eSteel: A New Business Model

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The recent mergers of Internet companies like Netscape with America Online and Excite with @Home shows us that embracing fast change is the core of our new Internet-based economy.

Forward thinking companies in our industry are embracing change by using Internet-based, project Web sites (called project extranets) to communicate project information in a fast, cost effective, and efficient manner. Spurred by the adoption of digital information throughout the construction process and the need for better information management and project control, project extranets can leverage your firm's presence on the World Wide Web beyond marketing purposes by allowing authorized people access to specific project information on a secure Web site. These web sites act as your project's homepage where you can put drawing files, specifications, cut sheets and perform certain project specific tasks, such as Requests For Information or Shop Drawing logs. Reasons to consider using a project-specific website include:

- To reduce communication errors among project team members.
- To capture up-to-the-minute intelligence on all the decisions and collective information relating to a project.
- To cut the cost of FedEx, messengers, copies, and blueprints.
- Because you can customize it for each project and each team member
- Because of its ubiquitous accessibility.
- Because of its security.

There are choices in implementing an extranet. A company may elect to host a project extranet system internally within its own computer systems, outsource the maintenance of the system to a commercial solution provider, or, at the client's request, upload project information into the client's project extranet. Although a few of the larger metal companies run their own product-specific websites as a value added service, most do not have the technical, financial, or human resources required to successfully operate such a site internally. Therefore they turn to the growing cadre of commercial providers who offer e-commerce services, or they become part of the project team participating in the client's own project-specific website.

Using a commercial project extranet service is similar to using online services like America Online, meaning that you pay for the use of the service on a monthly basis. The difference is that you use the extranet service's software products that are focused on our industry's needs. This has huge benefits concerning maintenance and upgrades, but you are giving up control of instant access to your information because it is on the Web. If you or anyone else on your project team has trouble getting online, you will have difficulty accessing project information. Project extranets are for communicating information, not just creating it. Project extranets contain 'published' project information, which means project team members, like contractors, do not need to have AutoCAD to view, print, or redline AutoCAD drawings. The project extranet takes care of this for you. Project extranets give limited customization options that allow you to name the project, input contact information for each project team member, and upload project information. All provider services keep back-up copies of your project information, so that it will always be available on the Net.

Choosing an Extranet

Choosing which project extranet is right for your firm has been difficult due to the amount of different features and costs these systems provide. In 1999, Bob Shultz, AIA, of California State University, published a project extranet product matrix that can help designers choose which extranet can work for them. This report is available for free on the Web (www.integrated-aec.com). It cuts through the marketing hype to provide an independent view of what you can expect from these extranet service/products and how much you can expect to spend.

The CSU report has some feature comparisons that may not seem immediately relevant to you. The most important features that you should be aware of:

Pricing: The pricing measurement of the extranet service was put at 20 users for a period of 2 years for one project.

This gave a benchmark to the confusing array of pricing structures. The least expensive extranet service was Evolv's ProjectCenter (www.evolv.com) at $4,536 ($189 per month, unlimited users). Evolv was even cheaper when taking the discount for AIA members ($139 per month). The most expensive is Collaborative Structures' First Line (www.costructures.com) at $43,500 ($1,500 per month, 30 users). The average for all extranet services was $21,823 for 2 years, 20 users (approx. $900 per month).

Database Engine: A firm that captures design information in a database can re-use this information better and easier than a firm that does not. AdvantageNet (www.emergingsolutions.com) and eBuilder (www.mpinteractive.com) use Microsoft's SQL Server; Evolv, Bidcom (www.bidcom.com) and Blueline/Online (www.bluelineonline.com) use the popular Oracle database; AdvantageWare (www.infoad.com), Collaborative Structures and ProjectEdge (www.projectedge.com) use Lotus Notes and/or Lotus Domino (a Notes web-publishing product). Which database to use depends on the preference of the firm. Using an open database like SQL or Oracle can provide greater flexibility for project information in the future (like generating multiple post-project reports). Lotus Notes (Domino) can provide a good structure to project information but can be problematic in future uses. The bottom line is that databases are an important element in choosing an extranet service and an examination of how the project information is going to be re-used will decide which database is best for you.

