

Interactive Intelligence, Inc.

A New Approach to Business Process Automation

Interaction Process Automation

Business Processes

Processes are what make organizations tick. If you think about it, what *is* an organization but a set of processes and the people who implement them? Some processes are very horizontal – they apply to many different types of organizations. For example, just about any business that sells a product or service has some sort of lead management process to keep track of prospective customers. Customer support, employee performance reviews, and order fulfillment are other common processes that span many different types of industries. Other processes are more vertical (industry-specific) in nature. For example, companies that ship physical products generally have return merchandise authorization (RMA) processes. Not for profits often have fund-raising processes. Universities have enrollment processes. The list goes on and on.

In most cases, how well an organization implements its key processes plays a huge role in determining its overall success. Unfortunately, even well-run organizations often implement important processes informally, mainly relying on knowledgeable employees to make sure things run smoothly. For example, Tina in HR sends out a weekly e-mail reminding managers which employees are coming up for annual reviews. Fritz runs a team in Finance responsible for processing orders that come in by fax. Gabrielle in Marketing manages the team charged with handling calls, e-mails, and Web contacts from prospective customers and mailing them literature. If organizations are lucky, these key processes are at least documented so that everyone knows what to do if Tina, Fritz, or Gabrielle is hit by a bus. Although various process automation tools have been around for years, few organizations have the time or money it takes to use them. Instead, they rely on various combinations of spreadsheets, Word documents, and three-ring binders to get the job done. The incongruity is obvious. How can we reconcile the importance of these processes, the potential for saving money, and the lack of effort to streamline or even automate them? The answer – it's just too hard. Yes, it would be possible to hire a huge consulting company to come in, interview the key players, design a system, develop it, deploy it, and train everyone to use it. But how much would that cost? How much time would it take? How long before changing business conditions would render the whole thing obsolete? Horror stories abound regarding ambitious automation projects that were cancelled after hundreds of thousands or even millions of dollars were wasted. That's why the spreadsheet remains the most common basis for business processes today. It's cheap. It's simple. And it works – up to a point. However the inefficiency this more or less manual approach to process implementation leads to can become a drag on profitability. As the organization grows and must handle more leads, orders, returns, reviews, etc. – more people are required in order to run the processes. And as more people are layered on, the potential for expensive mistakes increases. Perhaps even worse, processes take a long time and even then are unpredictable at best. What if Fritz takes a few days off? In many cases, his work just stacks up, wasting time and untold amounts of money. So what is a business to do?

A Process Automation Platform

In some ways, the situation is analogous to the state of the world before the relational database. In the old days (the author has only read about those days), there was no easy way to store and search complex data. People kept innumerable lists. If they needed to relate an item in one list to other lists, they had to conduct time-consuming searches. But with the creation of the relational database, everything changed. Vendors began to produce database servers (Oracle, MS SQL Server, and many others) that systematized the storage and retrieval of well structured information. Now even small organizations can easily create and maintain huge collections of data and make them available to people and applications. Clearly, what's needed is a similar approach to process automation. What if an organization could deploy a single system capable of providing everything needed to easily automate just about any common process?

As mentioned previously, various types of process automation tools have been around for years. However, they've had three strikes against them right from the beginning. First, they're complex. They generally require extensive training and

third-party implementation services. That is, don't expect your process experts to just learn the tools and use them. Second, they're expensive – not just the tools themselves, but the system integrators who need to come along to do the consulting, analysis, design, and development. Third, they don't involve people.

What's that? How can a tool that purports to automate key business processes not involve people? After all, people are at the very heart of every non-trivial business process. Even more than the complexity and the expense, it's this last strike that knocks current process automation tools out of the game. You see, these current tools have no effective way of involving people because they have nothing to do with the organization's communications systems. At best (and it's not very good), they can inundate people with e-mail.

Communications-Based Process Automation

So now we've gotten to the crux of the issue. If we had a process automation engine analogous to a database server that were capable of intimately involving people by communicating with them in ways other than e-mail, we'd be cooking, right? Wait, isn't that exactly what Avaya and other communications vendors are talking about with "communications-enabled business processes" (CEBP)? Well, not quite.

You see, CEBP is just what it says – processes that are communications-enabled. When you dig into this subject more deeply, you find that it's really nothing more than allowing applications to use communications systems to kick off notifications. A customer's database record indicates a balance due greater than a defined threshold? CEBP can generate a phone call. To be fair, CEBP can make use of presence information so that the phone call goes to the first person in a list who's marked as available (not on the phone, etc.) This is a step up from e-mail notifications, but not by a whole lot. Certainly it falls well short of the comprehensive process automation engine we've hypothesized so far.

So if CEBP is too lightweight, exactly what do we need in order to provide comprehensive process automation of the sort that organizations can actually use? Logic would suggest that what we're really talking about is *communications-based process automation (CBPA)*. Take a moment to let that sink in. Now let's parse that phrase and see what it means.

Obviously the core of what we're after is process automation. In contrast to CEBP, we're not talking about just enabling existing processes (or applications) to generate phone calls or e-mails when something interesting happens. Instead, CBPA centers on how we automate processes in the first place. It proposes that we use well established communications notions that have been in use for decades as the foundation for process automation. You see, call centers have leveraged concepts such as queuing, skills-based routing, presence, recording, real-time supervision, and many others for years in order to systematize the handling of millions of telephone calls. These technologies allow you as a customer to service yourself over the phone (e.g. obtain your account balance) as well as be connected to a person able to answer your question or handle your transaction. Admittedly, some call centers do a better job than others at employing these technologies, but there's no question that they've ushered in a new era of efficiency as call centers have adopted them. In fact, the same technologies have been extended in recent years to handle not only phone calls but e-mails, text chats, and other types of interactions. They allow organizations to provide a consistent level of service. With call center (now contact center) technologies, organizations can dynamically move valuable customers to the head of the line. Supervisors can listen in on calls and their comments can be transmitted in a way that allows only the agent (not the customer) to hear, for coaching purposes. Calls can be recorded automatically if they meet certain defined conditions. And all this activity can be monitored remotely and in real-time with sophisticated graphical consoles that provide visibility into everything that goes on – right down to what an agent currently has on his or her screen.

