ROSETTANET AS A VIABLE CROSS-INDUSTRY B2B E-COMMERCE SOLUTION

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Abstract

RosettaNet is a standard that was developed by a consortium of the same name. The RosettaNet standard is currently used in the electronics industry as a B2B e-commerce solution. This paper explores RosettaNet's ability to facilitate as a cross-industry B2B e-commerce standard. After an introduction to RosettaNet as well as a description of the standard itself, RosettaNet is compared to the leading B2B e-commerce standard: EDI. After the comparison, RosettaNet's fit with B2B principles is analyzed and its overall strengths and weaknesses are reviewed. The paper concludes with several prerequisites that would have to be in place in order for RosettaNet to work for other industries.

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Executive Summary

RosettaNet is a standards consortium that has developed a self-titled proprietary methodology for constructing and implementing B2B e-commerce solutions in the electronics industry. This paper will qualitatively investigate the ability of RosettaNet to become a cross-industry e-commerce standard. The first section of the paper provides a detailed overview of RosettaNet and examines its methodology. After RosettaNet is introduced, its success within the electronics industry is analyzed.

In the second section of the paper, the RosettaNet standard is compared to the incumbent B2B e-commerce leader: EDI. After assessing RosettaNet's ability to compete with an established B2B standard, the business model of RosettaNet is explored to explain the value-add that the consortium provides to its members. The strengths and weaknesses of RosettaNet are also explored to decide whether or not RosettaNet can expand to other industries.

The final section of the paper explores the most essential requirements that will have to be met in order for RosettaNet to expand to other industries. It is obviously not possible for a single standard to be the right fit for every business, but a better understanding of RosettaNet and its ability to deliver a comprehensive B2B e-commerce solution will help to determine if RosettaNet can serve multiple industries.

Introduction

According to TQM consulting group, a supply chain is "The integrated structure of activities that procure, produce, and deliver products and services to customers" ("Glossary"). It is the supply chain that directly controls the flow of products and services that keep a business alive. With the level of networking necessary between companies in a supply chain, Business to Business (B2B) transactions are what keep supply chains running. Increasingly popular since the mid-to-late 90s has been an electronic-enabled B2B solution: e-commerce or the exchanging of goods and services via a communication link (now most commonly the Internet) (Gosain et al. 187).

As a result of the e-commerce takeoff within the past two decades, companies' supply chains have been drastically affected by Internet technologies and e-commerce best practices. A survey of computer industry supply chain managers by MIS Professor Sanjay Gosain and his associates illustrates supply chain issues managers are most concerned with when implementing B2B e-commerce solutions. The summary results of this survey are located in appendix 1. On-time delivery, inventory level monitoring, and product delivery logistics are just a few functions every e-commerce tool must be able to perform (Gosain et al. 190).

Addressing the myriad of prominent supply chain issues is no easy task because there are many options for B2B systems development with different levels of scalability. From the early days of Electronic Data Interchange (EDI) in the 60's to the present, the list of B2B e-commerce standards is quite long. EDI and Internet-based EDI, OBI, CORBA,

DCOM, EJB, Workflows, eCO, BizTalk, cXML, ebXML, and Web Services just name a few of the many standards that offer a comprehensive or specialized solution to manage B2B e-commerce (Medjahed et al. 80). The focus of this paper is a unique standard called RosettaNet that has emerged from the long list of e-commerce solutions as a success. RosettaNet is a consortium that was created in 1998 with the purpose of developing an e-commerce standard for the electronics industry (Haller 1467). Throughout the paper, RosettaNet's capability to become a major e-commerce standard across industries will be tested.

RosettaNet

RosettaNet was founded in the United States in 1998, and has since become a global non-profit standards consortium with a presence in the U.S., Malaysia, the European Union, Japan, Taiwan, China, Korea, the Philippines, Singapore, Thailand, Australia, and the European Union. Named after the Rosetta Stone, RosettaNet seeks to standardize the sharing of information in the supply chain from manufacturer to distributor. From humble beginnings, RosettaNet has grown to over 1000 companies representing more than one trillion U.S. dollars ("About RosettaNet").

