. But is known as a broad street one Charlie wanted to sit at the back of the train was brother and father wanted to sit on the front. To solve this a llama, Mr. Wilson flipped a coin. Charlie chose heads book when Leonid tales Tom had won the coin toss, reading them to send the five of the train On the train there were a lot of phone a few Phillies fans, and everyone was very happy and anxious to get the ball park early. The reason why everyone on the train wanted to get the ball park early Was because it was pictured day with the Philadelphia Phillies and their mascot, the Phillie fanatic. Charlie and Tom had taken if the target class in school this past semester And wanted to show off their talents. On the way the train had to stop at several stops as it made its way to ATT station, Which is the train station for all Philadelphia stadiums. Once everyone got off the train, They read the escalator up to street lawful. As they went through the revolving doors To their left this all the beautiful AG magnificent citizens bank ballpark. It was only a short walk to the ballpark and along the way they saw street musicians and street vendors. After getting their ice cream cone Mr. Wilson Charlie and Tom were very thirsty They decided to teach by a bottled water to consume as they waited to get Inside the stadium. Once they finish their bottled water it was time to open the gates to go inside. Mr. Wilson pulled out the three tickets that he bought from STUBHUB the night before. But before they enter the gate, Charlie wanted to buy a program with a score card to keep track of the game. This is something that he always enjoyed doing and watching a baseball game and how. The program was scorecard cost \$5.00 and Charlie pulled out a \$20.00 bill that he earned for getting straight A's Per Charlie it felt so rewarding to work hard at school and be able to spend his money. As Mr. Wilson, Charlie and Tom were walking into the stadium after hitting their ticket to the stadium attending, install a full. Charlie and taught we're very excited wait in line to the Phanatic's picture As they got to the front of the wind, where the stadium attendees offered to take Mr. Wilson

Charlie and Tom picture together with the Phanatic As they continue down the hallway, we saw some of the flood of Phillies are a table signing autographs They were former and current Phillies there, such as Mike Schmidt, jimmy Rolland, Greg Lubinski And Dominique brown as walls of the fanPhillies TV broadcasters, cart the Matt stairs and Jamie Moyer This was a thrill for any phone a few Phillies fan as a reverie waited patiently in line to get their picture taken to get an auEsther Wilson Charlie and Tom were able to get everyone's autograph there have a permit souvenir controlling As they were finishing up in line we still have about 1:15:00 to go for the first and Mr. Wilson Charlie and Tom were still hungry and one of the ball park franks hopped on The Wilsons week in and out of the crowds to get to the hot dog stand Bellevue, Once they got to the hot dog stand everyone had to choose with toppings they wanted Mr. Wilson chose mustard Russian ideas on this hot dog while his two sons chairs ketchup and onion Mr. Wilson pay for the hot dogs which include a soft drink and made their way up to their seats One of the most fun things to do when going to baseball games watching batting practice Visiting team in New York Mets were on the field taking batting practice of giving flyballs With the binoculars and Mr. Wilson brought you was able to see all the players up close in another secret that a respect for spaWe're about another 20 minutes the New York Mets continue to take batting practice while the filly for when you take the field After the Mets went back to the dugout the Phillies took a few Mr. Will seek a seat Dominique brown Carlos release jimmy Rollins and chase Utley waiting behind the batting cage It was a sunny day about 80° there was a beautiful day for bobby Ravel 30 minutes to fill each practice are filled in batting swing and it was time to change into regaining Of a change in making glassman minute preparations before the game on the Jumbotron they were showing highlights the previous weMr. Wilson Charlie and Tom Bahr very fast EU of the highlights and claps activity was no Italy Phanatic bank came onto the field loans four-wheeler written to the fan Phanatic and when often as four-wheeler and watch the pitcher's mound were two children when they threw out the ceremonial firstBy no plate or killed a few catchers Carlos Ruiz run the address The two children through the first pitch with varying stride and the two catchers and add to the catch the balls After the Trojan up children throughout the first pitch into Phillies catchers went to the pitcher's mound agreed to children inPublic address announcer from citizens bank ballpark announced that the phone a few youth choir All the fans in the ballpark were as their feet as a lot of America Afterward to two teams band is better home plate Agreed to discuss the rules of the ballpark to home plate umpire Again was about to begin A starting pitchers were hopefully But the Phillies and Jonathan Niese for the Mets First batter for the mats was Curtis Granderson

