

# Scanning

## Paper Documents with SharePoint

*A Sponsored Educational Guide on Document Imaging for Microsoft SharePoint Managers*

Kollabria Technology eGuide

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### Understanding Document Content in Microsoft SharePoint

#### Introduction to SharePoint

Microsoft SharePoint started out in life as a web-based document sharing facility from Microsoft. In its earliest incarnation, SharePoint provided users with the ability to more easily share files and collaborate around those files via a web architecture.

Beginning in 2003, SharePoint provided Microsoft Windows users with a new file system that allowed content to be accessible to anyone from anywhere by directing users to a common web site that acts as a “share point”. Hence the name.

Ensuing editions of SharePoint improved upon that original concept by adding workflow capability, high performance database scalability with Microsoft SQL, and most importantly, tighter Microsoft Office integration.

The tighter MS Office integration provided users with electronic document management features

specifically geared towards extending the collaborative capability for Microsoft Office 2007 users, linking their group file interactions directly to SharePoint instead of requiring users to email files around the office as Outlook attachments.

With the release of SharePoint 2007, many organizations began to see the potential to use SharePoint as a **platform** for a wide variety of applications related to automating and managing document centric business processes.



**SharePoint is a standard platform with the ability to deliver business content, including document images, to any desktop in the enterprise.**

The latest version of SharePoint, SharePoint 2010, drives that point home. At its launch, Microsoft CEO Steve Ballmer officially referred to SharePoint 2010 as a “General purpose platform for connecting people with information”. That bold statement sets the stage for SharePoint’s current and future role. Since the entire mission of information management **in general** is about “connecting people with information”, referring to SharePoint as a “general purpose platform” leaves little to the imagination about Microsoft’s future direction for this product. It is a general purpose enterprise platform that IT professionals can deploy to allow workers to distribute and manage the information they need in order to do their jobs. Whether that information comes from colleagues or from a variety of other sources, SharePoint is the business operating system that can deliver that information wherever it needs to be.

There are many specialized platforms that people use today to manage, manipulate and store company information, but they are for the most

part “stove-piped”, so that office workers and non-designated system users often struggle to get even the most basic information they need to do their jobs. Worse yet, this lack of information access means that other line of business functions duplicate it, create new information that may not be accurate, and/or pay outside specialists to develop integrations into those systems that can jeopardize content accuracy and security.

Its ability to provide information sharing capabilities not only among office workers, but also a structured means of integration with many of the specialized systems that drive business, clearly makes SharePoint 2010 a game changer. This in no small part explains why SharePoint is the fastest growing product Microsoft has ever launched.

## Understanding SharePoint 2010 Functionality and how it relates to Document Management

SharePoint 2010 is a platform that offers many features and capabilities. Its most important capabilities include:

1. Managing the creation and revision of documents,
2. Providing integration with mainstream line of business applications,
3. Automating the manipulation of content throughout the enterprise according to business rules,
4. Syndicating and distributing a wide variety of content across the entire enterprise.

However, SharePoint 2010 does not do all things equally well, and in each of these areas its functionality is built to be “extended” using either MS developer tools or compatible third party software.

SharePoint 2010 began shipping in June of 2010, and is intended to be the current version through 2015. Suitable for a wide variety of applications ranging from simple file sharing to automating enterprise business processes, SharePoint 2010 is a platform capable of being utilized in an enterprise application environment.

While previous versions were designed for not much more than file sharing, SharePoint 2010 builds upon that tradition, and dramatically expands it. It is capable of becoming an enterprise-wide information management platform capable of running applications much like an operating system can do on your computer.

At Kollabria, we refer to SharePoint 2010 as a “Business Operating System” because it can function like one. By operating system, we do not mean in the traditional sense of allowing your computer to properly operate by running a variety of applications, peripherals and networks, but as an information operating system that provides a common framework for managing information across the enterprise.

This new kind of operating system allows your company to initiate a wide range of applications that are installed on and operating from the common SharePoint information management infrastructure. This brings with it unprecedented applications potential in finance,

human resources, legal, shipping, and receiving, just to name a few.

SharePoint 2010 comes with a list of software, features and capabilities that can literally take days to explain. There are however a few things about it that everyone should understand. First and foremost is the realization that SharePoint is designed as a content management platform but from a fundamentally different perspective than traditional platforms designed for that purpose.

