

Bridges by *babylon*

**Building Your Data Bridges For
Business Success**



The Greatest Challenge Facing Knowledge Workers is Productivity

If William Shakespeare were alive today, he probably would say: “The business world’s a knowledge stage and all the men and women are merely knowledge players.” The proportion of knowledge workers in the workforce has increased steadily over the last few decades, a trend that began even before the explosive growth of the information and communications technology sector in the 1990s. Today, knowledge workers comprise more than two-thirds of the workforce in developed nations. Enterprise workers across the business spectrum and at all levels perform jobs that can be described as knowledge work – the collection, analysis, processing and distribution of information for problem-solving and decision-making. The knowledge worker’s productivity can be measured in the resulting quality and value of insights, business intelligence, intellectual capital, and other forms of knowledge that benefit the organization. The ability of knowledge workers to perform their jobs efficiently and effectively is therefore key to their organization’s competitive strength and economic achievement.

The Biggest Barrier to Productivity is Information

Along with the evolution of the knowledge worker, enterprise information has proliferated to the point of paralyzing the knowledge worker. Knowledge workers are overloaded with enterprise information and are unable to effectively collect and process information. Knowledge workers and their employers feel thwarted and frustrated for several reasons:

- **Information is scattered across the enterprise**

Knowledge workers commonly rely on disparate information sources to obtain critical data. In most organizations, different enterprise systems serve different needs; for example: a CRM system for customer and sales data, an ERP system for inventory, an SRM for supplier data and purchase orders, and so on. Access to these systems and their data is commonly restricted to a particular department or user group. Even when a worker has access to enterprise information systems, each of these systems utilizes different software applications and interfaces, as well as login procedures and search mechanisms, making information retrieval is a slow and inefficient process.



- **Enterprise applications are often difficult to use**

Enterprise applications require training and lengthy learning curves for users to reach proficiency. While some users will become application experts, most will be deterred from investing the time and energy needed to become a skilled user – because they feel it is too difficult or not sufficiently beneficial to them.

- **Available information is unreliable**

Unable to quickly and easily get hold of the information they need; well-intentioned knowledge workers frequently resort to roundabout methods that may not only result in the use of incorrect data but may even violate corporate practices and procedures. When pressed to meet a deadline or make a decision, knowledge workers will use the information at hand, even when knowing the information may be questionable.

- **Enterprise applications are incompatible with personal productivity tools**

Ultimately, the biggest obstacle to the knowledge worker's productivity lies in the disparity of the personal productivity environment and the enterprise systems that house the organization's business data. Knowledge workers typically work in the familiar comfort of common Office applications (e.g., email, word processor) and Internet browsers, and want to stay focused on the task at hand, such as writing an email or reading a document. Diversion to an enterprise application in search of information interrupts workflow, wastes time, and frustrates the knowledge worker.

To improve the quality and effectiveness of their output, knowledge workers need tools that give them quick access to the most relevant and reliable information. Moreover, they need this access while working in their familiar desktop environment. Companies today recognize the value of integrating enterprise applications with desktop tools. Clearly, bringing data from enterprise applications directly to the desktop enhances the knowledge worker's decision-making abilities and productivity.

Bridges – The Key to Effective Knowledge Work

Bridges offers a unique approach to these information challenges. The product's single-click technology creates a direct bridge between desktop and enterprise applications, enabling instant and effective information retrieval.

Bridges is an integrated client/server system, comprising a desktop client and a web application server that communicate using industry standard protocols (XML/HTTP).

The Bridges server creates a snapshot of enterprise data using its extraction tool. It converts the data into Bridges proprietary index files, which are then deployed on the application server.

The Bridges client is installed on every desktop and serves as a unified interface for displaying results. Using a mouse button, key, or combination of both, the user can click on any word, term or number displayed in any desktop application. The Bridges client recognizes the text and immediately opens a popup window containing concise and relevant information from the appropriate information system, based on the context of the text on screen.

The product supports two user and role-based security schemes to provide secure access to enterprise information. The first scheme is based on the corporate active directory and the second relies on the actual user authentication and access credential of the original corporate system holding the information.

The application server ensures that the information delivered to users is updated regularly and transparently. Bridges includes development tools and automatic deployment capabilities that facilitate the implementation and integration within any organization.