Imagine being able to apply these advanced technologies to process automation. Just like customer calls, processes involve work that needs to be queued and intelligently routed to the right person. Supervisors need to be able to track in real time what's going on and who's doing what. And many processes take place in regulated industries and public

companies subject to various compliance mandates. Being able to record each step in a process even to the level of screen activity is just as necessary as in a contact center.

Now hopefully it's clear why communications-enabling existing processes is different from automating processes using communications-based technologies. The former is a nice but incremental improvement. The latter is revolutionary. It involves taking an entirely new approach toward process automation. And as we'll see, the benefits are many.

The Benefits of Communications-Based Process Automation

Before trying to articulate the benefits of the communications-based approach toward process automation, let's make it clear that we're not talking about taking communications technology, adapting it for process automation, and using it separately. That approach would leave us with separate systems – communications technologies for use in the contact center and the adapted technology for use in process automation. That would certainly provide some benefit, but to really achieve the Nirvana we're after, we need to **extend** communications technology so that it can encompass process automation. In other words, the communications system becomes the process automation platform for the company.

At first this may seem too wild to believe. The phone system runs the business? But if you think about it, it starts to make sense – especially if by “phone system” you mean an all-in-one IP communications platform complete with sophisticated contact center technology. What one system does every single employee in the organization have access to from anywhere in the world? That's right, the communications system. If we could really base process automation on the communications system, we could instantly make it available anywhere at any time to every employee. Just think of the possibilities:

- The facilities used to queue up calls for delivery to the next available agent could provide the orderly delivery of process work to the right people in the organization. For example, an insurance company could queue up insurance applications for the next available underwriter. Call center queuing already incorporates concepts such as service levels with features such as being able to take a call back if an agent doesn't pick up within a certain period of time so it can be routed to another agent. The exact same mechanism could be employed for work assignment in process automation.
- By definition, an advanced IP communications system includes the notion of **presence**. In other words, it keeps track of the availability of every person in the organization. It knows who's on the phone, who's on vacation, who's available at a remote location, etc. A communications-based process automation system can make use of this information when it decides how to deliver process work. In our insurance company example, only underwriters currently available would be considered – not those already busy or out of the office.
- Contact center systems make it possible to assign skills to agents and to make use of these skills when routing calls and other interactions. For example, a call coming into a technical support line can be routed to a Spanish-speaking agent if it's determined that the caller speaks that language. Skills management and skills-based routing figure prominently in a communications-based process automation system. In our insurance application example, different underwriters might be licensed in different countries, states, or provinces. The geographic coverage of an underwriter becomes a skill that can be taken into consideration when assigning new applications.
- The “screen pop” capabilities of contact center systems could be used to integrate a variety of commercial and homegrown CRM and ERP applications (e.g. Siebel, PeopleSoft, SAP, Microsoft Dynamics) etc. into process automation. For example, a business user assigned a task could find a particular application (e.g. Great Plains) popped on the screen and pre-filled with the correct information whenever he or she clicks on an assigned task.

- Managing hundreds of thousands of contact center agents distributed around the globe is a daunting task. Technology has been developed over the past decade that provides supervisors both high-level and granular views of what’s going on. Graphical supervisory interfaces in sophisticated contact center suites allow supervisors with one click to listen to an agent’s call, whisper into the agent’s ear in order to act as “coach”, record a call, etc. Extending this capability to process automation gives managers the same degree of insight into work that’s being done in an organization. A manager can easily determine where the holdup is in processing a loan or fulfilling a request for information.
- Demand forecasting and agent scheduling techniques that allow contact centers to make sure that they have sufficient personnel to handle the expected load could be applied to process automation. Imagine being able to quantify the effort required in your human resources department instead of just having to guess.

Overall, the ability to systematize and automate business processes has the potential to provide you more information than you’ve ever had before. When the VP of Human Resources says he or she needs more people, how do you know that’s the case? How many employee requests are processed per HR worker? How long do they take? How do you know when it’s time to add a new person in HR? These questions are impossible to answer without being able to apply quantitative analysis. However, when most HR tasks flow through defined processes that can be inspected, supervised, and reported on, everything changes. The possibilities for increased efficiency are huge.

The Dirty Little Secret about “Unified Communications”

One of the latest buzzwords to hit the market is “unified communications”. Although the term is nebulous, it generally has to do with an amalgam of technologies that have been around for years – presence, instant messaging, voice mail integrated with e-mail, etc. It’s essentially some marketing person’s brainstorm to take a bunch of established technologies and wrap them into a ball, hoping that the result will be impressive enough to CIOs that they’ll feel compelled to buy it. The dirty little secret is that while these individual base technologies are indeed useful in various settings, this formulation of unified communications completely lacks any quantifiable ROI. Instead, vendors talk glowingly about various soft benefits such as “increased productivity”, saying that employees won’t have to leave as many voice messages.

The problem certainly isn’t with the technologies comprising unified communications – it’s that the vendors don’t take them far enough to make them truly useful. It’s really within the setting of process automation that a concept such as presence becomes powerful. Yes, if I can see on my screen that you’re at lunch, it may save me a couple seconds by waiting to call you later. But if the corporate contact center knows you’re at lunch, it may save the company quantifiable cash by assigning a time-sensitive piece of work to someone who’s still in the office, allowing that work to be completed an hour or two faster than it might have been. Now, multiply that over hundreds or thousands of employees and dozens of processes. Think about that sort of savings day after day. Consider the impact on important customers and prospects. Now you start to see the true value of unified communications. When these technologies can be employed in formal processes, they save money. That’s why they’ve been used for many years in contact centers – because they have a hard ROI.

Interaction Process Automation – A Communications-Based Process Automation System

Interactive Intelligence has spent the last decade and a half building a comprehensive software platform for IP communications called the *Interaction Center Platform*. The flagship product based on this platform is called *Customer Interaction Center* or *CIC* and provides the following functionality:

- A turnkey IP PBX based on the SIP standard. CIC is a complete VoIP communications system, able to work with a variety of SIP phones including those from Polycom, Aastra, Cisco, and other vendors. CIC can handle tens of thousands of phones and end-users located in a single site or distributed around the world.
- A wide range of built-in contact center applications including interactive voice response (IVR), automatic call distribution (ACD), skills-based routing, multimedia queuing (queued e-mails and text chats), call recording, screen recording, predictive dialing, workforce optimization (agent scheduling), speech analytics, and many others.
- A graphical desktop application called *Interaction Client* that allows users to access all the aforementioned functionality. Business users (those outside the contact center) use Interaction Client as a graphical call manager from which they can dial, transfer, conference, and otherwise manage their telephonic interactions. Interaction Client also contains a flexible set of company directories with real-time presence information. Interaction Client provides even more advanced functionality for contact center agents and supervisors, allowing them to interact with queues, participate in skills-based routing, etc.
- A graphical call flow manager called *Interaction Attendant* that allows organization to easily determine how telephone calls, e-mails, and other interactions are routed and queued within the organization. Interaction Attendant makes it easy to create IVR menus (“Welcome to Interactive Intelligence. For sales, press or say 2...”), put calls and e-mails into queues, and otherwise manage incoming interactions.