*When discussing features and capabilities from this point on we are referring to SharePoint 2010 with both SharePoint and SharePoint 2010.*

### SharePoint & Document Management

Central to SharePoint and its content management capabilities is **the document**. Of course, that definition is solely from the Microsoft point of view. *In this section, whenever we mention the word “document” we mean **ONLY** electronic documents.*

SharePoint starts from the point of view that all “documents” are created on your computer, and expands from there. It assumes that you will want to share your documents with others in your workgroup, your department, or indeed across your entire company, or more specifically, with selected people across your entire company.

SharePoint assumes that you might want to share your documents not just as files, but also as web pages, wikis or blogs. It further assumes that you will use its out-of-the-box features in your company to build web sites as the preferred way to



share these documents internally and externally.

SharePoint also has the ability to manage scanned paper documents as part of its document inventory, but comes with **no** facilities to make that happen. We will explore that a bit later in this article.

## Documents & The File System

SharePoint makes one other really big assumption, and that is that you no longer need a file system to store your document content in directories and folders. SharePoint does away with that well established context which has driven much, if not all, of computing for the past thirty years.

The way in which you share documents is by moving them outside of the confines of your PC and network file systems, and instead places your content into the SQL database that is the heart of all SharePoint implementations. Unlike normal saving of files in folders which actually exist on your computer, SharePoint virtualizes them. It uses the same names (files & folders) but they don't really exist as such.

In other words, instead of saving the file to your C: drive, or server, you are instead saving your file into a

website that can be located anywhere in the world. It could be next door, downstairs, upstairs or in Timbuktu. It makes no difference to you. Some people refer to that as "storing documents in the sky", or in the "cloud". SharePoint sees it all as a "site".

Because the files are no longer bound to the physical presence of your computer or your company server, it makes access and distribution much easier. The way users get to retrieve and share their files with others is via the internet. In the SharePoint world, there are no more directories like c:/marketing/materials/brochures/newsletter.doc. With SharePoint in place that conventional way of organizing files becomes a choice rather than a requirement.

Writing to or reading documents from the SharePoint site is accomplished by configuring Microsoft Office to do so, or alternatively, one can simply utilize a web browser to access, upload or download documents.

In order to help manage your documents in your site collection, SharePoint allows administrators to empower users with a number of important capabilities. First and foremost, documents are shared on a web site that you create, or is created for you. Some people call these "my sites", or "work spaces". These sites

can easily be created for use by multiple people.

Additional features, turned on and off by administrators, allow users to create libraries and group documents into those libraries. Users can decide who gets to see those libraries and the documents they contain. SharePoint also lets you automatically add documents to the right library, or move them across libraries. It can also automatically group documents that belong together. If there are pre-built workflows available, users can add these to documents in order to perform any number of automated actions.

## How SharePoint Manages Documents

While computers normally use file systems to store file objects in directories and folders, SharePoint breaks that convention and performs those options in a dramatically different way – it uses a database. That means that not just the file itself (letter.doc) but also a wide variety of information about the file, including what's in it, how it should be used, where it should go, who should see it, etc., can also be added. This makes "document" management considerably more flexible, because the information about the

“document” essentially travels with it. The primary SharePoint feature for accomplishing that is called the content type.

Inside SharePoint, all documents, indeed all “files”, **must** be assigned a content type. Content types are SharePoint’s primary way of managing documents or “files”.

Content types are built inside SharePoint and are made available for use by any number or kinds of users. The SharePoint content type works much like an index in a library describes the contents of a book, information about the author and other relevant data. In a library the index points to the location of the book on the shelf; in SharePoint the index and what should be done with the document is part of the document itself. This descriptive information is all rolled up into a content type, for example Invoice, Presentation, or Letter of Credit.

Content types can be propagated across the entire SharePoint enterprise if so desired, and also be directed for use by certain individual or group users. This allows administrators to control the kind and amount of content types being created. Usually there are plenty of default options for users to use for casual or ad hoc purposes, separating those from essential business documents.

When adding a document to SharePoint users select the appropriate content type, made available to them or created by them, and apply it to that document. Content types can be assigned labels such as “Invoice”, “Contract”, “Presentation” or really any kind of appropriate label for different

document types. Inside each content type is a wide variety of meta data that helps SharePoint classify, process and route the document to the appropriate library, user or application. For example, when you attach the content type “expense report” to your expense report document, a management process attached inside the “expense report” content type will automatically commence.