The reason that RosettaNet has become a successful consortium is because of its strict dedication to standards development. RosettaNet has encouraged a diverse group of industry peers to join into its consortium. Some of these industry leaders include Cisco Systems, IBM, Intel, Microsoft and Oracle (Chai). With a broad member base of

electronics professionals, but a specific scope of serving the electronics industry, RosettaNet is well positioned to expand its maturing e-commerce standard.

To become a member of the RosettaNet community, a company must first buy membership. The cost of membership varies depending on whether a company wants to be a partner (4,500 U.S. dollars) to if a company wants to sit on the Global Council and have a stake in consortium activities (80,000 U.S. dollars) ("Six Global Councils"). Once a company becomes a member of RosettaNet, it is expected to contribute at least one employee to be an ambassador to other trading partners in the RosettaNet community. When a company decides to engage in a project (milestone) with a partner from the RosettaNet community, the milestone must first get approval by five voting members and 20 trading partners of RosettaNet. If the milestone is approved, both companies can begin to devote resources to the project (Boh 59).

There are six different Global Councils within RosettaNet that govern operational directives. These councils are summarized in appendix 2. As is evident from the global councils, a majority of RosettaNet's focus lies with the electronics and telecommunications industries. The following section gives a profile of RosettaNet's target industries to frame how the consortium develops its standards with respect to the special concerns of its members.

Target Industries

RosettaNet does almost all of its business within the electronics and telecommunications industries. For the purpose of this paper, the electronics industry will refer to all companies engaging in the research, development, manufacturing, and distributing of general electronic equipment as well as telecommunication equipment. The largest portion of RosettaNet's market includes companies competing in the semiconductor industry (White p. 5-1).

RosettaNet has become synonymous with the electronics industry's supply chain largely out of necessity. In a report by the National Institute of Standards and Technology, inefficiencies in supply chain infrastructure in the United States' electronics industry in 2004 resulted in a cost of 3.9 billion U.S. dollars for the year (White p. 7-17). This problem existed long before the current decade. In the mid 90's, electronics companies began to realize that there was a lack of e-commerce infrastructure in their supply chains. When industry professionals saw the need for more powerful, standardized e-commerce platforms, the founders of RosettaNet saw an opportunity to create a consortium dedicated to improving e-commerce standards. After RosettaNet's establishment, many of the companies suffering losses from weak supply chain infrastructure joined the RosettaNet community ("Membership"). Since the electronics industry has supply chain members spread throughout different parts of the world, RosettaNet has continued to expand as a global entity since its founding.

Rather than diversifying to fit the needs of the supply chains of many industries, RosettaNet's leadership has kept the scope of the consortium mostly limited to the needs of the global electronics industry. This enables the consortium to give special attention to addressing specific characteristics of the industry such as, "products tending toward mass customization, short product life cycles, lean inventory, a high degree of substitution, complex multisource supply chains, and global scope" (White p. ES-5). The decision not to expand to more industries, coupled with a wealth of businesses whose needs are addressed by the consortium has made RosettaNet proliferate without losing its central focus on electronics industry challenges (Sherby).

The following are the main challenges faced by the supply chains of companies in the electronics industry:

- E-commerce systems are built on widely varying infrastructure
- Infrastructure is regarded as a quasi public good among trade partners
- Companies must be extremely competitive and agile to stay in business

There are many different technologies employed to facilitate e-commerce in the electronics industry. A typical system for a company might include an Enterprise Resource Planning (ERP) system with different modules to manage the business internally (manufacturing, finance, marketing, etc.), and an EDI system that transmits order information to partner companies (White p. ES-1). This system setup could

possibly present two problems. The first problem is that the ERP system needs to be able to communicate with the EDI system in order for information to be sent to the partner. The other problem with varying infrastructure is that the EDI system of a company needs to communicate with whatever e-commerce system their partner is using. This may be difficult if their partner is not using the same version of EDI. This mixing of non-standardized systems has led to the proliferation of middleware to facilitate in the communication between different systems (White p. 1-7). Middleware can be extremely costly if bought from a vendor, or it can consume a large amount of resources if developed by the company.

