



Overview

Country: United States

Industry: Publishing

Customer Profile

Based in NYC, McGraw-Hill Construction provides print magazines, building product catalogs, and information services for the construction industry worldwide.

Business Situation

Information assets isolated in separate data stores and time-consuming software development hampered introduction of new, customizable information products.

Solution

An online information services platform built on the Microsoft® .NET Framework created customized customer-defined views of construction information and integrated data housed in previously isolated databases.

Benefits

- Increased revenue potential for McGraw-Hill Construction and its partners
- Lower product development and distribution costs
- Improved customer satisfaction and partner loyalty
- Extensible, scalable product development platform
- Reduced hardware costs and total cost of ownership

McGraw-Hill Construction Transforms Business with Integrated Information Services Platform

“By changing our value proposition to offer our customers construction-related information and services in the context of their individual needs, we can help them improve their own business agility and better inform the industry as a whole.”

Norbert W. Young Jr., President, McGraw-Hill Construction

McGraw-Hill Construction transformed its information service business by connecting isolated data assets, repurposing existing information products, and developing new products and services on a Microsoft® .NET-connected Web service architecture. Support for XML-based Web services built into all applications and tools that use the Microsoft .NET Framework promotes cost-effective data reuse and exchange, and enables the company to provide customer-defined information to individual subscribers. With these new capabilities, McGraw-Hill Construction can drive new revenue from new products and services, help individual construction-related firms to increase their business agility, and help the construction industry to integrate stores of information related to projects, products, and people.

“The goal of our partnership with Microsoft is to increase revenue opportunities by enabling McGraw-Hill Construction information to be more easily interrelated and consumed by our existing applications, third-party applications, and desktop applications such as Microsoft Office.”

Norbert W. Young Jr.
President
McGraw-Hill Construction

Situation

McGraw-Hill Construction, a business unit of McGraw-Hill Publishing, has served the domestic construction industry since 1882 by offering information products that the industry depends on for timely and accurate information. Periodicals such as *Architectural Record* and *Engineering News Record*, catalogs such as Sweets for construction industry products, and market intelligence such as the Dodge Report for local construction industry news provide the information backbone relied on by architects, engineers, contractors, building product manufacturers, and facility owners.

With construction-related revenue of nearly U.S.\$300 billion (more than 8 percent of the U.S. gross domestic product) and more than 1.25 million construction-related companies, (90 percent of which have 10 or fewer employees), the industry is inextricably based on local economies and industry cycles, which directly impact McGraw-Hill Construction revenue.

Timely and accurate local, regional, and national construction-related information is the lifeblood of the industry for small and large firms in all markets. Without it, contractors couldn't track local projects and know what to bid, architects and engineers would have difficulty sourcing product information and pricing, and facility owners would have difficulty obtaining the information they need to operate and maintain their buildings when construction is completed.

A comprehensive and authoritative source for construction-related information, McGraw-Hill Construction found its leadership role challenged by the Internet, which enabled industry users to access construction-related websites directly. For example, an architect could access the site of a lighting fixture manufacturer, obtain the product-specific information needed, and effectively bypass the Sweets print catalog. Similar scenarios

were experienced in various McGraw-Hill Construction information products and trade publications.

It's not that McGraw-Hill Construction didn't have the information – they did. But it was stored in unconnected databases, using different applications and computing systems. The lack of integration made it virtually impossible to provide all the data in a single view and group it in a way that was relevant, timely, usable, and most importantly salable to construction-related customers.

To maintain a leadership position and reinvigorate its trusted brand, McGraw-Hill Construction knew that an innovative approach to repurposing its intellectual property—one that made it available in multiple forms to multiple market segments using multiple distribution channels and at variable customer-specific price points—would be necessary.

McGraw-Hill Construction looked to information technology to help change how the business created and delivered information products. The company decided that a solution based on Web services (packets of business functionality made available to customers over the Internet) could help maintain a leadership position and grow bottom-line revenue by reestablishing McGraw-Hill's value proposition to customers.

Because all of the business's back-end IT operations were based on non-Microsoft technologies, McGraw-Hill Construction initially opted to develop a solution using the Java development environment. After two years of unsuccessful in-house development, the company turned to Microsoft to help make the vision a reality. Ultimately the company chose to use software based on the Microsoft® .NET Framework as both a development platform and a runtime environment.

“We are now enabled to significantly outperform our competition by delivering the right content in the right services in the right user context.”

John Marshall
Vice President for Product Development
McGraw-Hill Construction

Norbert W. Young Jr., President of McGraw-Hill Construction, explains the vision: “From project and product information to industry news, trends, and forecasts, we provide industry players the tools and resources that help them save time, money, and energy. The goal of our partnership with Microsoft is to increase revenue opportunities by enabling McGraw-Hill Construction information to be more easily interrelated and consumed by our existing applications, third-party applications, and desktop applications such as Microsoft Office, CAD [computer-aided design] tools, and other industry-standard applications. By changing our value proposition to offer our customers construction-related information and services in the context of their individual needs, we can help them improve their own business agility and better inform the industry as a whole.”