Content types can contain all kinds of metadata conventions, workflow requirements or indexing information. They can contain an automatic metadata description such as your name, today’s date, etc. that SharePoint gets from your login, or it could also prompt you for input, such as the business unit for which you took the trip or the customer you visited. As previously mentioned, the content type can also contain instructions (workflows) on what should be done with the document, where it should go, and how it should be distributed and organized.

Any document that is assigned a content type designation then will be processed in the same way as other documents of the same content type name. Any number or kinds of variables can be utilized in the content type definition.

These same conventions can be applied to libraries. In that way libraries can be confined to only contain certain kinds of content types (hence documents), enabling users to easily create document libraries that contain common types of documents.

In order to effectively manage documents of any kind in any system, an infrastructure needs to be in place

that manages the metadata related to those documents. The metadata is the information about a document, like the date it was created, by whom, a description of what the document is about, etc. This is set up for searching and retrieval purposes so that people looking for certain kinds of information can conduct efficient searches for it.

SharePoint provides this infrastructure with its Metadata Manager capability. This is an entirely new feature only found in SharePoint 2010. The Metadata Manager works directly with content types and the metadata descriptions they contain. It also allows for content tagging of files and documents using either a rigid system-wide taxonomy structure or a classification system invented by the users, referred to as folksonomies.

The metadata management infrastructure in SharePoint allows solution planners to configure powerful retrieval and content organization capabilities that make it fast and easy to find, group and organize document content across SharePoint.

## What is a document?

You’ll notice that we put the word “document” in quotes in various parts of this article. That’s because the term “document” means different things to different people. Some consider documents to include MS Word files, others, emails; others, paper; still others, photographs. In the end, all of these things are, in fact, “documents”.



SharePoint is very Microsoft Office document centric and whenever Microsoft uses the term “document” that is what they mean. On the one hand SharePoint cares mostly about organizing and managing information that is already in electronic form. Yet, its content architecture is built to be able to manage any kind of content, including paper documents. It just has no internal facilities to do so. Content types can most certainly contain document images and extracted meta data as well as MS Word document.

That’s a good thing because despite large amounts of automation, business still relies on, and in many ways, still very much organized around paper -oriented business transactions. Applications, resumes, proof of delivery documentation, bills, shipping documentation, warning documents, receipts, paper invoices, contracts, manuals, design specifications, articles, and thousands of other kinds of paper documents lurk in every office requiring people to process them for some kind of collaborative, transactional or archival business purpose.

Looking at the concept of a document in its entirety, its life cycle can be boiled down for four key stages of life:

1. Creation
2. Revision
3. Transaction
4. Archive

All documents are created, revised, transacted and archived. Modern office tools like the Microsoft Office Suite make creation and revision of business documents fast, easy and prolific. The widespread availability of these tools and capabilities has essentially wiped out analog document creation and revision technologies like typewriters and “white-out”. However, they have done little to stem the tide of printing office documents.

The result of the digital revolution is a world where virtually all business documents are created and revised electronically, but are still largely transacted and archived in analog paper format. Clearly the modern business, especially the SharePoint active organization, needs to be able to accommodate the entire spectrum of document type and lifecycle stage.

### **Paper Document Management in SharePoint**

Even for the most modern of businesses ignoring the paper-based

business document is a short-sighted endeavor in automation. To deploy SharePoint as a platform that connects people with information, leaving out the information found in paper business documents all over the office seems foolish.

Certainly some, if not all, office workers would like to see bills, letters, signed agreements, proof of delivery documents, receipts and any number of other business documents in SharePoint. An expense report with attached receipts contains important business information, so does the signed agreement from a customer when an order is placed. Given the power and flexibility of SharePoint those, and many other ad-hoc paper processes that intersect with the day-to-day electronic activities of workers all over the world could be easily accommodated

Companies might want to institute organizational document capture points across the company to grab the business documents of highest importance to the business and make sure that these are properly managed.

Using SharePoint as a large scale long term digital paper document repository may not be the ideal solution for all applications. There are other solutions better suited to that application. However,

managing paper business documents that intersect with the daily business processes of office workers around the world is decidedly in the SharePoint “wheel house”. In some instances, SharePoint may simply be the enterprise “bus” for “capturing” documents of all types at their origination points. After all SharePoint is already there. From then on the documents can be distributed to other repositories, like ERP systems or permanent document archives. For other document types, SharePoint may well be the repository that holds them forever.

