

**WORKING GROUP  
 DYNAMIC INFORMATION INTEGRATION**

**DECISION MAKING IN THE REALTIME ENTERPRISE  
 Collaborative Commerce Trends for the Realtime Enterprise**

*Wednesday, July 24, 2002*

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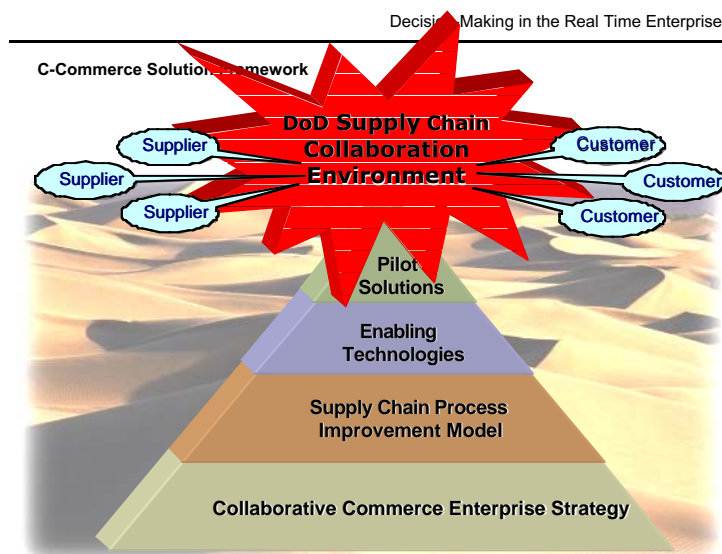
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**SUMMARY**

On July 24, 2002, the Working Group reconvened to continue its examination of “dynamic information integration” with a look at collaborative commerce (cCommerce). The on-going participants in this Working Group Session included executives and technologists from Attensity, Blaze Advisor from HNC Software, California Institute of Technology (CalTech), Dejima, Inc.; HNC Software; Hyperion; iSpheres, Inc.; Karna Global Technologies; KnowMadic; Modulant Solutions; Rapt, Inc.; Rod Heisterberg Associates; SAP Labs, Inc.; Strategies, Concepts & Solutions Lab; TekMetrix Corporation; TopicalNet; and consultants Kimberly McDonald Baker, Ray Paquette, and Barney Pell.

Rod Heisterberg, a supply chain expert and a former director at the Gartner Group, presented the Working Group with a case study, identifying challenges to conducting business collaboratively and on the Internet through an integrated and transparent value chain. Heisterberg proposed that forward-looking companies can leverage the Internet to transform their core decision-making practices. According to Heisterberg, realtime enterprise value propositions are based on managing information rather than inventory. “Inventory is how humans react to uncertainty,” Heisterberg voiced to the group. “We can replace inventory with information.”

Heisterberg’s case study presents an evolving model to connect suppliers and customers along a new collaborative supply chain. First, a collaborative commerce enterprise strategy needs to be generated. On top of that, a supply chain process improvement model can be developed. Then, technologies must be developed to enable this model. Finally, the enterprise must pilot solutions that integrate the strategy, the model, and the technologies.



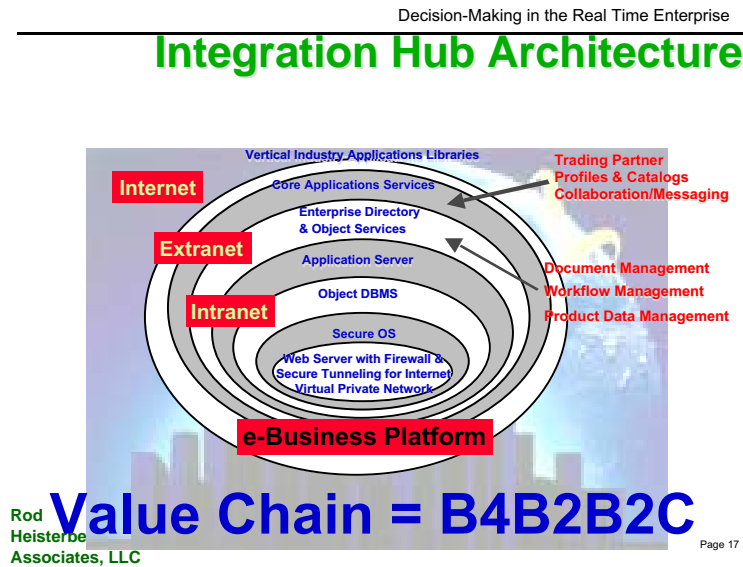
Heisterberg’s cCommerce Solution Framework describes the steps an enterprise must take to achieve a supply chain collaborative environment.