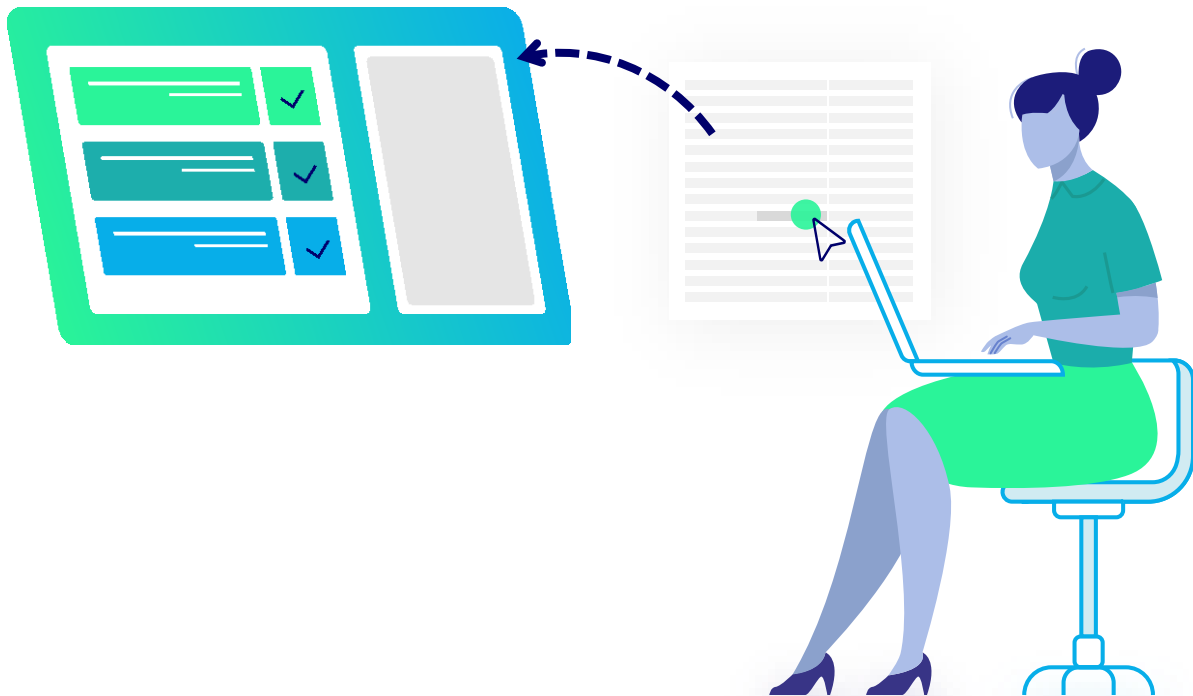
Bridges is intuitive and easily learned. Users embrace its simplicity:

- One click to activate
- One gateway to all information sources No need to switch applications
- No waiting for results
- Results are concise
- Results have a unified format

Bridges has been implemented by industry-leading customers worldwide. The convergence of desktop and enterprise applications has resulted in employees getting critical information faster and more easily, without having to switch applications, thus remaining focused on their work.

Bridges Technology

Bridges centers on the user experience. The desktop tool brings information to the user, rather than bringing the user to the information. Its unique click technology turns any word on any screen into a hot word. Bridges delivers contextual information regardless of the application in use, and without requiring any modifications to the application. Users thus get information in the most natural way – by simply pointing and clicking on the text on any screen. Moreover, Bridges eliminates the need for prerequisite user knowledge, of either the term (is it a customer's name, a product serial number, a transaction ID?) or the application that contains the needed information. Users need only to click on the term to receive relevant information.



Client Software

The focal point of Bridges is its unique desktop client software, using sophisticated algorithms and features to enable the single click retrieval of enterprise information.

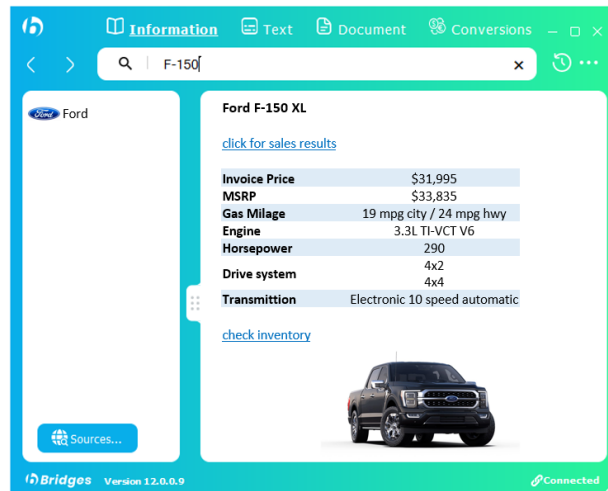
The Bridges client can be installed on any up-to-date Windows operating system. The client installation program is a Microsoft Installer (MSI) package that can be easily modified for specific customer requirements. The software can then be deployed across the organization by distribution tools such as Microsoft Active Directory, Microsoft SCCM. Deployment and installation require minimal involvement of IT staff, even with large sites. The desktop installation process typically runs smoothly and takes about one minute. Installation errors are rare. Client operation is triggered by a predefined mouse gesture, keystroke, or a combination of both. When the trigger includes a mouse click on screen text, the Bridges client automatically scans the text surrounding the click point.