Thousands of organizations around the world have installed CIC and other products based on the Interaction Center Platform to automate their contact centers as well as move to Voice over IP for their enterprise communications. CIC has won numerous industry awards as the most powerful “all-in-one” IP communications system on the market. Deployment is simple – take a standard server (e.g. IBM, HP, Dell, etc), install Windows Server, load the CIC software, and connect to your IP network. You instantly have an advanced IP-based communications system with industry-leading security, reliability, and functionality that integrates seamlessly with a whole range of information technology systems including Microsoft Exchange, Lotus Notes, Novell GroupWise, SAP, Siebel, PeopleSoft, Microsoft CRM, etc.

From the beginning, the Interaction Center Platform was designed to queue and distribute a variety of objects – telephone calls, e-mails, text chats, etc. Client organizations were delighted with being able to use the same facilities to queue and route customer interactions regardless of whether they came in by phone, fax, e-mail, or Web. It wasn’t long, however, before client organizations began to ask if they could make use of the Interaction Center Platform to queue up other types of objects – for example, Remedy help desk trouble tickets – and they began to do so. In this particular example, a customer could fill out a problem report from a Web page. That report was used to create a trouble ticket in a Remedy help desk system. A pointer to that trouble ticket could then easily be inserted into an Interaction Center Platform queue which would route it to the next available representative. When the representative clicked to pick up the trouble ticket, the Remedy application was popped on his or her screen and pre-filled with information from the appropriate entry. Client organizations were ecstatic! Now they could apply the same skills-based routing they used for telephone calls to the routing of trouble tickets within their help desks. Such an approach provided service level guarantees because if a help desk representative didn’t pick up the trouble ticket within a specified period of time, it was automatically assigned to a different representative. They could assign skills to different types of trouble tickets to make sure they went to just the right people. And supervisors could employ the same graphical interface used to view the performance of contact center agents to track the handling of trouble tickets.

In effect, this use of ACD queuing to handle help desk trouble tickets represented the automation of a simple process – let a customer enter a problem description over the Web, create a trouble ticket, assign it to an agent.

Recognizing the potential, Interactive Intelligence has now dramatically extended the capabilities of the Interaction Center Platform for process automation by creating an add-on product called Interaction Process Automation (IPA). IPA adds the following capabilities to CIC:

1. A graphical process definition interface. This application allows process designers to
 - a. Define what information is necessary for a process. For example, automating the approval of insurance applications might involve capturing the applicant's first name, last name, date of birth, age, smoking history, etc.
 - b. Define the various *states* through which work moves in a process. In the insurance example, an application might start in the *submitted* state. From there it's reviewed by underwriters and moved to the *underwritten* state. Next it's examined by the financial people and moved to either the *approved* or *rejected* state. It may be helpful to use the metaphor of an automobile assembly line to visualize these states. In an automobile factory, a bare chassis is placed on the assembly line. It moves past various workstations where things are done to it – an engine is inserted, wheels are bolted on, seats are installed, the exterior is painted, etc. You can think of each of these operations as changing the state of the car (e.g. *bare chassis* state, *painted* state, *finished* state, etc.).
 - c. Define the tasks that are performed in each state. In our insurance example, in the submitted state one task is to place the application in a queue for underwriting. This causes the next available underwriter to pick up the application and work on it. Tasks can be expressed in terms of a simple scripting language that provides access to dozens of tools for database operations, string handling, mainframe access, Web services, and just about anything else you can think of.
 - d. Create the form or forms that might be presented to end-users who are assigned tasks for this project. Forms can be easily created based on the information defined for the process (see a. above).
2. Enhancements to the end-user application, *Interaction Client*, that allow users to deal with process tasks that have been assigned to them. Just as Interaction Client displays information about an incoming call, it also allows users to see assigned process tasks. When the user clicks on such a task to work on it, one of two things can happen:
 - a. A form can be opened that displays the relevant information for the task at hand. In our insurance example, the form might allow an underwriter to see the applicant's name, address, age, smoking history, etc. However, it might purposely **not** display sensitive information such as the applicant's social security number or credit card number. This form is created in the process definition application as explained above.
 - b. An existing application can be "popped" and pre-filled with the necessary information. For example, an in-house underwriting application could be invoked (popped) and passed the information in the current application which it could then display for the underwriter.

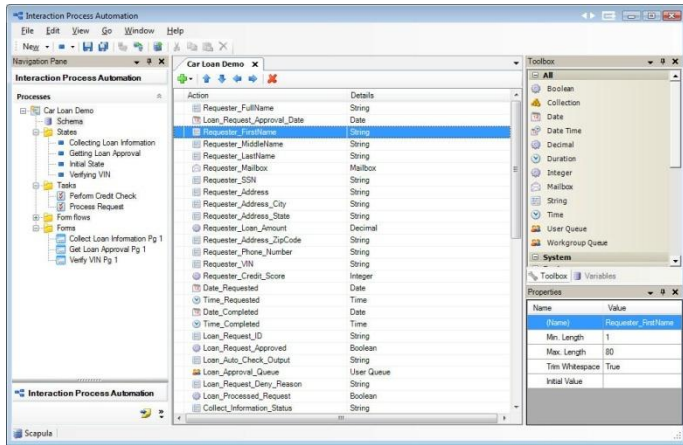
Now, let's take a closer look at Interaction Process Automation.