This next stage of eBusiness evolution enables trading partners to:

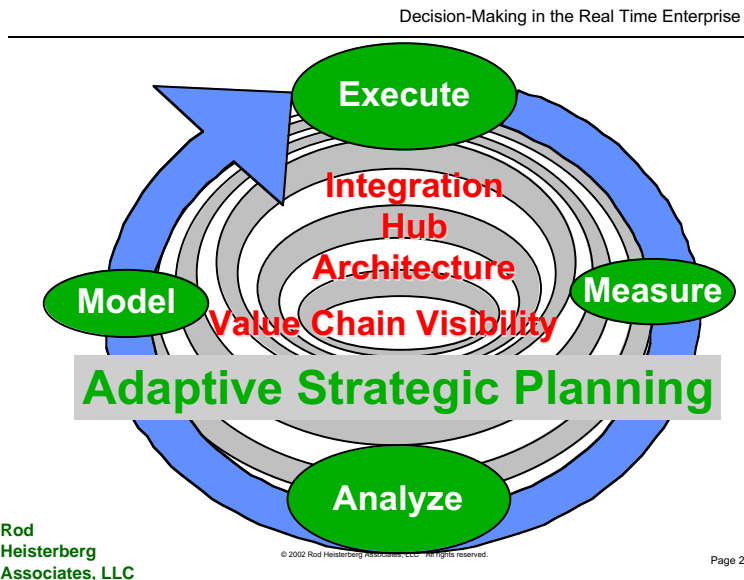
- Create, manage, and use data in a shared environment
- Design, build, and support products throughout the lifecycle
- Work separately to leverage their core competencies together in a value chain that forms a virtual enterprise

The technology at the core of Heisterberg’s model is the integration hub. This hub is an Internet portal that supports not just B4B, B2B, or B2C but, rather, the portal supports a value chain that is B4B2B2C. Businesses support one another; they subcontract to one another and sell to the customer. The concept can be depicted as the following:

Heisterberg’s integration hub architecture turns B2B into B4B2B2C.



Finally, Heisterberg described the decision-making process within the collaborative commerce model as “Execute, Measure, Analyze, and Model,” feeding back in the loop to “Execute.”



Heisterberg’s decision-making model for adaptive strategic planning employs execution, measurement, analysis, modeling, and full circle to execution.

Supply chain operations that involve actions outside the enterprise's four walls require monitoring and measuring trading partner performance as never before. In part, this is due to a shift in core competencies across the value chain. This means that companies become less vertically integrated and outsource more functions to others that have those particular functions as their primary competencies. Design might be outsourced to one company, manufacturing to another, and logistics to another. In order to realize this new capability, enterprises must re-engineer their decision-making processes so that they can synchronize supply with demand. It is here where inventory uncertainty can be reduced. Decision makers can evaluate performance across the virtual enterprise by using common metrics. These common metrics help managers to make effective decisions for guiding value chain strategies, directing logistics tactics, and managing operational activities in a timely manner. However, the group established that, before these common metrics can be put in place, common lingua – semantics – must be developed.