The aforementioned problem is made worse by the problem of e-commerce infrastructure in the electronics industry being treated as a quasi public good. In the system setup example previously given, a partner of a company might try to use a dedicated line or EDI implementation without contributing to them. Since infrastructure is so expensive yet rarely has to be changed once put in place, this presents a problem in which partner companies have an excuse to "borrow" from infrastructure that has already been developed (White p. 1-13). The public good attitude has caused many electronics companies to avoid investing in furthering e-commerce infrastructure beyond what they use personally. The middle ground between partners is sometimes a proverbial no man's land that no one wants to contribute to developing. This slows innovation, and individual firms have to shoulder the burden of developing personal infrastructure.

Finally, the electronics industry has extremely competitive operating conditions. With characteristics like a high level of substitution in most electronics products, companies have to continually strive for excellence to maintain business with trading partners. However, companies closely guard their specialized practices and do not get too comfortable with any one partner. Although companies must form partnerships to survive, competition usually prevails and partnerships are limited to the exchanging of goods. This makes jointly developing any type of infrastructure or strategic system with another company very difficult (White p. 5-7).

With consideration to the nature of the electronics industry and its aforementioned characteristics, RosettaNet has developed a specialized process for standardizing and automating e-commerce activities throughout the supply chain. RosettaNet's standard-developing process is what has made it so successful in an industry full of variety and competition.

The RosettaNet Standard

RosettaNet provides a forum for two companies to come together on neutral ground to standardize specific business transactions into automated protocols. The current protocol that RosettaNet employs is called the PIP system. A PIP, or partner interface process, gives the explicit instructions for a company's systems to execute a business process. PIPs are developed by engineers from two companies. Accordingly, the PIPs have two roles (one for each company) and multiple actions associated with the

respective roles. Over 3,000 PIPs have been implemented into production by companies participating in RosettaNet (Damodaran 194). To transport the processes that PIPs initiate back and forth between companies, RosettaNet has created the RosettaNet Implementation Framework (RNIF). This framework specifies how a RosettaNet message (including PIPs) should be structured when transporting PIPs back and forth between partners (Damodaran 193). Please refer to appendix 3 for a visual representation of how the RNIF works.

The original standard for RosettaNet PIPs was called Document Type Definition (DTD). DTD offered a way for representatives from two companies to develop and code a schema for a business process they shared to automate it. Unfortunately, DTD uses elaborate tables and diagrams that are not machine interpretable, drastically reducing the level of automation and increasing the size of messages (Damodaran 190). Since the purpose of RosettaNet is to enable companies to automate their supply chain interactions, RosettaNet has moved to a new way of structuring PIPs.

An example of a business process that has been automated by a PIP is procurement of a batch of processor chips from a processor manufacturer by a computer manufacturer. The first step engineers from each company must take to specify a PIP is to draw up specifications of how the procurement process works. This is often done with Unified Modeling Language (UML). Once the UML specifications have been created, software that has been developed for the RosettaNet standard codes the process into XML. XML,

or extensible markup language, is simple coding that is used to describe information about data. This new, simplistic way to define PIPs has reduced message size and increased machine interpretability. The data for the actual order and order processing events are written with common business and technical terms from a RosettaNet dictionary, and the XML describes what is supposed to be done with this information (Damodaran 194).