Interaction Process Automation™ (IPA)

The first all-in-one process automation solution comes not out of knowledge management, application development, or database technology but from the *communications industry*. That might seem strange at first, but when you think about

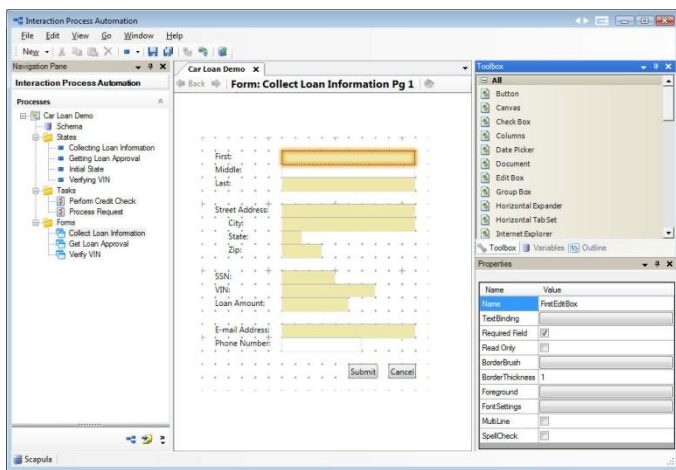
it, it makes perfect sense. After all, processes are about people – even automated processes. People are required to talk to customers, collect information, make decisions, and analyze results. What’s needed is a structured way to help those people work together efficiently in the fulfillment of various processes. You see, process automation doesn’t necessarily mean removing people from processes, but rather providing an automated means of moving work among them and making sure it gets done.

The pinnacle of automation in the communications realm is the corporate contact center. Such centers involve hundreds or even thousands of people handling phone calls, e-mails, faxes, text chats, and other interactions from a wide range of customers and covering a dizzying array of topics. Over the years, contact center technology has evolved sophisticated notions of queuing, skills-based routing, quality monitoring, and real-time supervision that allow contact centers to operate with incredible precision. And the most innovative company in that demanding world, Interactive Intelligence, has built on hundreds of man-years worth of research and development to revolutionize business process automation. ***Interaction Process Automation*** is a single software solution that gives you everything you need to automate your business processes. Let’s see how it works.



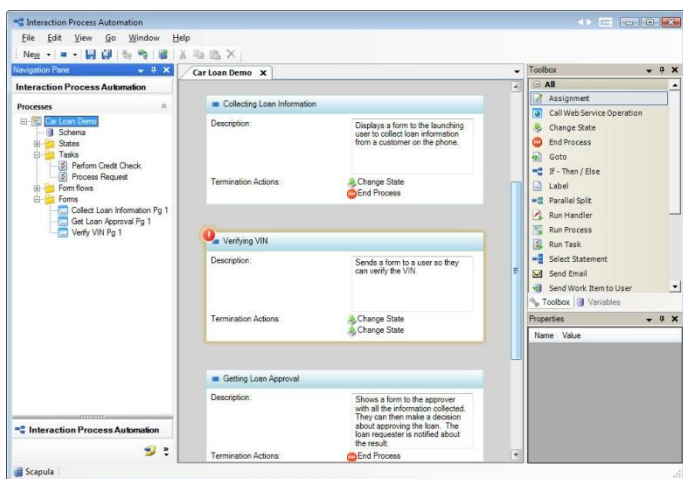
Step 1 – Decide what information you want to track in the process

Choose from the many available data types to create a schema describing what information is to be collected during the process. This example illustrates a car loan processing application. You can set security levels for each piece of information to control who can see it and who can change it. You can even encrypt sensitive information (e.g. credit card numbers) so that it never exists in the clear and thus can't be hacked or stolen, not even by your own employees!



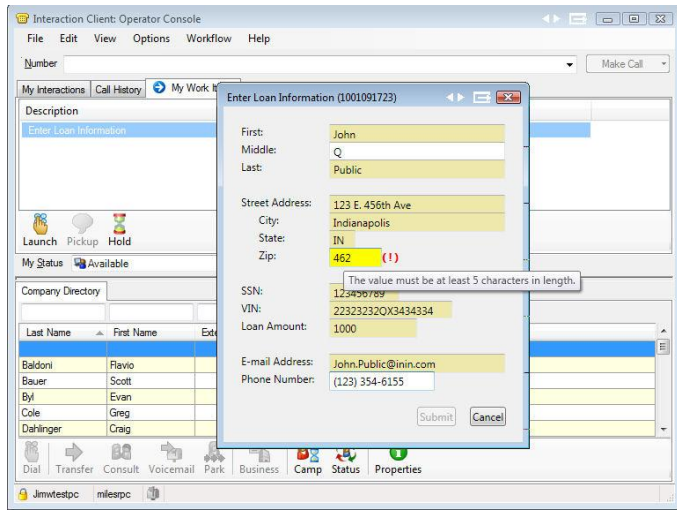
Step 2 – Design the user interface forms that end-users will see

Drag and drop various user interface controls onto the canvas and associate them with different pieces of process data. Create different forms for the various users that will participate in the process and limit them to what is appropriate according to their roles. Easily handle images, document attachments, faxes, and even embed Web browser controls.



Step 3 – Lay out the process flow

Describe the different states through which work flows during the process and what actions to perform along the way. Choose from dozens of actions that allow you to access databases, interface with mainframes, send e-mail, generate phone calls, invoke Web services, queue up tasks for groups of people, etc. Easily obtain credit reports, process credit card payments, integrate with CRM applications, generate documents and store them in Microsoft SharePoint, etc. Create processes for customers, partners, suppliers, employees, etc.