Server-based File Conversion: Allows a file that is created in one program, like AutoCAD or WordPerfect, to be viewed through a browser in a computer that doesn't have AutoCAD or WordPerfect. Only eBuilder, Evolv and Blueline/Online provide this important service.

Browser Plug-ins: Not the best method for viewing Web information. It requires the end-user to install a software program (plug-in). eBuilder and Evolv require the WHIP! Plug-in to view drawing AutoCAD files, and all services require the Adobe Acrobat plug-in to view popular Adobe PDF files.

Document Version Tracking: Follows and publishes a document's revision level. Bidcom, Collaborative Structures and ProjectEdge support this service.

Messaging: The ability to use a design

firm's existing e-mail system and/or external devices like pagers, PalmPilots, etc. All services support existing e-mail systems with AdvantageWare, Bidcom, eBuilder and ProjectEdge also supporting pager notification. AdvantageWare also supports a slick PalmPilot interface. AdvantageWare, ProjectEdge and Blueline/Online support faxing.

Businesses have a tough task in choosing an extranet service solution. From this CSU report, it can be concluded that for project's that are price sensitive, Evolv's ProjectCenter has the best service for the money. For projects that require more robust features where price is not as important, Bidcom, eBuilder and Blueline/Online have the edge. And for projects that are required by clients to use a Notes environment, ProjectEdge and AdvantageWare are the leaders in this market.

No matter how you choose to implement your project extranet, one thing is certain: Your clients are adopting these technologies at a rapid pace and are expecting you to use them on their projects. For example, 3Com Corporation recently completed $450 million in global construction projects being run on the web through their own project extranets. They required all members of the project team to have Internet connectivity and use basic Information Age communication tools, such as e-mail. Why did 3Com requiring these skills and tools? Because it saves them an enormous amount of time and money during the design and construction phase of their buildings. More importantly, they can reuse this captured information to operate and maintain their newly constructed buildings throughout their lifecycles.

But there are inherent problems associated with project extranet usage. 3Com quickly learned that not all of their project teams had e-mail or access to the Internet, thus keeping those team members offline and out of the loop. At certain moments, getting connected to the project extranet Web site was slow or was entirely offline due to heavy Internet traffic or service problems. In addition, certain contractors wanted to use extranet services they were used to; the architect wanted to use their preferred extranet service and the architect wanted to use their extranet solution. Which service does one choose when face with this multiple extranet dilemma? This questioning of the very usefulness of these extranet systems are providing dark clouds over the horizon for existing project extranets.

Project Portals

To alleviate the growing problem of which service to choose, the concept of portals is emerging. The concept grows out of the popular search engine Web sites su;ch as Yahoo! (www.yahoo.com), Excite (www.excite.com) and Lycos (www.lycos.com), that allow users to customize the information that they want to see. After choosing which items you would like to see each time you access that Web site, this information is published for you in the way you want. The problem with these mass market portals is that you can only choose the information that each service can provide, meaning that you can choose to always view your favorite sports news, local news, industry news and weather, but this falls short of being useful in everyday information needs, like project information or order fulfillment. Providing just the information that you need in the way that you wish to view it is the basic concept behind Project Portals. First introduced in corporate environments through products like MyEureka, by Information Advantage (www.infoadvan.com), portals for our industry are becoming a necessity rather than a luxury. By providing a consistent look to your information, you can diffuse the major problem that many of us face concerning the 'extranet question'—which one to use. No matter which extranet service is used, you can access the published project information from these services from the comfort of your own portal. Personalized project portals can be created to 'push' project information to your portal that you need to act on or be made aware of. This saves an enormous amount of time and effort in regards to having to learn multiple project extranet systems and then drilling down into each project, just to see if the information in the specific extranet pertains to you. Blueline/Online, one of the pioneering project extranet systems, is beginning to migrate to this approach by renaming its initial screen as a 'project portal'.