The average development time for a new PIP is about 3 months. This consists of design for about 2 months and a testing and feedback phase of about one month (Behrman 12). With PIPs implemented, systems can interpret data going back and forth between two companies and automate supply chain processes. RosettaNet has also encouraged standardization of PIPs so that partners do not have to make different PIPs for similar processes (Haller 1468). In the previous example of processor chip procurement, a standard PIP would be made for materials procurement in the computer manufacturing industry. However, information specific to the two companies in the example could be embedded in the XML code during implementation to make the process work for those specific companies.

If the RosettaNet standard is to become an e-commerce solution for a variety of industries, it will need to have properties that will make it work for a variety of businesses. Now that RosettaNet's standard making process has been explained, it will be compared to the current cross-industry leader in e-commerce solutions: EDI.

EDI

EDI, or Electronic Data Interchange, is the oldest B2B e-commerce technology in existence, and it represents the most widely used e-commerce solution. Out of all U.S. companies, around 90% of Fortune 500 companies use EDI and approximately 10% of medium and small sized businesses use it as well (Harper). The proliferation of EDI can be largely attributed to its existence long before any other mainstream e-commerce solutions. EDI began to take shape in the late 1960s when the Transport Data Coordinating Committee (TDCC), a group advocating for the data needs of airline, railroad, and shipping companies, developed a simple methodology for submitting trade data between companies via electronic means. In 1979, the North America Standards Institute approved the X-12 committee to further develop the crude methodology of the TDCC into a B2B standard. The standard that emerged was called Electronic Data Interchange ("Electronic Data Interchange: EDI").

EDI is built on the concept to two trading partners establishing a connection to consistently exchange a variety of data such as materials invoices or purchase orders. The connection can be made up solely of the companies that are engaging in EDI together, or it can be a network brokered by a third party organization that offers EDI setup and implementation services. The latter EDI setup is known as a VAN, or value-added network. The immediate advantages of EDI include drastically reducing trade partner paperwork such as purchase orders. Also, data entry is reduced because companies are transferring information back and forth instead of entering data into

their respective systems independently (Weitzel et al.). EDI infrastructure includes the hardware to carry and interpret the EDI messages as well as software to generate EDI messages. Traditional EDI (EDI that is independent of the Internet) called for companies to set up a dedicated communications line to their trade partner, re-engineer business processes to fit within the capabilities of EDI, and setup the necessary hardware and software for their particular version of EDI (Weitzel et al.).

With the advent of the Internet, EDI became much more efficient. The basic premise of transmitting data between trade partners stayed the same, but the Internet took away the need for dedicated communication lines and batch message processing. With Internet EDI, as long as a company has a connection to the Internet they can send EDI messages to their trade partner. This change in basic infrastructure changed the format of EDI by using html as well as other languages, and it drastically reduced costs (Weitzel et al.).

EDI vs. RosettaNet

Now that EDI has been introduced as the most prevalent e-commerce standard, we will benchmark RosettaNet against EDI. The comparison will be based on several pertinent e-commerce metrics which are listed in appendix 4. If RosettaNet stands up to EDI, it has a chance of being successful as a standard in multiple industries.

Cost

The cost for setting up EDI is comprised of the necessary hardware to receive messages, the software that interprets and generates messages, and the network over which the messages are sent. The hardware can cost several thousand U.S. dollars and is available almost anywhere, but the software cost can be significantly higher. A company can choose to develop its own EDI message generator/translator with a team of programmers, but that requires a lot of time and expertise. Companies usually purchase an EDI package from a third party provider. A very simple package can cost several hundred U.S. dollars, but EDI software for a large corporation can cost tens of thousands of U.S. dollars (Douglas 2).

After accounting for the upfront costs, the recurring costs of EDI must be considered. With traditional EDI, leasing a dedicated line for communicating between companies costs many thousands of U.S. dollars every year. Even with the physical infrastructure in place, trade partners have to provide their own expertise to develop and implement the complex EDI system. If a company chooses to use a VAN, the third party charges a fixed amount per unit of data or per message sent. With Internet EDI, the physical transport infrastructure is already in place as long as a company has an Internet connection, but many companies still choose to join a VAN. This is because of the tools and knowledge that a third party can bring to the implementation (Douglas 2).