After four pitch it that way and obstructing careers and I'll Following two hairs PERTAMINA naturally A salsa bar is a game and so the game quickly became a pitchers' duel Of fully in the story giving up a few hits both teams offenses found it difficult to score It wasn't so the bottom of the seventh inning when the Phillies finally put one up on the scoreboard Phillies hot on to their one-run we long enough for the closure Johnson Papelbon the calm in the top of the ninth and close it oPhillies get a win one and often and how Mr. Wilson has two sons Clap and cheer as they watch the team congratulate each other They excitedly washed on the Jumbotron recording of the late Harry Kalas and high hopes as a ballpark crucially plays after how Well as excitement sharing seem to stir up an appetite and Mr. Wilson and his sons so they decided to celebrate the victory withThey all enjoy their cheesesteak and fries as they discuss the highlights of the game After their meal Mr. Wilson Charlie and Tom added back to 18 T station 10 minutes they have boarded the train they were on their way back to the train station Mr. Wilson pro and looked at his two sons and smiles on their faces when dissatisfaction ruled a span of the ball

The Original Script (Edited By Dragon Naturally Speaking)

A Day at the Ballpark

It was not a typical Sunday afternoon in the Wilson household. Mr. Wilson wanted to treat his two sons Charlie and Tom to a beautiful day at the ballpark after finishing another school year. Charlie, age 16, and Tom, age 12, always wanted to go to Citizens Bank Ballpark in Philadelphia, PA, but have never gotten the chance to go. Charlie, a junior at Central Bucks East High School, never got the opportunity to go to a Philadelphia Phillies baseball game because he was so studious. Charlie's younger brother Tom had been to Philadelphia Phillies games before, but this time he was very excited to have a father and son day at Citizens Bank Ballpark. Mr. Wilson thought it was a great idea to take the SEPTA train instead of driving to the ballpark because it's very hard to park at the stadium and parking is cheaper at the train station. Mr. Wilson, Charlie and Tom got into the car and drove to the train station. Along the way they saw an ice cream parlor. Mr. Wilson wanted to treat his two sons to an ice cream cone before the game because it was a very hot and humid day. Mr. Wilson's favorite ice cream flavor is mint chocolate chip, Charlie's favorite is butter pecan, and Tom's favorite is cookies and cream. After ordering their ice cream Mr. Wilson and his sons sat at a nearby picnic table and enjoyed their ice cream cone while talking about who would be the starting pitchers for today's game. Charlie and Tom were very excited to spend time with their father because during the school year they really do not have a chance to bond. After finishing their ice cream cone, the Wilsons got back in the car and continued driving to the train station. Once they got there, they boarded the Orange Line, which is known as the Broad Street Line. Charlie wanted to sit in the back of the train, but his brother and father wanted to sit in the front. To solve this dilemma, Mr. Wilson flipped a coin. Charlie chose heads but the coin landed tails. Tom had won the coin toss, leading them to sit in the front of the train. On the train there were a lot of Philadelphia Phillies fans, and everyone was very happy and anxious to get to the ballpark early. The reason why everybody on the train wanted to get to the ballpark early was because it was picture day with the Philadelphia Phillies and their mascot, the Phillie Phanatic. Charlie and Tom had taken a photography class in school this past semester and wanted to show off their talents. On the way the train had to stop at several stops as it made its way to AT&T station, which is the train station for all Philadelphia stadiums. Once everyone got off the train, they rode the escalator up to street level. As they went through the revolving doors, to their left they saw the beautiful and magnificent Citizens Bank Ballpark. It was only a short walk to the ballpark and along the way they saw street musicians and street vendors. After eating their ice cream cone, Mr. Wilson, Charlie, Tom were very thirsty. They decided to each buy a bottled water to consume as they waited to get inside the stadium. Once they finish their bottled water, it was time to open the gates and go inside. Mr. Wilson pulled out the three tickets that he bought from STUBHUB the night before and gave one ticket to each of his sons. But before they entered the gate, Charlie wanted to buy a program with a scorecard to keep track of the game. This is something that he always enjoyed doing when watching a baseball game at home. The program with scorecard cost five dollars and Charlie pulled out a \$20 bill that he earned for getting straight A's on his last report card. For Charlie it felt so rewarding to work hard at school and be able to spend his money and his time with people he enjoyed being around. As Mr. Wilson, Charlie and Tom were walking into the stadium after handing their ticket to the stadium attendee, they saw the Phillie Phanatic. Charlie and Tom were very excited and waited in line to take the Phanatic's picture. As they got to the front of the line, one of the stadium attendees offered to take Mr. Wilson, Charlie, Tom's picture together with the Phanatic. As they continued down the hallway, they saw some of the Philadelphia Phillies at a table signing autographs. There were former and current Phillies there, such as Mike Schmidt, Jimmy Rollins,