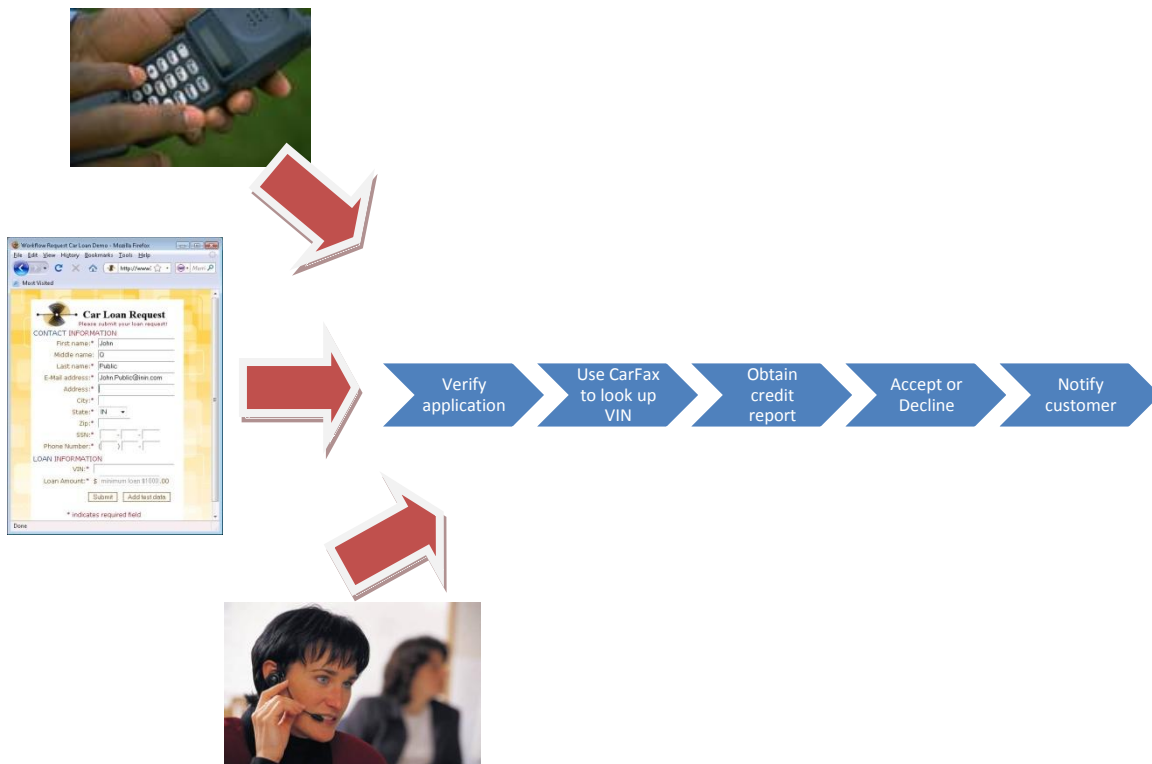


Step 4 - Deploy!

End-users start seeing assigned work items appear in the same desktop interface they use to handle phone calls, access corporate directories, and otherwise perform business communications functions. When they click on a work item, the appropriate form appears, showing them what they're supposed to see and allowing them to do the things they're supposed to do. If an employee doesn't complete a task in time, it can be automatically taken away and assigned to another employee in order to meet service levels. Approval chains are child's play.

Interaction Process Automation allows organizations to completely automate a wide range of internal and external processes, including – applications (e.g. insurance, loans, admission, employment, etc.), lead management, order management, approvals, time-off requests, performance reviews, new employee on-boarding, etc. Processes can be represented by easily modified graphical flows instead of being locked into static documents or CRM systems. As business conditions change, processes can be modified as well.

Another important aspect of Interaction Process Automation is that it allows the same process logic to be used regardless of how a process was initiated. Organizations can create automated processes that provide a consistent level of service whether they are initiated by a customer hitting a Web site, a call into a contact center agent, or an interactive voice response (IVR) session.

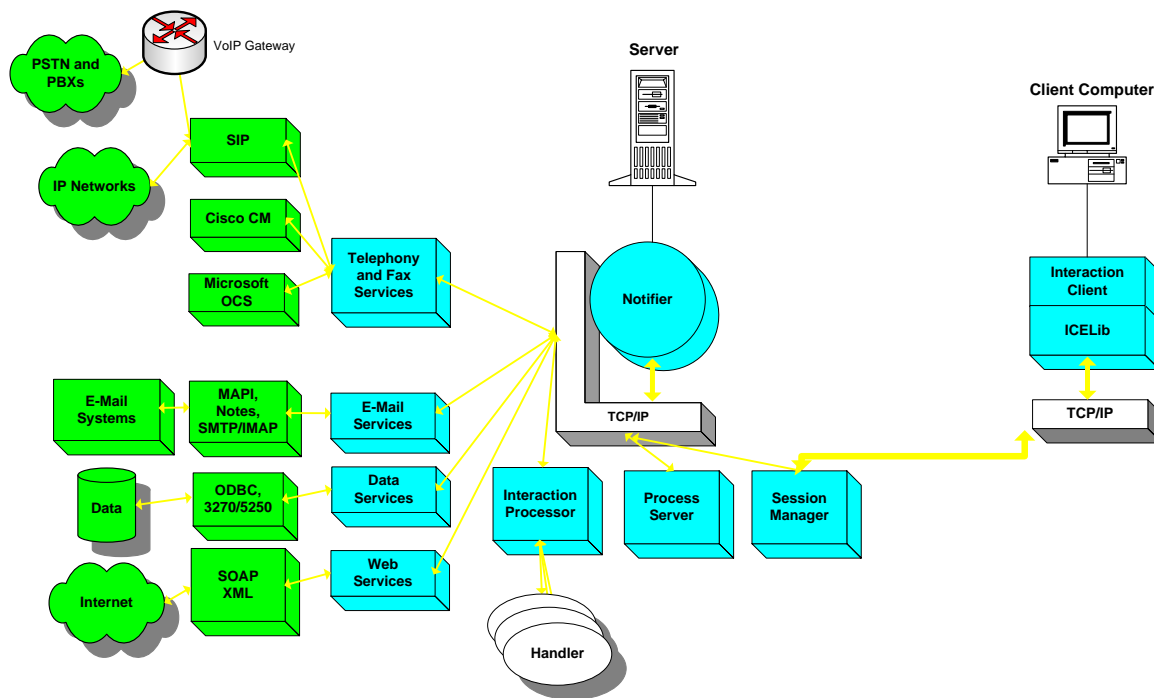


Architecture of Interaction Process Automation

As noted earlier, IPA is addition to the robust and mature Interaction Center Platform. Together, they offer both client and server-side components connected seamlessly via TCP/IP. A service-oriented architecture (SOA) interconnects all components, allowing processes to make use of all the power of the Interaction Center Platform, including:

- A SIP-based IP PBX
- Connectivity to Microsoft Office Communications Server and Cisco Call Manager
- The ability to send and receive telephone calls and faxes using voice over IP (VoIP)
- Integration with e-mail systems including Microsoft Exchange, Lotus Notes, and Novell GroupWise
- Data services capable of reading and writing from any relational database including SQL Server and Oracle
- The ability to invoke Web services (more on this later)
- Mainframe access

IPA runs on off-the-shelf servers with built-in capabilities for redundancy. IPA scales to the point of handling the needs of thousands of end users and is suitable for organizations of all sizes.