But how close today's business environment really is to common metrics, common language, and systems that can communicate among and between businesses and enterprises is the defining question for the Working Group. The case study Heisterberg presented to the group involved a very large enterprise, the U.S. Department of Defense's (DoD) logistics arm -- the Defense Logistics Agency (DLA). Even with this great size and influence, the DLA is not able to force into place the variables needed to bring communications of the type required to the diverse businesses with which the government would like to conduct business. Many large companies are still not on electronic data interchange (EDI) systems or enterprise resource planning (ERP) software, and the "Mom and Pop" shops with whom the government is obliged to do business, rarely afford these electronic luxuries. Fax machines are still the norm for information transfer in many businesses in America today.

#### **QUALITY-INFORMATION BASED DECISIONS**

The Working Group participants have been looking at both the technological and the business rules challenges to data integration over the last 8 months. At this Working Group Session, the participants took up the battle cry around the decision-making process. One participant suggested that there are no real changes to the process, there is just more information at hand. Heisterberg opined that with more information available, the decision-making process is inherently changed. The group did come to the consensus that the point is to achieve better decisions and that is accomplished with more information. "The goal is to get the right information to the right people at the right time," volunteered one participant. "Better information makes for better decisions." "The objective is to drive the latency out of the decision-making process," said Heisterberg.

#### **TACTICAL OR STRATEGIC**

Another participant suggested that the value proposition changes as one goes up the corporate hierarchy from tactical to strategic. The workers on the line are interested in getting product out the door to make a profit while the strategic leadership at the officer level assumes the product will get out the door and produce a profit. At this level, the company's interests become much more strategic and address how to achieve profit and use it for different interests, including driving up shareholder value. Heisterberg noted that strategic planning, which has been an annual phenomenon in business history, has become quarterly. "The ability to compress time to understand revenue and market plans as well as shortfalls on a quarterly basis is key," said Heisterberg. With cCommerce, the tactical planning can be refreshed on a quarterly, weekly, and even a daily basis. The group also discussed how planning in a cCommerce model becomes event-based, rather than time-based, such as annual or quarterly planning. "The triggers should not be only a calendar," said one participant, "but business assumptions." The event-driven process, designed around business assumptions, generates the exception and results in taking the action that gets the enterprise back on plan. The group also discussed how strategies fail if the tactical staff in operations are not convinced that the new processes involved for new strategies are worth the change in what they see as successful tactics. "Projects fail," said one participant, "if the ops people do not see that it is worth the extra time and work. At the tactical and operations level, they have a different ethic. You have to focus on operations management to accomplish successful change." The participants agreed that events at the operations level roll up to the strategic level and that a defined hierarchy of how things build on one another needs to be in place. Here, the feedback loop comes into play in a big way. "The feedback loop is critical," agreed one participant, "but until the right operational events occur, you will not get the information back." Here the group was reminded by a lone voice that the role of strategic planning is to create a vision, not to micromanage.

## SHARING INFORMATION

Although one of the guiding questions for discussion was “How will the appropriate metrics be identified and shared among trading partners to manage their value chain processes?” the issue that hooked the discussion was “How do you get trading partners and potential customers to share information in the first place?” With inner loop and outer loop requirements, how do you get that value chain to be transparent? “The gorilla always starts it,” said one participant. “The gorilla dictates.” However, Heisterberg’s DoD case study illustrated that, even though the agency is one of the largest customers in the world, the DLA is not able to force every small business in America with which it wants to do business to adopt expensive ERP software. It was noted at this point that SAP does market a “light” version of its ERP product. However, most small businesses across America, not exposed to the digital rigors of Silicon Valley, are not ready to adopt sophisticated electronic business processes. One suggestion for sharing data in a protected manner was for a given vendor to participate in a consortia (UCC Net, World Retail Exchange, TransAura) set up to do business in this manner. These are marketplaces that offer a value proposition for information integration and provide services necessary to share data with the gorillas. The assumption here is that the consortia protects sensitive information. It was also suggested that, because the information people are being asked to share has value, there is a need for a cost/benefit analysis of sharing data. Normally the market establishes value. “We are having difficulty because we [do not have the metrics] to do a cost/benefit analysis on sharing this data,” said one participant. “Perhaps it does come down to looking at the metrics and understanding how we measure value. Perhaps there is a mechanism that establishes a market for this kind of information. In other words, people have to give something in order to get the information that puts them into the game.”