With RosettaNet, the main cost of the standard lies in the physical infrastructure required to set it up. RosettaNet requires powerful hardware to run its software, and these systems are not easy to setup. According to Poon Hong Yuen, the deputy director of a Singapore institution dedicated to helping companies adopt RosettaNet, “The cost is really due to the requisite hardware, software and professional IT services needed to implement these standards" (Chai). The RNIF utilizes the Internet to transport messages, so the necessary physical transport infrastructure is already in place.

Another big cost of adopting RosettaNet is membership in the consortium. After paying a membership fee, the partner companies get access to professionals experienced in RosettaNet implementations, a library of RosettaNet implementations, software and standards needed to use RosettaNet, and design support. The intangible costs of RosettaNet can run higher than the simple costs of EDI because RosettaNet considers the costs of a company re-engineering its business processes to fit the RosettaNet standard in its cost estimates. Another important intangible cost is the cost of contributing what would otherwise be proprietary data about a RosettaNet implementation to the consortium for future development of the RosettaNet standard (Malakooty 15). The cost of RosettaNet provides scaling value based on how a company utilizes the standard and the consortium.

Target Business Size

As a result of the high recurring infrastructure costs of EDI, many of the companies that implement EDI are large. Few medium and small-sized businesses can justify the repeating costs of subscribing to a VAN. With the advent of Internet EDI and an Internet connection accessible at almost every place of business, more medium and small sized businesses have implemented EDI because the absence of previous infrastructure constraints. However, these implementations are the most simplistic version of EDI and the benefits rarely justify the cost of maintaining the system. The implementation and software costs implementing an EDI system are still too high for the vast majority of medium and small sized businesses to adopt (Ford).

Although a RosettaNet implementation is usually costly, RosettaNet and member firms have offered implementation solutions specifically for medium and small enterprises (MSEs). Intel released an open source software developer's kit in 2001 known as RosettaNet Basics. MSEs can use this kit to use to become e-commerce enabled by connecting to the RNIF (Chai). This is a free way for businesses using Windows to begin using RosettaNet for the simplest of activities like automating purchase orders. The only problem is that a company must have an employee skilled enough to configure the system. If a company wants to engage in more complex activities than the PIPs supported by the developer's kit, more investment is required. Two good things have come from this development: MSEs membership in RosettaNet has slowly risen, and large companies are benefitting from the opportunity to interface with smaller

businesses. Often, large companies serve as mentors to smaller companies and get those companies more involved in RosettaNet.

Number and Evolution of Standards

There are three major EDI standards. Theses standards include X12 (developed by the American National Standards Institute), EDIFACT (developed by the United Nations Economic Commission for Europe), and HL7 (developed by Health Level Seven, Inc.). Several more EDI standards have been developed, but not all have seen a high rate of adoption (Burrows). The proliferation of different types of EDI has come about mostly as a result of geographical differences; the U.S. uses X12 and organizations in other parts of the world use EDIFACT. The other major standard is proprietary and very few companies use it.

Although there are several different types of EDI, the major changes to the standards have come in the way EDI is transported. EDI was originally designed to be independent of communication systems like phone lines, so it is only logical that the medium of transport has evolved to incorporate the Internet (Burrows). Aside from this shift in EDI message transport, the EDI structure has stayed mostly the same since it was introduced.

RosettaNet currently uses one set of standards globally: XML-based PIPs with the RNIF for PIP delivery over the Internet. These technologies were discussed in the RosettaNet

Standards section of the paper. When RosettaNet went through a big structural change from DTD to XML PIPs, the consortium made sure that all RosettaNet users made the change. RosettaNet has done a good job of championing the cause of global standard setting by making uniform changes in its technologies and methodologies for all users (Damodaran 191).