Managing the information contained within a paper document, as well as a high quality image of the document as part of SharePoint, could replace the need for office copiers and paper files. After all, once you have scanned these documents and they are available in SharePoint, they can be printed by and for anyone that needs them. So who needs a copier?

While SharePoint “out of the box” goes a long way towards allowing users to manage the creation and revision process related to electronic documents of many kinds, it lacks the native ability to “take in” paper documents. Microsoft leaves that capability to third parties that have the expertise and engineering capability to provide that functionality.

## Document Capture in SharePoint

Quickly and easily turning a paper document into a high quality digital image, while simultaneously extracting the information contained within it, is far more complicated than it sounds. Performing that feat relies

on some sophisticated technologies, ranging from the engineering of the scanner to deliver a high quality image (accuracy for OCR depends on image quality) and the complexity of the software that drives it all.

Scanning documents into SharePoint requires two key pieces of additional technology, neither of which either come with or are supported in SharePoint natively:

- Scanning Devices
- Scanning Software

### 1. Scanning Devices

There are a wide variety of scanning devices, including low end printer scanner combinations available from office supply stores, business document scanners, and multi-function peripherals (also known as office copier/printer). While they can all scan paper documents, their ability to meet the needs of a particular business varies. The proper selection of a scanning device is very important in order to have a trouble free scanning environment across your SharePoint farm.

#### Home Office Multi-Function Devices

These combination scanner/printer/fax devices are meant for casual use, not for heavy duty purposes. The software they utilize in order to provide scanning functionality is often feature weak, unreliable and cannot scan directly into SharePoint at the present time. Even if they did, these kinds of products do not utilize office standard software, and are designed to do many different tasks on a very infrequent basis.

#### Multi-Function Peripherals (office copier/scanner/printer)

MFPs are devices built specifically for the rigorous multi-functional use of

an office. The vast percentage of the time (about 85%) these devices are used for printing and copying; scanning is very infrequent. The reason for this is simple, they are public devices usually available for all to use and therefore controlling their use as a means of capturing business documents, in the right way and into the right place such as a collaborative system like SharePoint, is not easy. MFPs are fairly sophisticated devices both in terms of programmability and office reliability. However these capabilities are generally geared towards their primary uses of printing and copying.

While software exists that can directly control the device for a variety of scanning purposes, it is expensive and complex to install. For this reason, most MFPs are configured to scan into a network folder. Once the user has scanned the document, they must return to their desktop PC to verify the scan and to perform the additional functions of adding the image and the associated (or extracted) meta data into their SharePoint environment.

#### Document Scanners

Some people consider document scanners redundant devices since MFPs do essentially the same thing. Functionally that’s true, mechanically and solution-wise, however, that is not necessarily so.

Document scanners, particularly personal scanners, are mechanically designed to do nothing more than reliably scan business documents, in many cases also including ID cards and credit cards. From a solutions perspective, they are easily tied to



enterprise applications such as having certain people scan certain documents for a specific business purpose.

It's not that you can't do these kinds of things with an MFP, but it is a question of reliability, simplicity, ease, security, standardization and control. Scanners provide all of that. They don't necessarily prevent people from scanning their own documents for their own purposes, but they also allow system administrators to easily identify who is doing the scanning and controlling whatever they are scanning into company systems in order to make sure that this information gets there in the right way, and into the right place.

#### **Scanning Software**

Scanning software, in industry parlance "capture software", performs three critical functions:

1. Assures image quality by automatically correcting common problems such as crooked images (skew), artifacts (speckle removal), contrast, removing unwanted artifacts such as holes from three hole punch etc.
2. Extracts information from the document image and converts alphanumeric text into computer readable (meta data) form. The extraction can usually be automatically performed, or by clicking the mouse in certain

portions of the image that you would like to save into the metadata, or by having the operator define what is being scanned and then the software automatically selects what needs to be "captured" and rendered into metadata.

3. Releases the image and the capture information to the platform. In the case of SharePoint that means assigning the image to a SharePoint content type, and transferring the meta data extracted into the content type.

Usually the software that comes with scanners, and, indeed, also with MFPs is grossly inadequate to perform this and other tasks in a business setting. Even if the software is able to accomplish all of these things, doing it properly usually involves a steep learning curve for the operator, many many clicks of the mouse, and extraordinary involvement from system administrators and technical support.