The Importance of Web Services in Process Automation

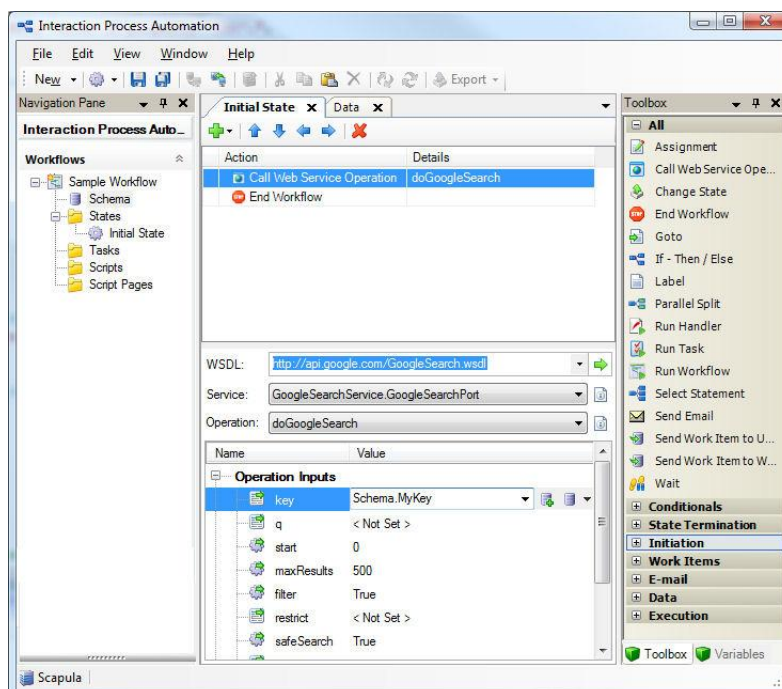
One of the most exciting developments the last few years has been the emergence of a wide range of publicly available **web services** on the Internet. A web service is essentially a remote service that can be easily accessed by computer applications. Think of it as a Web site not for people but for computers. For example, Experian provides a web service that allows an application to obtain a complete credit report on an individual. The application sends the individual's name, phone number, and social security number and gets back an XML document containing that individual's credit score and current credit history. In effect, web services allow computers to talk to each other to conduct various high-level transactions over the public Internet. Examples of the many web services available include:

- A FedEx/Kinko's service that prints a document and mails it to a designated address
- A service that takes a vehicle's identification number (VIN) and returns the complete owner and accident history of that vehicle
- A service from Amazon.com that processes various types of credit card payments
- Another service from Amazon.com that stores information in a database in Amazon's data center
- A service from Google that takes an address and returns a map showing the location of that address
- A service from a national florist that takes a name and address and has flowers delivered there
- A service from a fulfillment house that automatically sends a marketing packet to prospective customers

One great example is Amazon's Mechanical Turk service. Using this web service, a process can in essence advertise small pieces of work on the Internet and have them done by people around the world. For example, a process might involve transcribing a scanned customer letter into text. This is a task that is done very poorly by computers but is relatively easy for human beings. IPA allows you to send the scanned customer letter through Mechanical Turk and receive back the human-supplied text. The human beings who have signed up to do work submitted through Mechanical Turk are rated by a feedback system and your process can specify the rating level you desire. You can even submit the same task to two different people and compare the results before accepting them – or present both the scanned letter and the human-supplied text to one of your employees as a step in your process and give them a chance to either accept the text or make whatever edits might be required.

And it's not just the many external web services that can be invoked by IPA processes. Processes can invoke web services for in-house applications such as SAP, Siebel, Salesforce.com, SharePoint, etc. And modern development tools make it easy for your developers to create your own web services which can be used within process flows. In effect, the web service capabilities of Interaction Process Automation allow any process to interact with people and applications anywhere on your internal network or on the public Internet. The possibilities are endless.

Interaction Process Automation makes it extremely easy to incorporate web services in process flows. As shown below, just enter the address (URL) of the web service and IPA automatically creates a corresponding action and allows you to specify the inputs and outputs. It's really that simple.



Time Tracking

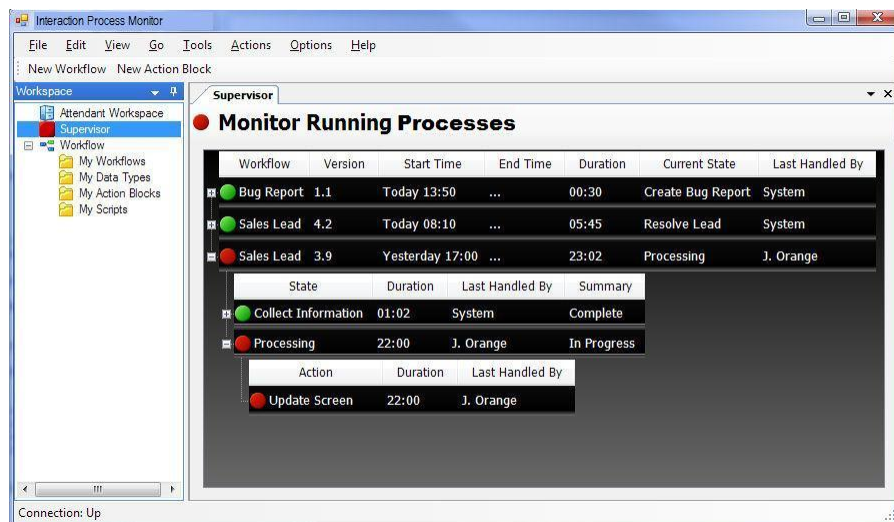
Interaction Process Automation can be used to provide detail tracking of the time spent by employees on various processes. When an employee opens a form associated with a work item, a timer starts and keeps track of how long it's open. Employees can suspend work on an item by putting it "on hold" just as they do with phone calls in order to stop the timer and work on something else (perhaps a different process item). Managers can run reports to obtain all sorts of useful information, including

- How long different employees take to perform the same task
- The average time required for a given task
- The average amount of time required for an entire process that might involve several employees
- The cost of a given process (obtained by considering the time spent by each employee along with the hourly cost of that employee)

This sort of time tracking can be enormously useful in pinpointing waste and inefficiency. Many organizations are stunned to learn how much they spend on various activities, especially when compared to the value they receive.