Autodesk entering market

As fast as project extranet services (and portals) have emerged on the scene, we are now witnessing an even faster consolidation of these extranet services. Autodesk, the market leader in CAD software and the number four software manufacturer in the world, has recently announced the exploration of entering the subscriber-based project extranet market. Called Buzzsaw.com, Autodesk's extranet is bound to not only validate the

extranet market, but Autodesk will also command an immediate, large initial market share due to their enormous installed base of users. Because of this, numerous extranet companies are beginning to discuss possible mergers or alliances to combat what they consider a huge competitor entering their space. As these services mature, expect that your product and service will have to integrate into these "Supply Chain" information systems for you to remain competitive.

Beyond Project Management

To be a truly integrated and useful system that can benefit your business, project extranets must grow beyond the 'low hanging fruit' of project management (PM) in order to survive. An architectural firm provides many services beyond PM in its daily workflow with CAD being its mission critical application. The extranet systems that provide other services like order fulfillment, scrap sales and e-commerce transactions, through its system will become the new desktops for our industry. The ability to not only run project management functions via an Internet-based subscription model, but also transaction-based applications has staggering consequences for the industry. These convergences of applications within a Web browser can be best described as your new desktop. For those of you who are not endeared to Microsoft and the monopoly it has over the computer world, this breakthrough of not having to use Windows or Windows-based products in order to operate is creating a euphoric response.

Project extranets have evolved in a very fast manner and has created as many issues as it has answered. A firm's ability to control its project information through an extranet system can provide a foundation for future re-use of data. By using extranets, a firm is creating vertical data silos that contain project information. A firm can create reporting tools that can look horizontally through these silos of information for trends, scenarios and general firm intelligence. This powerful system design will be the differentiating factor between one business and another as we move forward in this Internet-based economy.

Working in the Blur

One of the derivative challenges before our profession is not just "What" to adapt to in today's fast changing business environment, but "How" and "When". In the book, "Blur: The Speed Of Change in the Connected Economy"

by Stan Davis and Christopher Meyer, they point out that a "Blur" occurs in business when the speed of change is accelerating due to increased electronic connectivity, which increases the value of the intangible. This brings about a merging and blending of products and services. One example is the Project Specific Web Site (Extranet) service providers that are selling this service/software product to us to help manage our projects online without the Information Technology overhead.

Davis and Meyer breakdown this concept into the following:

Speed - Not just the rate of innovation but the speed at which things happen.

Connectivity - Increased number of things interrelated.

Intangibles - Have a greater impact on all our consumer/business decisions.

Blur - Blurring of familiar categories, such as the distinction between service and product-based businesses.

To understand and meet the needs of the Blur environment, it helps to breakdown the Corporate Workplace into 3 categories of action:

Culture – Known as Corporate Instinct, it is the hardest to measure and to implement change but the most lucrative. McKinsey & Co., Arthur Andersen and other management consultants have built an industry concentrating on this category.

Technology – The Web browser is now the standard corporate Information. Technology (IT) tool and environment. If your information can't be used within a Web environment, you will be out of the "Loop".

Environment – Built environment issues are being examined more closely as e-commerce becomes a reality for most clients and the perception of physical space begins to transform into a different reality.

To tie all of these concepts together, you must design your business to meet the needs of your clients with the following environments of discovery:

Knowledge Management – Information Technology (IT) systems are designed and built to meet the anticipated needs of users, but Knowledge Management (KM) environments are designed and built to meet the unanticipated needs of users.