Solution

McGraw-Hill Construction based its new information platform on software built on Microsoft .NET Framework version 1.1. The company developed an architecture that uses XML-based Web services as a common

industry line-of-business applications and Microsoft Office System programs.

This approach uses Microsoft .NET Passport to provide single sign on to all online information services provided by McGraw-Hill Construction. The platform enables subscribers to receive customizable personal alerts that identify when specified information has been updated and then download that information directly to the PC desktop. Then, by using familiar industry applications such as construction project estimating, project management, supplier management, or Microsoft Office programs, users can manipulate and transform the data into relevant, usable, and actionable information. Familiar Microsoft Office programs such as Microsoft Project, Word, Excel, and Visio® integrate easily with the information services provided by the McGraw-Hill Construction platform.

Figure 1 provides a conceptual model of how the new Web service-based architecture helps to connect construction industry players, projects, and products.

The company unveiled the McGraw-Hill Construction Network to the industry in July 2003 and released the Business Product Manufacturer Network and Architect and Engineer Network in fall 2003. The company will release its Facilities Owner Network offering in 2004.

McGraw-Hill Construction used a five-element solution to manage the transition to the Web service-based development and distribution system.

Easier Internet-based access to existing products and services. Tagging existing applications and information assets with XML enables Web services created by McGraw-Hill Construction and its partners to work with the company’s existing Internet-based information products easily and efficiently.

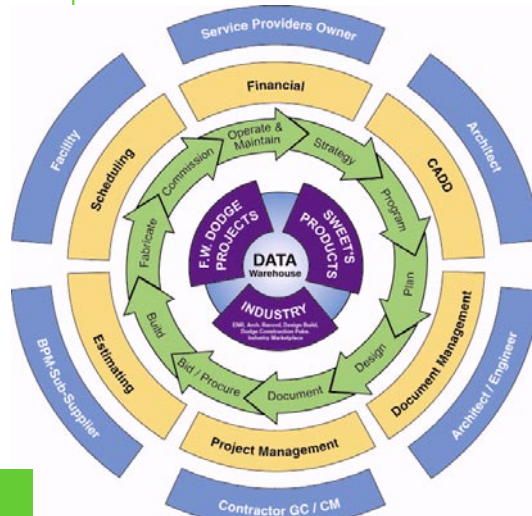


Figure 1: McGraw-Hill Construction information service platform

platform for development and distribution and that integrates standard construction

“Timelier customer feedback alerts us to when we need to change product emphasis, and redirecting development efforts requires little time. We’ve become more agile, lowered the cost of producing new products, and become more responsive to customer business requirements.”

Brian Tonry
Director of Business Development
McGraw-Hill Construction

New product and service offerings developed as XML-based Web services. Microsoft Visual Studio® .NET provides company developers with an integrated, industry-standard development environment and a proven programming methodology that other Web service technologies could not provide. By using the capabilities of Visual Studio .NET and the Microsoft .NET Framework, company developers could concentrate on programming business solutions rather than creating an underlying programming framework. Web Parts (reusable Web service components) provided developers with functional building blocks that can be reconfigured in virtually any combination to create new products. This approach helped company developers to combine simple Web services into more complex, personalized, and higher-value products with minimal effort.

Interconnected product databases. The ability of XML-tagged documents to classify and locate related information enabled the company’s Web services to connect previously isolated product databases. This approach made it possible for subscribers to search for related information throughout McGraw-Hill Construction’s website.

Personalized information services. Replacing the company’s existing Sun UNIX-based e-commerce server with Microsoft Commerce Server, part of Windows Server System™, enables McGraw-Hill Construction to track and profile customers more easily and manage the information that the company needs to develop, personalize, and distribute to a global network of subscribers and business partners.

Value-added products and partner applications. The ability of Web services to describe, locate, and connect to applications created with virtually any computer language or hardware platform makes the company’s information products universally accessible online. This approach also enables McGraw-

Hill Construction to introduce value-added services to the applications of third-party software manufacturers and information service providers.

John Marshall, Vice President for Product Development at McGraw-Hill Construction, says, “We are now enabled to significantly outperform our competition by delivering the right content in the right services in the right user context. We can optimize the value of all of our information assets in a way that had not been possible previously. It will be a catalyst in changing our corporate culture from one based on silos of information to a more holistic, customer-centric business model. We expect our customers to benefit by gaining greater value from the products and services they consume, from better overall service, and from greatly improved product support.”