Greg Lubinski, and Dominic Brown, as well as the Philadelphia Phillies TV broadcasters Tom McCarthy, Matt Stairs, and Jamie Moyer. This was a thrill for any Philadelphia Phillies fan as everybody waited patiently in line to get their picture taken and to get an autograph. Mr. Wilson, Charlie and Tom were able to get everyone's autograph there and had a permanent souvenir to treasure. As they were finishing up in line they still had about an hour and 15 minutes to go before the first pitch. Mr. Wilson, Charlie and Tom were still hungry and wanted a Ballpark Franks hot dog. The Wilsons weaved in and out of the crowd to get to the hot dog stand located at the above concourse. Once they got to the hot dog stand, everyone had to choose what toppings they wanted. Mr. Wilson chose mustard, relish and onions on his hot dog while his two sons chose ketchup and onions. Mr. Wilson paid for the hot dogs which included a soft drink and they made their way up to their seats. One of the most fun things to do when going to a baseball game is watching batting practice. The visiting team, the New York Mets, were on the field taking batting practice and fielding flyballs. With the binoculars that Mr. Wilson brought, he was able to see all the players up close, even though their seats were 30 rows back from first base. For about another 20 minutes, the New York Mets continue to take batting practice while the Phillies were waiting to take the field. After the Mets went back to their dugout, the Phillies took the field. Mr. Wilson could see Dominic Brown, Carlos Ruiz, Jimmy Rollins and Chase Utley waiting behind the batting cage. It was a sunny day; about 80°, and was a beautiful day for a ballgame. For about 30 minutes, the Phillies practiced their fielding and batting swings and it was time to change into their game uniforms. While both teams were making last preparations before the game, on the Jumbotron they were showing highlights from the previous week in Major League Baseball. Mr. Wilson, Charlie and Tom were very fascinated with the highlights and clapped after the video was over. The Phillie Phanatic then came onto the field on his four-wheeler and drove around the entire infield waving to the fans. The Phanatic then went off of his four-wheeler and walked to the pitcher's mound where two children were waiting to throw out the ceremonial first pitch. Behind home plate were Philadelphia Phillies catchers Carlos Ruiz and Wil Nieves. The two children threw the first pitch with varying strength as the two catchers attempted to catch the balls. After the two children threw out the pitch, the two Phillies catchers went to the pitcher's mound to greet the children and the Phanatic. The public address announcer from Citizens Bank Ballpark announced that the Philadelphia Youth Choir would be singing the national anthem. All the fans in the ballpark rose to their feet as they honored America. Afterwards, the two teams' managers met at home plate, shook hands and exchanged batting lineups. They briefly discussed the rules of the ballpark with the home plate umpire. The game was about to begin. The starting pitchers were Cliff Lee for the Phillies and Jonathon Niese for the Mets. The first batter for the Mets was Curtis Granderson.

After a four pitch at bat Lee ended up striking Granderson out. The following two hitters proved to be no match for Lee, as the bottom of the first quickly approached. Niese also brought his A-game, and so the game quickly became a pitcher's dual. With both Lee and Niese only giving up a few hits, both teams' offenses found it difficult to score. It wasn't until the bottom of the seventh inning when the Phillies finally put one up on the scoreboard, thanks to Carlos Ruiz's sac fly that brought home Marlon Byrd. The Phillies hung on to their one-run lead long enough for their closer Jonathan Papelbon to come in the top of the ninth and close it out with two strikeouts and a groundout. The Phillies get a one to nothing home victory. Mr. Wilson and his two sons clap and cheer as they watch the team congratulate each other on their win. They excitedly watch on the Jumbotron a recording of the late Harry Kalas singing "High Hopes," as the ballpark traditionally plays after a home victory. All of this excitement and cheering seemed to stir up an appetite in Mr. Wilson and his sons; so they decide to celebrate the victory with a satisfying meal from Philadelphia's very own Chickie's and Pete's. They all enjoy their cheesesteak and fries as they discuss the highlights of the game. After their meal Mr. Wilson, Charlie and Tom head back to AT&T station. Within minutes they have boarded the train and were on their way

back to the train station. Mr. Wilson proudly looks at his two sons, as the smiles on their faces display the satisfaction of a memorable day spent at the ballpark

Appendix 2: Initial Case Briefing

During this exercise, our team was given a normal Initial Case Briefing Template that legal assistants and attorneys work with on a daily basis. This exercise was to compare the length of time it took from start to finish to compose and edit the template to its original state and compare our statistics to other published blogs on words per minute (wpm) versus Voice Recognition Software WPM. Below is the template which we worked with:

Initial Briefing Legal Document Dictation from a Template

December 26, 2013

VIA EMAIL

Ms. Adjuster
Adjuster Company
P.O.Box 420
Dallas, TX 75265

Re: Claimant v. Company
Date of Loss: 5/21/2009
Insurer Claim Number: 7506231-23
Our File Number: 006732

Dear Ms. Adjuster:

please adjust this letter as our analysis of the file documents sent to us in the above captioned matter.