For this reason many companies prefer to use a "capture platform", software that consists of individual clients and a server, and which can provide a fourth key component: application control. Individual users (clients) can be provided with key capabilities that are preconfigured to scan only the types of documents that form the primary basis of their

business involvement. In this way paper documents critical to the business can be defined and executed with a minimum number of user mouse clicks, a very low learning curve and considerable enterprise control.

# Digitech Systems PaperVision® Capture

*An enterprise capture platform designed to effectively migrate paper documents and the associated content they contain into computing environments like SharePoint.*

Kollabria

## Enterprise Document Scanning for SharePoint:

### *Digitech Systems PaperVision Capture*

*Many vendors claim to offer SharePoint scanning and information capture capability. The goal of this Kollabria eGuide is to provide you with additional information to help you select the right product for such a solution.*

There are many capture solutions available in the marketplace, the vast majority of which are primarily geared towards scanning and capturing into platforms other than SharePoint. SharePoint's content model functions in an entirely new and different way from all of those other platforms, and therefore the capture solution must be able to do the same.

Given so many claims of SharePoint compatibility it is important to remember that the right solution must perform document capture the SharePoint way, as opposed to doing SharePoint the capture way.

An approach we like a lot, in terms of "how" it should be done, is the one taken by Digitech Systems (Denver, CO), with its PaperVision Capture solution.

PaperVision Capture is a free - standing solution designed to provide powerful highly-scalable scanning and information capture support for all platforms, including SharePoint. Its SharePoint capture capabilities work entirely within the realm of SharePoint's content model and SharePoint's distributed architecture.

Whenever people talk about the intersection of paper business processes with data systems, there are generally two possible approaches to take when architecting a capture solution to digitize paper documents and extract the content on them for processing purposes: production capture and distributed capture.

Production capture means to physically ship the paper business documents to one or more central locations and scan and process them there. Once captured, the images and the metadata can be trickled into the SharePoint "bus" for distribution, or more conventionally, all of it can be

placed into one massive non-SharePoint repository.

In a distributed capture environment, paper business documents are processed at the source and put on the SharePoint bus directly from where they occur.

A production architecture is necessary in some environments where the volume and nature of documents lends itself to a centralized capture location. However, the immediacy of distributed capture is relevant in all cases. Software made for production capture is genetically unable to make an effective transition to distributed capture. It can be done, but it most definitely falls into the category of doing capture the capture way, not the SharePoint way.

SharePoint's distributed nature lends itself very well to distributed capture. SharePoint runs across the entire company, and acts as an information "bus" that moves information (including document images and metadata) across the enterprise to either retain it in its own repository, or to relay it to a target application like an ERP solution or other repository.





Given the fact that SharePoint reaches every desktop, and makes for a consistent enterprise document bus, a distributed capture model is the most logical choice.

PaperVision Capture provides a consistent model for managing scanners on desktops across the enterprise from a central administration point. One of the most flexible document scanning and capture solutions on the market, PaperVision Capture supports distributed capture functionality with production capture capability. By using an approach entirely consistent with how SharePoint works, PaperVision Capture provides the SharePoint solution architect with the best of both worlds.

## How PaperVision Capture Works

PaperVision Capture has a multitude of features and capabilities that make it a compelling document capture solution. Here we'll focus on a few essential capabilities and the unique benefits they provide in a SharePoint configuration.

### PaperVision Configuration

PaperVision Capture runs on its own server (not a SharePoint server) and functions in terms of "jobs" that can be centrally configured, customized, controlled and pushed out to individual clients (workstations) across the enterprise. In short, it acts as a capture platform that can reach across the enterprise.

The latest version comes with a direct connection to SharePoint and is specifically built to interface with SharePoint in a completely native way. The connection works in the same way that SharePoint does, having the ability to drive both the document image file (typically a PDF) and metadata **directly** to the SharePoint content and metadata architecture. Not only can PaperVision capture, find and populate SharePoint content types, it can also create them at scan time and deliver documents to individual users in the form of "jobs", all under the control of the administrator.

The way that is done is directly configurable from the administration side, leaving the operator with little concern in that regard. All the operator has to do is push the scan button and follow the application's instructions on the screen.