The text recognition algorithms employed by Bridges are unsurpassed in today's market. The product employs several proprietary methods to ensure automatic text recognition, independent of the active application or location of the click. Any text, anywhere on the screen, can be clicked, for example, in a dialog box, a window title, or a menu. The user does not have to mark or select the text or provide any retrieval parameters.

Bridges scans the text to the left and right of the clicked point and performs a contextual analysis in which the entire context is compared to a corpus index compiled from the enterprise systems and information sources. With the clicked text serving as the anchor, the analysis engine matches all relevant permutations and displays the most prevalent content as the most important information.



The Bridges client has a very simple interface, with just one menu and a few action buttons. Most users find the software intuitive and begin using it immediately after installation with little training, which is commonly provided in an email message or on a dedicated page located on the corporate portal. With Microsoft Internet Explorer as its graphical user interface engine, the client can display images, as well as implement all Java scripts.



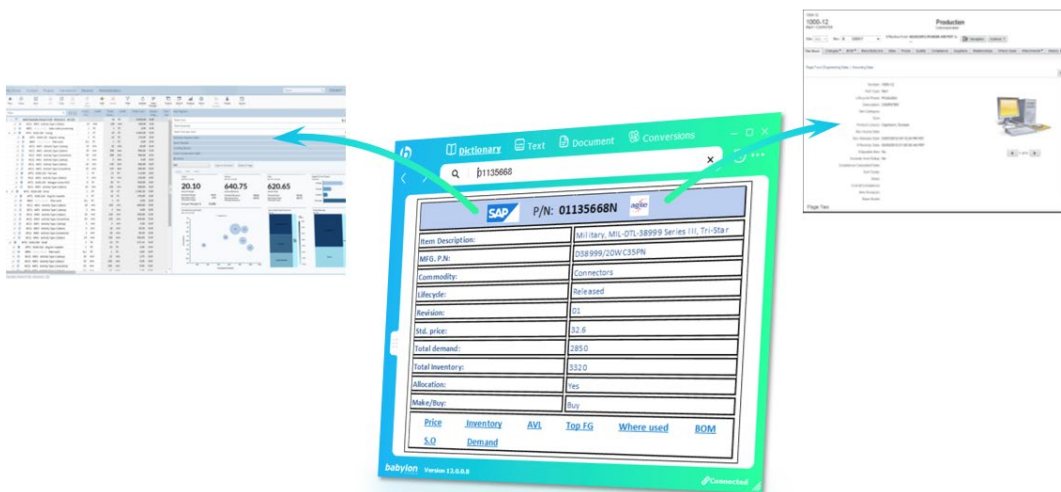
The Bridges client is designed as a resident desktop agent. When not in use, it has little effect on desktop resources, with zero CPU consumption and low memory usage.

Automatic redirection to the corporate system

One of Bridges's most powerful features is the second click. Web-based URLs included in the query results delivered to the client, link the user directly to the source of the information in the original application. This feature can be implemented if the desktop client of the source application supports operating systems shell calls or standard application interfaces. A REST type URL request is commonly used for this purpose.

When the Bridges second click is used with an organization's ERP system, for example, a user click on an order number delivers a synopsis of relevant information together with a hyperlink that takes the user directly to the transaction page via the web browser. The web page loads immediately. This automatically bypasses the tedious process of launching the ERP application, opening a menu, selecting a query page, typing in a query, browsing a set of results to find the requested transaction, and then clicking to load it.

The second click functions according to the security permissions pre-defined for the original application. If the application detects an authenticated session running on the desktop, redirection is instantaneous. If the user is not recognized, the application login screen is displayed. Once the user logs in, he is redirected to the source without any further steps.