Real-Time Supervision

Interaction Process Automation provides a real-time graphical supervisory monitor that allows you to see the moment-to-moment status of every process. For each process item, see its current state, what (or who) it is current waiting on, how long it has been running, who last handled it, and so on. Even look inside the process data to see the current values – but only those you're authorized to see. Even supervisors are unable to view sensitive information, some of which may even be encrypted.



Reporting and Data Management

IPA stores all process data in a relational database where it's easily accessible by a variety of your systems and applications. Certain standard pieces of information are explicitly stored in pre-defined columns in a standard table. This allows you to quickly run reports to show average completion time for a given process, etc. The rest of the custom information based on the information schema you create when you design the process is stored as an XML object. This means that you can use popular XML query and reporting tools to retrieve process data regardless of its size or complexity. You can run reports and easily transfer process data to your CRM systems and other applications.

Interaction Process Automation ships with several standard reports and makes it easy for you to create your own as well.

Security

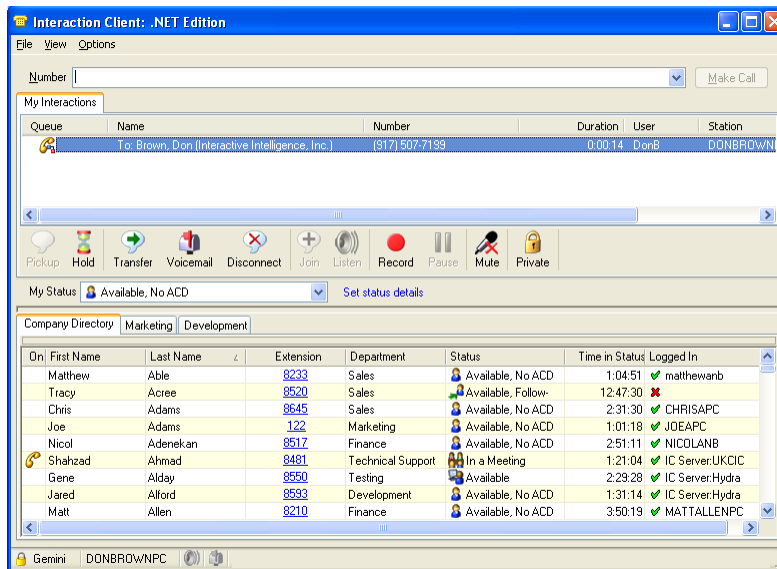
Data integrity and security are increasing concerns in most organizations today. With stories of stolen credit card information and other data thefts appearing almost daily, organizations must take into account the potential embarrassment and financial liability when they design processes and systems that deal with sensitive information. What's more, truly secure systems protect not only from external hackers but even against employees, some of whom unfortunately may prove to be untrustworthy. Interaction Process Automation was designed from the ground up with security in mind. For example, data integrity is enforced not at the database level but as the very first step in even designing the process information schema. As noted earlier, you can establish who can view or modify each piece of data in the process information. You can even specify that certain pieces of information (e.g. social security numbers) be encrypted so that no human being in your entire organization can ever view them. And such encrypted data is absolutely worthless to hackers and thieves. Certificates can be used to allow data to be decrypted only under very tightly controlled conditions, such as when a credit card number is required for an external payment system. Even then, the data is only converted from one encrypted format to another – the one specified by the target payment system.

But IPA's security extends far beyond just process data. All TCP/IP connections used to connect end-user desktops to the IPA server are encrypted as well. Even voice data can be encrypted using the TLS/SRTP standards. And IPA provides hierarchical and role-based administrative access controls, allowing you to specify who in your organization can perform certain actions, modify certain information, or view certain data.

End-User Interfaces

The primary end-user interface for IPA is called **Interaction Client™**. Interaction Client is a .NET application that can operate on any Windows desktop or laptop running Windows XP or Vista. As you can see in the screen shot below, Interaction Client is first and foremost a complete communications portal that can be used by local and remote employees to

- Make and take calls
- Set up conference calls
- Record calls
- Set presence
- Send faxes
- Listen to voice mails
- Set personal call-handling rules
- Participate in ACD queues
- Access directories
 - Company-wide directories
 - Workgroup directories
 - Customer and other external entity directories
 - View the presence information of other users
 - Camp on other users and be notified when they become available
 - Find users' mobile and home phone numbers
 - Send e-mail
 - Instant message



Interaction Client can be integrated with Microsoft Office Communications Server to provide desktop videoconferencing and Microsoft instant messaging. It even includes a SIP soft phone that can be used to transform any computer or laptop into a voice over IP endpoint.

In addition to its role as a desktop communications interface, Interaction Client also serves as the end-user interface for Interactive Process Automation. Just as new phone calls show up in the “My Interactions” tab, new work items show up in tabs as well. And just as Interaction Client can be configured to alert the user of new calls in various ways (particular sounds, application pop, toast, etc.), the user can be notified of new work items as well as work items that are about to reach their established deadlines. Work items for different processes can be configured to all appear in the same tab (e.g. “My Work Items”) or in different tabs (e.g. “My Things to Approve”, “My Applications to Process”, etc.).

When the user clicks on a work item, the appropriate form is opened to allow them to see what they’re supposed to see and perform the actions they’re supposed to perform. New forms designed within the IPA process design interface are automatically downloaded to Interaction Client as needed, with no installation required. In addition to standard user interface controls such as text boxes, combo boxes (drop-down lists), radio buttons, check boxes, and date/time controls, IPA forms can contain advanced user interface elements, including:

- Embedded browser controls to access specific Web pages
- Images
- Document attachments
- Audio recordings
- Links that, when clicked, open other desktop or Web applications such as SAP, Siebel, Remedy, Great Plains, MS CRM, Salesforce.com, etc.

When used as part of IPA, Interaction Client also has a menu option that allows the end-user to initiate various processes. The right to initiate a process is controlled by the administrator. For example, only employees in Finance might be able to initiate a customer credit while all employees might be able to initiate a time-off request. IPA allows process initiators to be grouped into various categories (e.g. HR Processes, Support Processes, Sales Processes, etc.) for easy access. Each process initiator has a short name as well as a more detailed description to help employees choose the right one at the right time.