Building Information Life-Cycle - Facility data is transforming into four basic modules:

Data Acquisition – Laptops, PalmPilots, Web browsers, Java, Databases

Data Access – Project Extranets, Corporate Intranets, Middleware

Data Management – Document Management, Groupware

Data Leverage - Knowledge Management environments, linking disparate data (CAD, SAP/R3, PeopleSoft, etc.) for analysis and decision-making

By becoming a by-product of new ways of doing business, the information technology tools, like the extranet, become transparent to the process, thus feeding a knowledge base in a natural way. The ability to understand the relationships between organizational culture and needs, information technology implementation and the physical environment that is created from these processes can open new opportunities and challenges to the world of the knowledge based built environment.

Capital—New Forms

The New Economy is providing a new valuation to what we have traditionally considered capital. Money is still the measurement for which we gauge success, wealth, and power. But as we enter this new environment and economy of work, we are even more cognizant of the value of time. The business process re-engineering of the past 10 years in corporate America was performed on the belief that you could take a chunk of time out of any system, even without using computers and networks. But our investment over the past five to eight years in information technology is about to pay off by integrating work redesign and the digital revolution, combining to meet the competitive imperative of speed. As we move further into the "DotCom" world, you attach a supercharger to speed as a competitive weapon. The difference between those who get it and those who don't is no longer incremental, it's a quantum leap. There are those that create information and those who create valuable information. The firm that harnesses the output of digital data to speed up its operations is going to outperform competitors, create new standards and make a lot of money. To bring your firm up to "speed", your firm must be doing three strategic items well:

- Understand what you do well
- How do you use what you know
- How fast you can learn something new

Combining these three strategic items

with the three new areas of capitalization, you create Velocity. The three new areas of capitalization are:

Intellectual Capital – Brainpower of a firm put into an explicit, transferable form.

Human Capital – Sometimes called culture, is the value of a company's relationships and tacit knowledge. It is the accumulated, but articulated, experience that guides both large and small decisions.

Structural Capital – Standard business process, systems and policies that represent the accumulation of experience, expertise and learning by many people, over many years.

The importance of Velocity means a shift from relying on prediction, foresight and planning to building in flexibility, courage and faster reflexes. As businesses manage their way through these uncharted waters, the traditional systems will work harder and harder to maintain their ways. But the old way of working is not sustainable.

The Internet-enabled, GenX teams that are forming within the industry are not just working differently, they are thinking differently. The number one capital that this generation understands it possesses is their attention. Attention Capital is becoming the most powerful yet hardest to manage capital in the world of Team GenX. If you are a business leader in today's world, make sure you are continually absorbing the new ways of thinking and take Team GenX seriously because extinct is forever.

An aptitude of change and growth between generations is the single biggest challenge to the industry. Modeling information flow through firm intranets can be a first enabler to help bring the people that have experience and those who understand the New Economy closer together to do great things. The knowledge transfer of Intellectual, Human and Structural capital will need to be encouraged, enabled, and managed in order for firms to transition into the New Economy from the Industrial Economy.

The New Economy

Buckminster Fuller said, "By the Year 2000, mankind will have destroyed itself or used its brain in a very big way". Well, we're still here and we are using our brains in a very big way.

Welcome yourself to the New Economy of the DotCom world. It's a world where the combination of business and Online creates a new high contact sport. Meaning you cannot so business for the Online world offline. Our New Economy has created a challenging intersection of speed and an increased value of the intangible. Your value proposition today is about delivering intangibles.

Your work today is not about delivering steel products, designing structures or decreasing scrap. This new world is not about embracing technology because it doesn't hug back. Computers are not about computing; they are about communicating. Today's world is about bucking conventional wisdom and embracing the velocity of change. Technology tools like e-mail and the Web have provided this change of focus from technology to information, making access to information easy and transparent. Our new digital challenge is to create valuable information content and provide them into comprehensible packages of knowledge. This creates not just information resources, but knowledge models that we can connect into a growing system from which we can learn. It's not about just producing faster, but how fast a company can understand its decisions and learn something new. This puts a larger emphasis on post-mortem meetings, analysis and communication. In essence, creating a mix of atoms and bits that emerges into a knowledge management system.