Server application

The Bridges server is a set of Windows server components:

1. Web gateway based on an ISAPI module running under Microsoft IIS on a Windows server. This component serves as a mediator that receives information requests from clients, directs them to the server, and delivers results to the client. Communication between the gateway and the clients uses XML/HTTP protocol; between the gateway and other components it is TCP/IP.
2. Windows service running under Windows server. This component performs several functions:
 - ✓ Analyzes queries from clients and retrieves the relevant information.
 - ✓ Synchronizes users' workstations with the information sources defined for them by the system manager.
 - ✓ Manages the enterprise information in a proprietary format. The information is compiled into a set of binary files constructed from data records, each of which comprises two objects: an array of indexes for matching in the click context, and a HTML definition that yields the graphic presentation of content in the client.
3. Data Extractor: A simple ETL tool (extract, transform, load) that accesses the enterprise data sources and then re-indexes the relevant data, which it deploys on the server for access by the clients.

The extractor is a .Net application that works with sets of paired parameters files. One file defines how to access the data source, how to manipulate it to extract the data needed for display, and the HTML template to be used. The other file is an HTML template that defines the structure – the indexes and definition area – of a content record. The template is a standard HTML file that uses dedicated tags to delineate the data.

The concept resembles server-side scripting in which the data layer and the display layer are not mutually dependent. The scripts usually define the structure of one record and the engine runs on the entire set of data to produce the complete record scope.

The data extractor requires no programming or special skills. Basic training takes only two days, and an extraction process can be set up in just a few hours.

The extractor runs on a Windows server and supports the following data sources and protocols:

- Structured text files (comma/tab delimited, fixed position, etc.)
- Microsoft Excel files
- XML files
- ODBC data sources

- OLE/DB data sources
- .Net Data Provider
- Microsoft Active Directory
- LDAP servers
- SAP ERP
- Microsoft SharePoint
- Salesforce.com
- Customized data sources
- Web administration interface allows system administrators to perform management and maintenance tasks from any location.
- Command line administration interface: like the web administration interface but using a command line.
- Packager: a utility for creating client installers with customized defaults

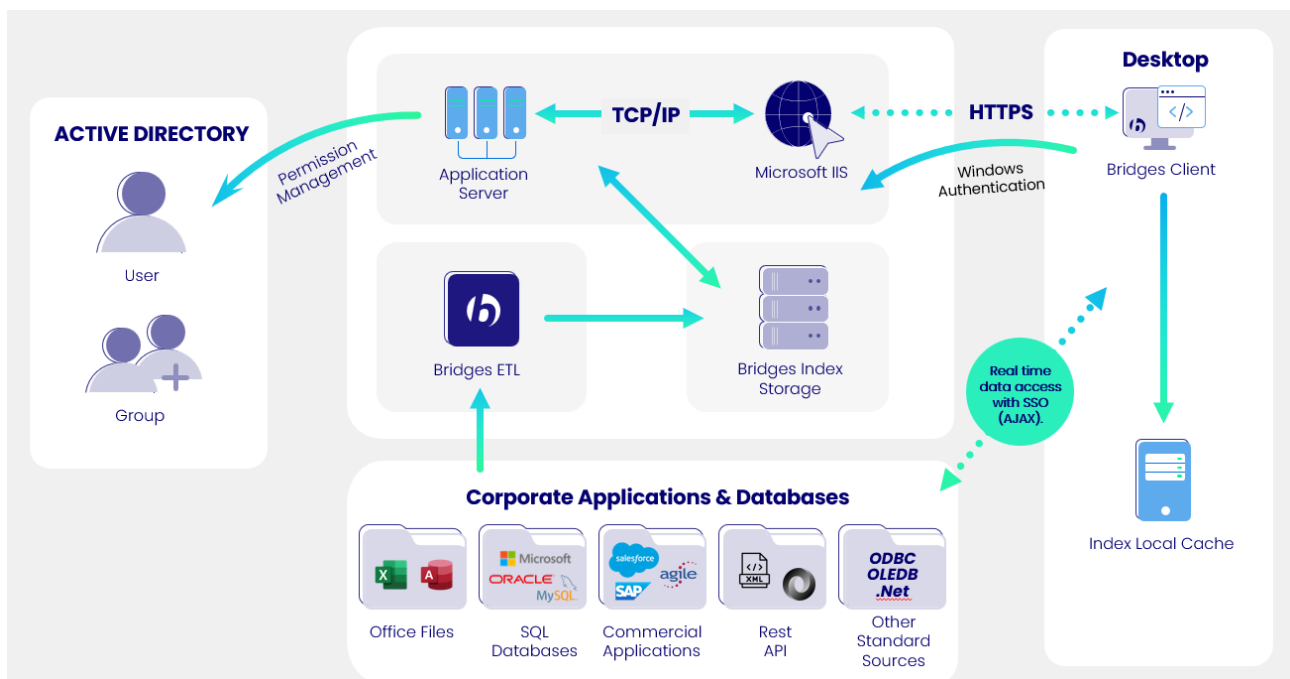
Architecture

The Bridges system is deployed using either of two architectures or a combination of both.