Benefits

An online content development and distribution system based on Web services enabled McGraw-Hill Construction to:

- Optimize the use of isolated silos of information cost effectively
- Provide subscribers with more relevant, valuable, and usable products and services
- Establish an online platform that encourages industry-wide collaboration and data sharing

Optimal Use of Intellectual Property Increases Revenue Potential

Before McGraw-Hill Construction deployed the new development and distribution platform, information assets were developed as stand-alone products. Data relevant to each product was stored in isolated databases, used different data formats, and usually targeted single market segments. Lack of a common data format prevented the effective reuse and repackaging of the information for new products and target audiences.

“Improved agility and rapid prototyping and piloting of new products are valuable benefits of using Microsoft .NET. We can get products to market quickly. We’re not developing a new methodology and writing new code every time we develop a new product.”

Jim King
Chief Information Officer
Information and Media Division
McGraw-Hill Publishing

The Web service architecture provides McGraw-Hill Construction with greater business agility by helping the company reuse and reconfigure existing information assets into new products and services. This approach helps the company to meet customer needs and quickly respond to changes in market conditions. As a result, McGraw-Hill Construction anticipates new revenue from the introduction of higher-value products through new partner-centric channels.

McGraw-Hill Construction completed a pilot project in spring 2002 with more than 100 participants in the U.S. Midwest. All participants were given a free basic subscription to construction.com, the company’s website. After experimenting with the free subscription, approximately two-thirds of the participants elected to upgrade to a premium service. This service charged an annual subscription fee of \$120 to \$700, depending on the customer profile.

This high conversion rate demonstrated to McGraw-Hill Construction that, given the right mix of information, customization, and timeliness, a significant majority of free subscribers were willing to pay a premium for simplicity, easy access to data, and additional time savings. If the average subscription upgrade was valued at only \$200 and if only 10 percent of the industry’s 1.25 million U.S.-based construction companies elected to subscribe, the additional revenue to the company would be quite substantial.

Future efforts to extend the company’s value chain will focus on developing additional distribution channels, using:

- Microsoft Business Solutions–Great Plains® software to address business process requirements
- Microsoft Business Solutions–Navision® software for integrated business management solutions

- Microsoft bCentral™ small-business portal to complement existing business systems and extend them to the Internet
- Microsoft MapPoint® Web service to integrate mapping services with local project information on selected mobile devices
- Microsoft SharePoint™ technologies to create team collaboration workspaces that help to improve productivity

Brian Tonry, Director of Business Development at McGraw-Hill Construction, notes, “The new Web service architecture provides us with a huge benefit that wasn’t available in our previous product-centered culture. Now, when we identify a new market opportunity, product development is less expensive and time consuming, so we can get to market very quickly. Timelier customer feedback alerts us to when we need to change product emphasis, and redirecting development efforts requires little time. We’ve become more agile, lowered the cost of producing new products, and become more responsive to customer business requirements.”

Integrated Development Environment Speeds Time-to-Market

Before deployment of the new Microsoft .NET Framework–based architecture, ad hoc software development methods contributed to the high cost of producing new McGraw-Hill Construction information products. Software development required highly specialized—and expensive—programming skills. Company developers had to define new programming standards and debugging procedures for each new product. The software development process lacked ongoing methods of documenting, saving, and reusing useful pieces of programming code. These limitations made the product development process slow and costly, and often changes to content and distribution posed a high risk of breaking existing systems.

“Our .NET Framework-based services platform provides the ability we need to identify subscriber needs and deliver personalized products and services.”

Brian Tonry
Director of Business Development
McGraw-Hill Construction

Visual Studio .NET and the Framework provide an integrated development environment that enables McGraw-Hill Construction to:

- **Reduce software development effort.** The off-the-shelf development environment provided immediate usability and has virtually eliminated the time that developers previously spent defining and creating less systematic programming methods.
- **Accelerate time-to-market with new products.** Company developers required only two months to learn how to program using the Framework and less than five months to re-create the company's existing online products and develop the new Web service architecture. By using reusable code and an established development infrastructure, McGraw-Hill Construction developers can create and test new products in as little as six to eight weeks. For example, integrating Microsoft MapPoint into an existing product required only five days.
- **Integrate with legacy applications and computing systems.** The Web service-based architecture enables applications built on different systems to easily and simply communicate with each other. Microsoft .NET technologies provide a thin integration layer between the old and new systems. As a result, McGraw-Hill Construction continues to use its existing IT systems without significant modification or a “rip-and-replace” scenario. This approach accelerates the product development cycle and lowers overall cost of ownership.

Jim King, Chief Information Officer for the Information and Media Division of McGraw-Hill Publishing, explains, “Improved agility and rapid prototyping and piloting of new products are valuable benefits of using Microsoft .NET. We can get products to market quickly. We're not developing a new

methodology and writing new code every time we develop a new product. These advantages reduce the costs of new ventures, and there's much less risk in developing something new because we are not committing a lot of resources to build a new product and see how well it works. We are able to build new products faster, better, and with fewer resources.”