Finally, Interaction Client has the ability to perform a search across all processes, open and closed, for a given customer. For example, an employee might take a call from a customer with a question about a product exchange initiated two

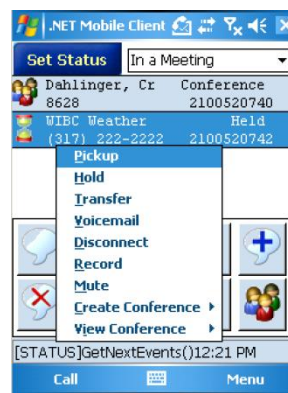
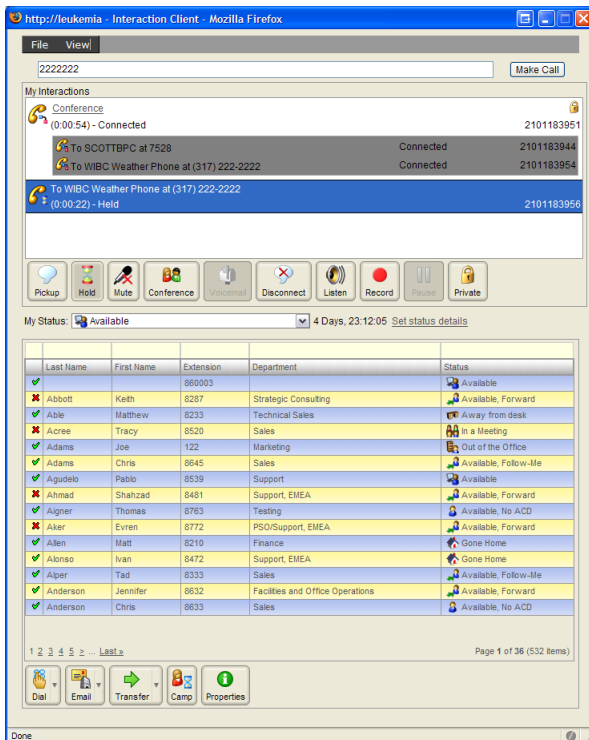
days ago. The employee can use the customer's name, phone number, or process ID to locate the process in question, view the current state, and report the results to the customer.

Interaction Client is designed to run over low bandwidth connections – even 56k dial-up! This means that employees can use it to do work no matter where they might be in the world – in the office, at home, in a coffee shop, or in an airport lounge. The connection from Interaction Client back to the server is encrypted and authentication is required.

Interaction Client is automatically updated as new versions become available.

Other Interfaces

Interactive Intelligence also offers a Web version of Interaction Client capable of running in several major browsers as well as a native Windows Mobile version. Those interfaces are shown below.



Interactive Intelligence is also developing a native Blackberry version of Interaction Client as well as a mobile Web version capable of running on a variety of smart phones including the Apple iPhone, Google Android devices, and Symbian-based phones.

Other Features

- The ability to queue up work for groups of people using the same skills-based routing used in advanced contact centers
- Integration with Microsoft SharePoint for document management
- Built-in unified communications and integration with Microsoft Office Communications Server
- The ability to track customers, their processes, and their interactions. View a history of every call made in regard to a particular issue, or every issue ever created for a particular customer, or every customer ever experiencing a particular type of issue.
- Location-independence that allows employees working from home, remote locations, or even airport waiting areas to participate in important business processes
- The ability to integrate with all your existing applications and workflow systems

- A scalable architecture capable of supporting thousands of users across multiple locations
- Global support by a publicly traded company in existence for more than 14 years with thousands of customers around the world

Return on Investment

Business process automation has the potential for an enormous return on investment. And thankfully, this ROI isn't due to fuzzy notions such as increased individual productivity (how do you measure that?), but more quantifiable savings such as:

- Fewer people required to implement an important process such as handling customer orders
- The ability for the current staff to process more transactions
- A reduction in the average time required to complete a given task
- An increase in the predictability of a given process by decreasing the "spread" (standard deviation) of execution times
- Faster on-boarding of new employees due to automated processes that allow them to become productive more quickly
- Less reliance on certain employees to be around and available in order for certain jobs to get done
- Better ability to continue work when key employees are sick or on vacation
- Speedier resolution to customer issues
- Increased customer satisfaction

And because Interaction Process Automation is an all-in-one solution, your employees can learn how to use it to automate processes themselves or make changes to existing process automations. This leads to even more savings such as:

- Decreased spending on expensive external consultants and systems integrators to implement and maintain process automation applications
- Decreased time necessary to develop specialized applications for certain processes
- Growth opportunities for IT staff as they can learn to apply their skills to business analysis and process automation
- Fewer complex custom applications
- Fewer application vendors
- Easier extraction of important business data for strategic analysis

It's not hard to see the many ways that business process automation, especially with an all-in-one solution such as IPA, can save money and help an organization tackle its core mission more effectively.

Summary

Interaction Process Automation is the first all-in-one solution for designing, building, and deploying end-to-end process automation applications. Organizations can use a single process design tool to describe the information to be tracked in a process, design the user interface forms that end-users will use to perform their work in the process, and lay out the various steps involved in the process and the actions that need to take place. Once published, a process is immediately put into production. End-users see work assigned to them show up in their desktop interface (Interaction Client) where they can simply click on work items to automatically open the appropriate user interface forms. End-users can also initiate processes for themselves (e.g. time-off requests) or for customers (e.g. trouble tickets) from the same desktop

interface. When a customer calls in about an issue currently being processed, end-users can employ the same desktop interface to find the customer's process issue and view its current status. This status information can even be made available directly to customers via interactive voice response (IVR) or the Web for efficient self-service.

Interaction Process Automation has powerful facilities that allow it to be integrated into the rest of your information technology infrastructure as well as to the world at large. In particular, IPA makes it easy to incorporate web services into process flows. These web services act as doorways to your internal applications (CRM, ERP, workflow, document management, financial applications, etc.) as well as to a vast array of services available on the Internet from thousands of companies including Amazon, Google, Microsoft, Experian, FedEx, and many others.

Finally, organizations of all types and sizes have available to them a true all-in-one solution for the automation of key business processes – Interaction Process Automation.