Snapshot Architecture

All information necessary for the system operation is periodically extracted from the organizational information systems at a frequency defined for the solution and stored on the enterprise server as an index file. During regular operation, all clients are served by the Bridges Server and the organization's information systems are not touched.

Access permissions are based on the organization's existing Directory, with each index source allocated to users/groups that are authorized for online access and/or workstation synchronization.



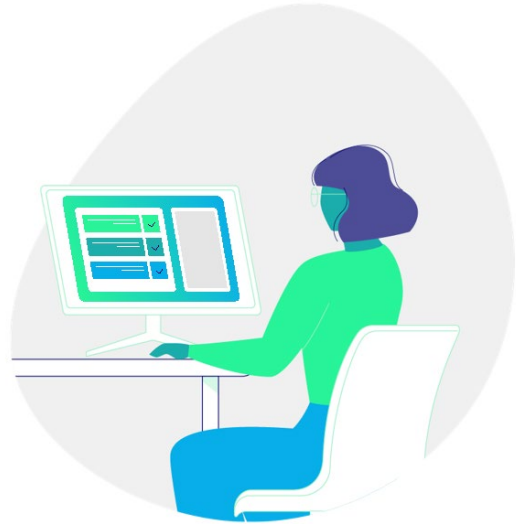
Hybrid Architecture

Information extracted from the organization's information systems contains only the index layer required for a contextual analysis of the text captured by the Bridges client, against the information sources available to the specific user profile. When the server delivers to the client an index of a potential result, the client initiates a recognized AJAX request (requires single sign-on) to the web service. The web service then rejects the request for security reasons or delivers results from one of the organization's information systems according to the user's security context in the specific system.

Note: Single sign-on and the web service is not part of the core product offering.

Putting Bridges to Work

In a landscape of complex implementation projects that may cost millions of dollars and unsettle an entire organization, Bridges stands out as a phenomenon. Bridges can be deployed across an organization within just a few days; the average time invested by customers is less than a month. Moreover, little effort is required by the organization's IT personnel. The implementation does not strain resources or burden management with project issues such as team allocation, managerial assignments, planning tasks, or scheduling.



Implementation

Bridges implementation process can be broken down into four stages:

1. Analysis and design stage

This is the planning stage. In this stage, Bridges's professional staff works together with the customer's application experts. Together they analyse organizational work processes and determine where Bridges will make them more efficient. They then identify the enterprise systems that contain the information needed for these processes.

For each work process to be enhanced by Bridges, the following needs to be defined:

- The indexes that will produce contextual recognition of important terms.
- The specific information to be displayed for each term.
- How the information will be displayed
- The users who are authorized to view the information.

Example: Integrating Bridges with the corporate HR system in conjunction with the corporate portal indexes are defined for this HR system, such as:

<employee company id number>

- <employee governmental id number>
- <last name>
- <last name><space><first name>
- <last name><comma><space><first name>
- <first name><one space><last Name>
- <first name><space><first letter of last name>
- <last name><space><first letter of first name>

HTML code is used to create a template that defines the visual presentation of the information, for example:

<First Name> <Last Name>		
Office phone:	<Office phone>	<Employee picture>
Mobile phone:	<Mobile phone>	
Position:	<Position>	
Email:	<Email with «mailto» hyperlink>	
Department:	<Department>	
Division:	<Division>	
Branch:	<Branch>	
Report to:	<BOS name with Babylon hyperlink to the BOS record>	
Click here to view employee details... <Hyperlink to the employee portal page>		

The functional design is then translated into the technical specifications, or mapping, of the relevant backend components such as databases and XML interfaces. Continuing with the example above, the output of this

stage might look like this:

- System name: HR Master
- Data source type: Oracle 10i DB
- Access protocol: OLE/DB with Microsoft driver
- Server TNS name: hr.world User: hrmain
- Password: xxxxxxxx
- SQL sentence: select * from hr_master Template file: hr.htm
- Architecture: snapshot
- Update schedule: once a week, Sunday, 4AM

The output of this stage is a statement of work (SOW) of the extraction processes that will transform the information into one or more corpus indexes. This stage usually takes from one to three days and briefly requires assistance by the customer’s database administrator and/or IT infrastructure staff.

2. Server installation stage

In this stage the Bridges Server application is installed using an MSI installer.

This stage usually takes less than one hour.