Standard Focus

Please refer to appendix 5 for an example of a purchase order constructed in EDI. After looking at this purchase order, it is clear that EDI's purpose is to transport data. EDI has been constructed as a simple way for computers to interpret information between two companies and process that information into a simple task such as ordering supplies. This excerpt of EDI does not focus on the process and details of a purchase order, but rather on the data to complete the purchase order. As a result, EDI is very machine interpretable.

Please refer to appendix 6 for an example of a Sales Report Notification PIP constructed with RosettaNet. This example looks very different from the EDI purchase order in that both computers as well as people can interpret this message easily. The message is process centered because it focuses on the steps to be executed and what those steps mean for both senders and receivers of the message. One thing to note is the structure of the XML; the data portion of the message contains information about what needs to happen such as ordering a certain number of items while the XML instructions describe

how that data is to be interpreted. When other companies are trying to implement their own sales report notification, they could use this message as a template to begin process development.

Nature of Partnership

With EDI, two companies come together with the premise of a shared business function. Let us return to the example of a processor chip manufacturer and computer manufacturer. With EDI, the two businesses would establish a partnership to lower cost and effectively transport data between the two companies. Each company would have to buy the necessary hardware and EDI interpreters, the companies would have to agree whether to lease a line, use the Internet, or join a VAN, and the companies would work together in some limited fashion to design the way the process works. Most likely, there will be minimal cooperation throughout the design and implementation of EDI (Hart 90).

The partnership dynamic would change if the two companies already had EDI in place for other business activities. If the EDI architectures of both firms were not the same, the two companies would have to find or build a translator to transfer information from one version of EDI to another. This would also require more collaboration on the process development to make sure the processes of one business are understandable in the other business' EDI and ERP systems (Hart 88).

Finally, many EDI partnership dynamics exist where one business partner already has EDI in place and will only deal with other businesses that use EDI. In this case, the partner with EDI will probably place certain restrictions on what type of EDI the partner without EDI will implement and how the process the companies are translating into EDI will work. This offers both implementation expertise and restriction for the company implementing EDI. While this partnership is very good in many ways, many companies have ended up choosing a version of EDI that was not the most beneficial for their company because of their partner (Hart 91).

With RosettaNet, two companies come together for a common business function while contributing to the standards of how commerce information is shared in their industry. We will return once more to the processor chip manufacturer and computer manufacturer. If both companies were interested in a RosettaNet implementation, they would first join RosettaNet. Upon joining RosettaNet, the companies would have access to a wealth of resources ranging from how to implement their first PIP to the library of PIPs that already exist. The companies can find out if there is a PIP that essentially embodies the process that they are trying to automate, or if they need to construct a new one. After gaining approval for the milestone from a group of RosettaNet board members, the two companies can embark on the collaborative process of making or altering a PIP to fit their specific business needs. The emphasis on the business process is stressed and reinforced by the other members of RosettaNet which helps to guide the process development (Behrman 11). All the while, the RosettaNet consortium as well as

the electronics industry is benefitting from the lessons learned in the partnership. After implementing the process they designed, the partner companies bring back their experience and often a new PIP to the RosettaNet community.

In the case of one or both partner companies having already implemented RosettaNet, the process for partnering via RosettaNet does not change. RosettaNet membership is still a prerequisite, a RosettaNet committee still approves PIP construction, and the companies still customize whatever RosettaNet implementation they are undertaking to fit the needs of their business processes (Behrman 12).

RosettaNet clearly competes with EDI in many respects. Now the evaluation can turn to how RosettaNet holds up as a B2B standard according to some common B2B principles.

B2B Standards

When two companies come together for B2B purposes, they are acknowledging that they will need to build a mutually beneficial framework for adding value. RosettaNet fosters these types of relationships by bringing many companies together in the consortium. This helps to weaken the barrier of competition that partners in the electronics industry have traditionally faced by bringing them together to facilitate cooperation. The key things businesses look at for B2B partnering success are how much the company depends on its proposed partner, how alike and different the two companies are, the ability of both companies to manage their own operations while

maintaining their relationship, how much of their partners' system they have access to, how quickly their partner will be able to adapt to changes, security, and how extensive their partnership will be (Medjahed et al. 80). RosettaNet helps drive the forming of these partnerships by providing a forum for companies to discuss e-commerce needs.