The organization that harnesses the output of digital data to speed up its operations is going to outperform competitors, create new standards, and be more successful. In the past slowness protected market segments. Today, the difference between those who use speed and those who don't is no longer incremental it is a quantum leap.

What are the trends and new metrics and measurements that will help quantify and qualify speed as an integral element of the steel industry? Here are a few short observations:

Portals – Sometimes called Thoughtware, the development of information/knowledge portals represents a transition point in computing and a massive change in how we will all function in and produce for the electronic work environment. Personalized Yahoo-style access to applications and relevant information through a simple Web browser, and even mobile devices like PalmÒ devices, is emerging as a standard on corporate intranets and is continuing into our industry through Web based solutions.

Open Source – Led by the free operating system, Linux, open source for the rest of us means free. Freeware abounds on the Net, taking its nature from the Net's original intent of being a place of free exchange. The free cost of software will continue to erode the traditional software manufacturer's value like those who develop CAD tools, as Microsoft/Visio's IntelliCAD and Sun Microsystem's StarOffice become available for free over the Internet this coming year.

Object Models – The Golden Era of traditional 2D CAD tools like AutoCAD and Bentley's Microstation has ended. The ability to provide 3D digital models of projects are becoming an expected part of providing services. Sanjay Kumar, COO of Computer Associates, recently said that he no longer hires designers that cannot provide him with the 3D visual representation of his project. Visualization is only one component of 3D today. The second part is the linking of data to these models, so they become "smart". Solutions, such as Autodesk's Architectural Desktop and Bentley's TriForma, are providing the opportunity to not just create the 3D experience of moving through a virtual space, but also provides a graphic container for project information that can be used further into the life-cycle of a facility.

eCommerce – One of the forms of data that can be attached to these Object Models is cost. The emergence of marketplaces where a designer can post their Object Model for bidding purposes to contractors, manufacturer's and/or service providers over the Internet has arrived. BuzzSaw.com, BricsNet.com and Bidcom have all announced their eCommerce marketplaces will be operational within the next few months. This will allow you to add cost criteria, based on performance specifications, onto the open market for either estimating, bidding, purchasing and/or delivery of product to the job site.

Wireless, Mobile Devices – The Palm has reinvented the speed in which a user can access and use information. With the emergence of Bluetooth technology in the Palm IX and the recent availability of Handspring's Visor and Springboard, by the developers of the original PalmPilot, immediate access to information in the Palm of your hand is becoming commonplace.

NetSourcing – Outsourcing your applications and other IT functions to a third party over the Internet. Called Application Service Providers (ASP), it is the ability to connect to the capabilities of others and at the same time be nimble and adaptable. Shift from relying on prediction, foresight and planning to build-

ing in flexibility, courage, and faster reflexes. NetSourcing is about creating a Web tone by providing a small shop a big infrastructure.

So as a New Economy Free Agent, this is the space that I am playing in today, Business @ The Speed of Thought. My Internet-enabled, GenerationX, the slacker, Starbucks sipping, Grunge band kids of 5 years ago are now creating untold wealth on the stock market and creating limitless expectations. Our generation is thinking differently. The traditional system will work harder to maintain itself, but the old ways of doing things are just not sustainable. Aptitudes for change and growth are the single biggest challenges to the Industry. Remember that extinct is forever.

When the dust from the transition to the New Economy settles, the business landscape will be strewn with carcasses of companies that were unable to adapt. Don't let yours be among them.

The emerging e-Business models we see being experimented with today are becoming entrenched and commonplace, but we can all look forward to the fact that they will take on new forms that we can hardly imagine today. The key to success in facing the challenge of this transition lies in understanding the underlying dynamics of work and processes and in adjusting expectations and practices as those processes reconfigure themselves in the new environment.

It is my hope that the industry creates the environment to measure the effects of velocity in the "DotCom" world. Not by fixing yesterday's problems, but by focusing on the preparation for tomorrow's opportunities.

Life is short. Work Smarter.