3. Index building stage

In this stage the Bridges Extractor utility extracts the data from the enterprise backend systems as defined in the preceding stages.

This stage is the most significant part of the implementation process and may take anywhere from three days up to three weeks. It also includes the customer acceptance test and one or two cycles of corrections and modifications.

4. Client rollout stage

After all extraction processes have been completed on the server, the Bridges Packager is used to create an MSI client installer.

The MSI file is then distributed to user desktops in whatever manner the organization chooses, such as an Active Directory policy, a login script, or a central distribution tool.

This stage can be completed within days but may take up to a month in a large organization with thousands of employees and locations spread across the globe.



Bridges in the Corporate Landscape

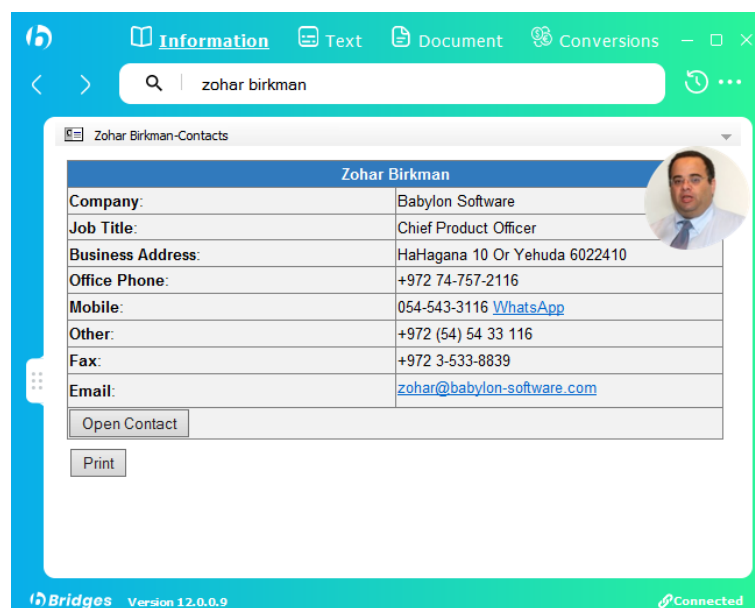
As a bridge between the desktop and backend applications, Bridges can easily fit into many business units and improve work processes and systems. The following examples describe the experiences of actual Bridges customers:

Sales

The sales representatives at a multinational electronic components' distributor were frustrated. To prepare a quotation in response to a customer request, they would typically refer to the company's ERP and CRM systems and price lists, as well as vendor catalogs and databases. The need to access different systems and dispersed resources, for even a simple quote, made their job cumbersome and time-consuming. Once the company deployed Bridges, the sales team gained instant access to information from over 40 enterprise and supplier sources. In a single click, a sales representative could retrieve information such as component prices, inventory and lead times, customer contact details, order history and credit status. Bridges has reduced the time it takes to prepare a quotation from hours to minutes. It has also improved the quality of quotations because it delivers the most up-to-date information.