## SEMANTICS

The shared information question, with firewalls being a business reality in the world today, is a business cultural challenge that will persist. In order for the integrated value chain to operate – to know, for instance, that someone has done something, and, therefore, it is my turn to do something – it is assumed that an enterprise will be pulling data from the databases of other companies. For that process to work, there must be some kind of enterprise integration technology in place. Otherwise, there is too much latency built in to the process, and the decisions will not be timely. The creation of appropriate language interoperability metrics is a technology issue with which this group has grappled for more than half a year. Semantics. Whose do we use, where do we begin, and what are the interim steps to achieving communication between and among disparate business systems, both inside of and between enterprises? “The true problem is semantic integration,” said SAP’s Kaj van de Loo. “Semantic integration is the major obstacle.” It was agreed that the semantic problem is a major gap in connecting to the eCommerce vision presented by Heisterberg. Some possible solutions to the semantic problem include everyone using the same software, or everyone having the same data elements, or translating between one set of data elements and another.

The group offered several possible solutions to the semantics translations issues, including the fact that different companies interpret even tags differently and the fact that data is difficult for software to assign meaning to. One participant suggested that finding a solution will take a major vendor, such as SAP, to build up an XML syntax that will be universal. “Why can adaptors not simply fill the need?” asked another participant. The suggestion was that there are adaptor software applications in existence that translate from Manugistics to SAP, for instance, or SAP to CommerceOne. But the consensus that emerged from the conversation was that there are differences between syntax data transformation issues and semantic issues, and that these translators do not scale. They only translate at the least-common-denominator level. This group has been looking at semantics on a much grander scale. One of the goals identified early on was to allow a manager to gather cost information, not only from known vendors, but to be able to go out onto the Web to new sources and compare products and costs, as well. While translators may address some interoperability issues between existing trading partners, they do not address the need to bring to bear information from such unknown sources. “The only translation process that does not lose information is a process where you do not have to negotiate meaning,” said one participant. “As soon as you have to negotiate meaning, then there are losses in the negotiation process.”

It was also mentioned that, although given industries may develop common standards within the industries, that will not help in situations where it is necessary to deal across industries. In order to solve this problem,

it was suggested that neutral databases be object-oriented. The object, itself, would then feed into the neutral data domain. Software could then recognize an object, rather than language.

### **CONQUESSENCES**

Cracking the hard nut of semantic integration could provide business with a dynamic new world. One participant painted a picture of doing business based on Albert North Whitehead's theory of Conquessences. According to this theory, energy particles, or, in this case, knowledge particles, come together in the form of Conquessences, which are dynamically assembled groups of energy that accomplish a specific purpose and then disperse. He set up the scenario of doing business with General Motors on a given day. On his desktop is a portal through which he defines the information that he needs access to from General Motors. Then he taps into a directory of Web services that assemble themselves into the pattern required to give him the information he needs dynamically for the work process that he is doing that day. At the end of the day, or when the work is done, that assembly of knowledge particles goes away. This idea is still only theoretical, and what the group was saying is that there are some major pieces missing. One of these missing elements is the almost logarithmic scalability of the number of connections needed to achieve Conquessences. The other is that the security is not out there at all. "Even in an XML standard," said the participant, "there is nothing about security and how we control these interactions."

As cCommerce evolves into the mainstream eBusiness strategy for effective value chain management, the issue of semantics -- common lingua, common definitions, and vocabulary -- continue to stymie developers of solutions for business in the 21stCentury.