Personalized Products Improve Customer Satisfaction and Retention

Before the introduction of Web services, customers visited the previous McGraw-Hill Construction website or used the company's print products to find specific information. Customers had to subscribe to and log on to each service separately. This limited the types of information that subscribers had access to and made searching for products a time-consuming process. Customers couldn't tailor the product to their specific needs, the licensing model was complex, and the location-specific information was complicated to use.

Customizing products to specific audiences helps McGraw-Hill Construction to increase the relevance of its products to subscribers, which increases customer satisfaction and retention. By linking product databases and using the Microsoft .NET Passport service, McGraw-Hill Construction provides customers with one-click access to the site and its cross-product search capabilities.

Embedding Web services into desktop and partner line-of-business applications enabled the company to provide customers with simpler, more immediate access to a wider variety of services. For example, even if architects are not subscribers to construction.com, they can be offered the same service as they work in AutoCAD, a drawing and modeling software program developed by AutoDesk. After signing up for an appropriate McGraw-Hill Construction product, architects can use Web services to

embed search tools into the Sweets building product catalog and use a personally chosen set of criteria to search its contents.

McGraw-Hill Construction also can offer personalized consulting services based on Web service customer profiles and eventually can extend beyond traditional information publishing by offering professional services that are based on those available on construction.com.

“One size fits all’ no longer applies,” says Tonry. “Now personalized information is the key. We want to provide each of our subscribers with the content they need, delivered in the context that they need it. We have this vision for all of our subscribers, regardless of how big or small a player they are in the industry. Our Microsoft .NET Framework-based services platform provides the ability we need to identify subscriber needs and deliver personalized products and services. We can now target selected subscriber audiences with the information services they value, which helps us penetrate market segments that we could not reach previously.”

More Sophisticated Marketing Helps Partners Gain New Revenue

Given the global use of Microsoft Office programs, it is a natural extension to integrate partner applications on the subscriber’s desktop by using a Web service-based solution. For example, using Microsoft Excel as the front end for estimating and bidding projects helps Office users to work easily in a specialized application, gather the location-specific data needed to bid on a local construction project, and integrate it into a standard format.

Forming strategic alliances with third-party application developers and information providers helps to increase revenue-producing opportunities for partners. McGraw-Hill Construction has developed a software developer kit to encourage

independent software vendors to develop products and services that can be easily integrated into construction.com’s Web service environment.

Industry-Wide Platform Delivers Trusted Information

In spite of technical advances, productivity in the construction industry has improved at a relatively slower pace than in other U.S. industries. In part, this is due to isolated productivity gains, in which each group of industry players optimizes its own processes but doesn’t readily share information with other groups. More efficient collaboration and communication has improved productivity within individual steps of construction project workflow but not as much within the industry overall.

Norbert W. Young Jr. explains how McGraw-Hill Construction’s new solution addresses this problem: “We believe that, with construction.com, we can create a secure environment in which all industry players can feel comfortable releasing intellectual property to each other so that all parties can be effective without compromising anyone else’s ability to do business. By becoming a trusted, technology-neutral information source and connecting products, projects, and people, we hope to encourage greater collaboration and information sharing throughout the construction industry, resulting in better resource optimization and improved efficiency for everyone.”

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234 in the United States or (905) 568-9641 in Canada. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to: <http://www.microsoft.com>

For more information about Xerox Global Services products and services, call (800) 275-9376 or visit the Web site at: <http://www.xerox.com/globalservices>

For more information about McGraw-Hill Construction products and services, visit the Web site at: <http://www.construction.com>

Microsoft Windows Server System

Microsoft Windows Server System is a comprehensive, integrated, and interoperable server infrastructure that helps reduce the complexity and costs of building, deploying, connecting, and operating agile business solutions. Windows Server System helps customers create new value for their business through the strategic use of their IT assets. With the Windows Server™ operating system as its foundation, Windows Server System delivers dependable infrastructure for data management and analysis; enterprise integration; customer, partner, and employee portals; business process automation; communications and collaboration; and core IT operations including security, deployment, and system management. For more information about Windows Server System, go to: <http://www.microsoft.com/windowsserversystem>

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Software and Services

■ Products

- Microsoft Windows® 2000 Server
- Microsoft Commerce Server 2002
- Microsoft Office SharePoint Portal Server 2003
- Microsoft Project Server 2002
- Microsoft Office Visio 2003
- Microsoft Office XP Professional

- Microsoft Project 2002
- Microsoft Visual Studio .NET 2003
- Technologies
 - Microsoft MapPoint Web service
 - Microsoft .NET Framework
 - Microsoft .NET Passport
 - Microsoft Windows SharePoint Services
 - Web services