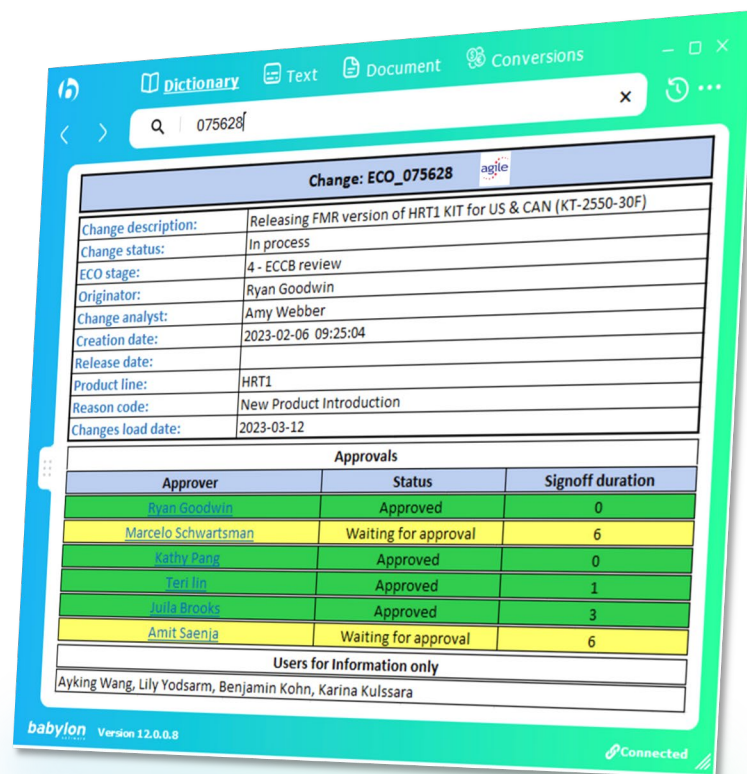
Customer Service

The customer service team needed help following the merger of two communications companies – one is a long-distance call service provider and the other an Internet service provider. Each company was using different CRM systems with completely different interfaces. Training the staff to use both systems proficiently was not an option, since the real problem was the sluggishness of the CRM systems themselves; they were simply consuming precious time and resources during customer calls. With Bridges in place, the customer service team can now retrieve information from either or both CRM systems in a single click and view it in a unified interface and format. Bridges has significantly reduced the average time spent on service calls, lowered call center costs and improved customer satisfaction.



Engineering, Logistics and Sales

A company manufacturing multi-technology products has highly complex development and production-to-delivery processes. To manage these processes, the company uses both PLM (Product Lifecycle Management) and SCM (Supply Chain Management) systems. Users need to have time and skills to work with these complicated systems. Company engineers may know how to use these systems, but want to concentrate on their development work, and dislike the interruption created to access the PLM system. They also complain that some information is available only in the SCM system. On the other hand, salespeople have neither the time nor sufficient training to use either enterprise system, both of which contain data that is invaluable for their daily work. With Bridges, engineers get product data from the PLM system in a fraction of the time, and in a much simpler format, than before. Logistics data from the SCM system is easily retrieved in just one click on a component name or number. Salespeople now enjoy intuitive and quick access to important data, even during the many hours they spend outside the office.



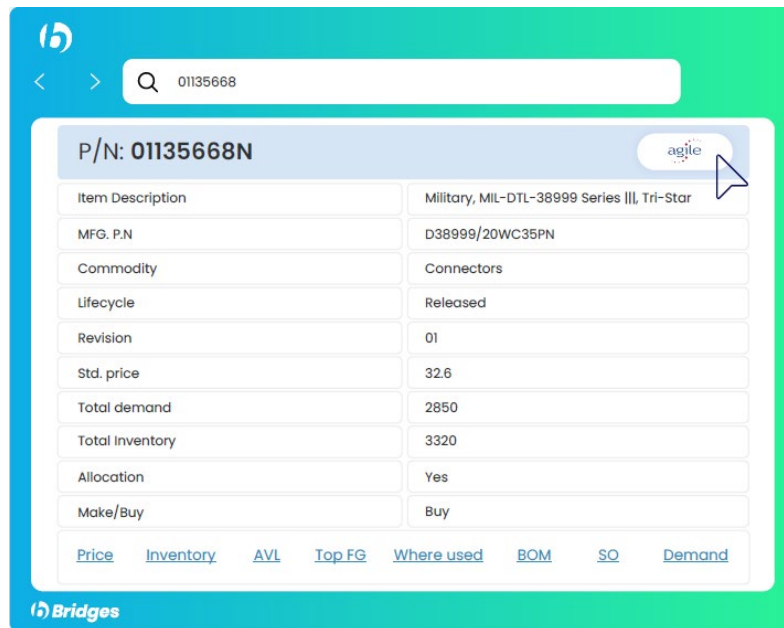
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Change analyst:	Amy Webber	
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Product line:	HRT1	
Reason code:	New Product Introduction	
Changes load date:	2023-03-12	
Approvals		
Approver	Status	Signoff duration
Ryan Goodwin	Approved	0
Marcelo Schwartzman	Waiting for approval	6
Kathy Pang	Approved	0
Teri Jin	Approved	1
Julia Brooks	Approved	3
Amit Saenja	Waiting for approval	6
Users for information only		
Ayking Wang, Lily Yodsarm, Benjamin Kohn, Karina Kulssara		

Bridges Features and Benefits

Knowledge workers and their organizations benefit from Bridges's unique features:

- **Single-Click:** Bridges's most powerful feature is the single-click activation. A click on any text in any Windows application activates the query. Users can use Bridges intuitively and effectively as soon as it is installed, without any training.
- **Unified:** Bridges's single click works like a "master key" to all sources of enterprise data. Users do not need to guess or decide where to look for information, and do not waste time performing tedious cycles of launch–login–navigate–search in each information system.
- **Immediate:** Bridges delivers information instantly. Users rarely wait for results, even when queries are submitted to very large databases or over a network.
- **Relevant:** Bridges analyzes the on-screen context of the clicked text and displays only the most relevant results. Users retrieve relevant results only and do not have to waste time sifting through irrelevant ones.
- **Concise:** Bridges delivers concise results – a synopsis of the information needed by the user. Users are not overwhelmed or confused by too much information or a bewildering array of options.
- **Consistent:** Bridges presents all results in a consistent format. Even when information comes from disparate sources, the results are displayed clearly and uniformly in a single window. Users can easily scan the results and find the information needed.
- **Secure:** Bridges delivers secure information to authorized users and groups according to identities already defined in the organization's system. More users can have access to more information without compromising the integrity or security of enterprise applications and data.
- **Portable:** Bridges enables (secure) offline access to critical enterprise information, supporting a workforce whose desktops frequently extend beyond the desk or office building. Users can remain effective and productive when mobile or temporarily without a connection to the enterprise network.
- **Intrinsic:** Once installed, Bridges is always available, yet never intrusive. It operates (seamlessly) on top of any Windows application, delivering enterprise data directly to the user. Users can remain focused on their task in the active desktop application and maintain workflow without interruption.

- **Merged:** Bridges results include direct links to the data's source application. A click from the Bridges client launches the enterprise application, bringing authorized users to the information in its original location and form, even deep within enterprise systems. Users drill down directly into the enterprise information systems (often in an unconscious effort), thus reducing search time, accelerating application learning curves, reducing training requirements, and increasing utilization of the enterprise systems. Organizations benefit from improved corporate compliance, and better-informed decisions.



- **Straightforward:** Bridges can be easily tested and evaluated before purchase. It can be fully deployed in just a few days. It requires only basic technical skills and does not involve programming. It does not require any software or hardware changes in existing enterprise applications or systems. Organizations will begin to see a return on their investment almost immediately.
- **Expandable:** Once deployed, Bridges can be expanded with additional information sources and enterprise applications, without additional licensing fees. Bridges's administration tools and automatic deployment capabilities minimize system administration efforts. Organizations can easily expand the scope of information sources, and at no additional cost.

Soft Integration of Enterprise Applications

One of the added benefits of Bridges is its proven ability to enable “soft integration” of enterprise applications. Integration of data from disparate systems to better serve employees and the enterprise is a challenge commonly faced by information system managers. These managers need a risk-free solution that is flexible enough to accommodate changing employee needs and gentle enough to avoid impacting existing systems. What they need is a soft integration solution. This is precisely the kind of situation in which Bridges can play a significant and valuable role in an organization. It extracts data from various enterprise systems, creates a unified view of the business entities, and instantly presents the information to users.

Bridges’s soft integration of enterprise applications enables organizations to:

- Keep users connected to a legacy system while upgrading to a new system Consolidate systems because of business mergers and acquisitions.
- Facilitate changes in information systems serving mission-critical business units.
- Reduce the number of applications used at critical junctions, such as call centres and control rooms.

By simply exposing information through its interface, Bridges creates an integrated view of otherwise disparate systems. This “soft integration” of enterprise applications constitutes an attractive and easily achievable alternative to complex and costly enterprise application integration (EAI) projects.



Return on Investment

Studies found that the top performing companies are integrating enterprise and desktop applications and, as a result, are experiencing significant improvements in corporate productivity and profitability.

Not surprisingly, Bridges customers in all sectors and industries have reported the outstanding merits of Bridges and its contribution to the achievement of their business goals. Such merits include improved revenue generation, increased customer satisfaction, greater cost savings, increased corporate efficiency, and better compliance with corporate and external regulations and procedures. Indeed, many of the benefits reported by Bridges customers are the same benefits perceived by the top performing companies in the studies.

- Significantly reduces the time spent searching for information.
- Eliminates the need to switch between the desktop and enterprise applications.
- Reduces learning curves and training requirements for enterprise applications.
- Improves personal productivity.
- Facilitates faster and better problem-solving and decision-making Improves the quality of business decisions and processes.
- Provides a competitive edge.
- Maximizes investments in existing information systems by making enterprise data more accessible.

The convergence of the desktop environment with enterprise applications is vital to improving the productivity of knowledge workers. Already deployed by numerous customers and used by tens of thousands of knowledge workers, Bridges has proven its ability to bridge the gap between the desktop and enterprise applications. With just one click on any text, Bridges delivers relevant information from enterprise information systems to the user's desktop. Knowledge workers get the information they need while remaining focused on their task and without having to divert to other applications. By making knowledge workers more productive, Bridges enables businesses to achieve higher levels of performance and profitability.

Contact Us

For more information on Bridges, visit www.bridges-software.com
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Bridges White Paper

Building Your Data Bridges for Business Success
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