### Capture Administration

Of course there is a whole lot more to managing a distributed capture environment than just pushing a button on the scanner. The enterprise needs to have control over that process, provide the operator with the necessary interface for the process, and assure the accuracy of the data that is captured.

To that end PaperVision Capture lets you scale and distribute a variety of user consoles and operations by storing the job and other information about the user console in its own resident database. In fact, the jobs and how they are set up, as well as the criteria used to drive out the capture console to users, can be maintained in multiple databases. Each can be configured separately, thus making it possible to run multiple databases for multiple capture locations across the enterprise from the PaperVision Capture server.

Another nice feature is that the server has the ability to capture content into the same job from multiple locations and merge "like" documents together into a single content type and metadata structure.

The various jobs can also be re-prioritized should business requirements change the way in



which operators should process the information.

Jobs can also be split out so that some people just scan, while others perform indexing functions. The server reconciles those activities back into the appropriate SharePoint content types and metadata management.

Naturally administrators like to get data on how jobs are being used, by whom and from what locations.

PaperVision Capture has full logging capabilities that report directly back to provide the kind of valuable usage statistics that companies need to control the effectiveness of the field operation.

### **Accuracy of Data in SharePoint**

Making sure that the right information populates the SharePoint content type is of primary importance. Controlling what the individual operator sees and does ensures part of that; the other part is to validate the meta data that is automatically read.

PaperVision Capture provides a number of ways to do that, but there are two ways that stand out. First, the job can be configured so that the operator is asked to validate the content of each meta data field found in the image by manually keying in the amount shown in the actual

document image. In this way mistakes can be corrected on the fly.

Second, PaperVision Capture accommodates error correction with its ability to look into databases and extract validating information like customer number, amount invoiced and numerous other kinds of information that might be used to populate key meta data fields in the appropriate SharePoint content type.

Both steps are controlled by the administrator in the “jobs” setup and are vital to eliminating and mitigating errors that occasionally happen between the chair and the keyboard.

### **Summary**

PaperVision Capture is a robust enterprise solution for tying paper based business documents of virtually any variety directly to SharePoint. Its central management architecture provides for precisely the kind of operator and content accuracy controls required when planning for and implementing a SharePoint scanning and capture solution for an enterprise, large or small.

As a capture solution, it has been in the field for many years now, in both intensive production and distributed capture applications. This latest version extends a proven solution into the SharePoint platform and SharePoint applications in a highly powerful and effective manner.

Our research here is far from the exhaustive treatment PaperVision Capture deserves. There is considerably more to this product than is appropriate to discuss in this eGuide. There are likely to be quite a few application requirements specific to your industry or your document types that need to be investigated separately.

We strongly urge you to investigate PaperVision Capture further. It is highly likely that in addition to the virtually infinite customizability that allows you to mix and match features yourself, the designers of PaperVision Capture have already included many of the features you may need in your applications in the core platform itself.

With its SharePoint capture features, PaperVision Capture brings its proven capability to a new level and offers the SharePoint enterprise a compelling solution.



### *A Note From the Authors*

*The goal of this educational guide is to clearly and concisely explain document scanning and capture and to outline its benefits within the SharePoint environment.*

*We have provided a primer on content management within the SharePoint environment and discussed how the scanning process for SharePoint should work.*

*Lastly we have provided a review of a leading edge document scanning and information capture solution called PaperVision Capture, specifically created to address many of the issues discussed in this educational white paper.*

*Thank you and Best Regards,*

*Raimund Wasner*

*Barry Baronas*

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### Raimund M. Wasner - Biography



Raimund Wasner has a diverse technology background ranging from his time at the University of California at Berkeley where he led a language and translation project to create the world's first hand talking translator for Sharp Corporation. As Senior Vice-President of BIS Strategic Decisions (now Forrester Research), he designed and directed the first market research practice in document imaging, workflow, document management technologies. ([click here for more](#))

### Barry Baronas - Biography



Barry Baronas is an experienced network, security and IT management professional. For the past two years as Research Director in the Kollabria ECM team, he has spent every waking moment of his workday on developing a solid understanding the business benefit of ECM technologies and the impact they have streamlining business processes and generating return on investment for the modern enterprise. He has

focused much of his effort on developing a comprehensive understanding of the benefits and features that various ECM products and technology vendors promote in order to give practical advice to businesses eager to adopt such solutions.

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