BACKGROUND

Claimant was born on September 24, 1963 and is 50 years old. He was hired by Company, Inc., on January 4th 2011 and worked as a control tech. He sustained an injury to his left knee on June 3, 2011 when he was bending down to pick up a glue board and heard a “pop”.

BUREAU DOCUMENTS

The Bureau documents consists of a First Report of Injury and a notice of Temporary Compensation Payable (TNCP). The TNCP was issued on June 20, 2011 acknowledging the knee strain. Although the TNCP is not specify the left knee, all the treatment records indicate that the injury was the claimants left knee. The average weekly wage is \$700.42 and the weekly compensation rate is \$550.28. There is no indication that the TNCP was stopped. The claimant has never returned to work, the payment of his benefits continues at the present time.

MEDICAL RECORDS

On August, 2011, claimant was treated in the emergency room of the Holy Redeemer Hospital. The history given by claimant states that he squatted down and hurt his left knee at work. The physical examination was essentially normal, and he was discharged to follow up with his primary care physician. The diagnostics was a sprained knee.

On August 10, 2011 claimant was seen by Dr. Trey Anastasio and was referred to the Rothman Institute. Dr. Michael Gordon ordered an MRI, which was performed on August 18, 2011 and was interpreted by Jon Fishman as showing a medical meniscus tear and edema in the medical tibial plateau. A steroid injection administered. Dr. Page McConnel at the Rothman Institute saw the claimant on September 14, 2011. His review of the MRI showed the medical meniscus tear and, in addition, a probable bone marrow lesion porch/insufficiency fracture of the medical tibial plateau. Dr. McConnel recommended and perform surgery on September 22, 2011 at Nazareth Hospital. The arthroscopic procedure included repair of the Medio tibial plateau insufficiency fracture but drilling and grafting as

well as a partial medical meniscus meniscectomy. Claimant was sent home following the procedure but was readmitted for “excruciating pain” the same day. The claimant continue to follow up with Dr. Robert Mould and Dr. McConnel at the Rothman Institute for the post – operative pain, and on October 10, 2011 Dr. Mould detected a lump in the claimants left thigh. On November 7, 2011 Dr. Mould stated that the problem in the claimants left thigh was not related to the work injury. In this time frame, claimant was treated with medication of physical therapy. As of December 20, 2011, Dr. Mould completed a form stating that the claimant was temporarily totally disabled from employment activities.

INDEPENDENT MEDICAL EXAMINATIONS

Claimant had an IME by Dr. Chris Kuroda, a board certified orthopedic surgeon, on January 26, 2012. Following his review of the medical records and examination, Dr. Kuroda concluded that the claimant had not reached MMI was not fully recovered. He recommended additional diagnostic testing. Dr. Corona believed that claimant was capable of working in the sedentary classification. Dr. Corona concluded that ongoing physical therapy was not reasonable or necessary.

ANALYSIS

The available medical records indicate that the description of injury will need to be amended to include a torn medial meniscus of the left knee as well as the RSD/CRPS diagnosed by Dr. Kuroda’s most recent IME.

The available medical record support requesting an IRE at this time which, if successful, will be the first step in reducing future wage loss liability and positioning the case for possible settlement.

There are no petitions which can be filed at this time.

RECOMMENDATIONS

- 1) Request an IRE
- 2) Send LIBC reporting forms.
- 3) Conduct social media investigation and activities check to see if we can find anything really before we pay big money on this case
- 4) Ascertain from claimant’s counsel any interest in settlement and claimants Medicare
- 5) if settlement interest exists, obtain a demand and value the case for settlement. If no interest in settlement exists, refer the case for a vocational evaluation and Labor Market Survey/Earning Power Assessment.

Thank you again for the referral of this case. We look forward to working with you to bring this matter to a favorable conclusion. After you have the opportunity to review this analysis, please contact me to discuss recommendations given above.

Reflections after Dictating Initial Briefing Analysis

The above Initial Briefing Analysis took about an hour to complete and edit as dictated to the document using a standard format. Dragon Naturally Speaking continues to evolve with the user’s profile increasing its accuracy as words are spoken. There is a learning curve for beginners who are using Dragon Naturally Speaking which includes making voice corrections within a document. For a beginner, a user may think that every punctuation mark needs to be dictated such as the comma in Philadelphia, PA. Dragon Naturally Speaking Software can recognize when a city and state or a date is dictated so the comma can be omitted from the dictation and still appear on the document.