Once two or more businesses have determined that they are both interested in partnering, they move on to designing the system. RosettaNet makes this process easier for the companies by providing a wealth of resources in terms of PIPs that have already been created as well as standard dictionaries. The resources that RosettaNet provides help lessen the impact of varied infrastructure by providing partners with the same standardized tools to build similar systems without having to worry about interoperability. This methodology also mitigates the public good problem because businesses have to belong to the RosettaNet consortium, and each partner is contributing an equal amount of intellectual and monetary resources to keep the project going. This prevents companies from benefiting without contributing to the process.

The technical B2B systems designed and implemented can be broken down into three layers: the business process layer, the content layer, and the communication layer (Medjahed et al. 79). The business process layer is where RosettaNet is most concerned. As its name states, this layer facilitates how the activities between two partner companies occur. PIPs are the primary way to disseminate information for this

layer. As described in the previous section, partner companies come together in the RosettaNet consortium to contribute to the plan of how a specific process should occur. This plan is embodied with a PIP which structures the rules for everything from how one company contacts another to the flow of data.

The content layer is the actual data to be transmitted. The data about the transaction itself is encapsulated by XML messages to describe what should be done with the data. To help standardize order information, RosettaNet has created the RosettaNet business and technical dictionaries. These dictionaries give a list of common terms that might be used in the electronics supply chain (Medjahed et al. 71).

After the order is generated via the RosettaNet dictionaries and XML, the order is sent to the partner company following the process structure of the PIP. However before the message is transported, it must conform to the RosettaNet Information Framework described in the RosettaNet Standards section of the paper. The way in which the XML message is transported constitutes the communication layer. The communication layer can be comprised of any number of the following protocols: email, HTTP, Secure Socket Layer, or a dedicated line (Medjahed et al. 82). The communication layer is the layer at which partner companies have to ensure that they are equipped with some sort of infrastructure with which to communicate with their partners. However, this is not an issue since most companies have an Internet connection at the very least.

Having examined how RosettaNet performs within a B2B framework, it is now time to explore the strengths and weaknesses of RosettaNet.

Strengths and Weaknesses

RosettaNet has been successful in the electronics industry because of the answers it provides to the industry's most prominent problems from an e-commerce standpoint (infrastructural variety, free rider problem, and competition stifling team work). RosettaNet remedied the free rider problem as well as the lack of team work between partners with the consortium model. By providing a neutral ground where trade partners can come together, RosettaNet fosters the spirit of team work between its members. The premise of companies coming together to benefit the whole industry is enough to plant the seed of trust among industry peers (Praznik).

Since everyone has to contribute money to be a member of the consortium, none of the companies have to worry that they are the only company paying to advance RosettaNet's standards. This has encouraged some companies like Intel to give back to the consortium by creating tools like developer's kits so that more businesses can get involved in RosettaNet. When it comes time to develop a standard, all companies involved take ownership for it because they are contributing time and money to find a business solution (Praznik).

The problem of infrastructural variety has been lessened by the fact that RosettaNet has one standard. All the interfaces from RosettaNet to enterprise systems as well as other e-commerce systems only have to be written once. This reduces time and resources for infrastructure development, and RosettaNet has some of the best minds in the industry working on the infrastructure that does have to be developed (Praznik).

With all the good things about RosettaNet, it also has several key drawbacks. The first main weakness for RosettaNet is cost. Not only do businesses have to invest in the infrastructure to run RosettaNet, but they also have to pay the membership fee to take advantage of RosettaNet's services. Since the RosettaNet standards are always being updated, the infrastructure that runs the standards must also be updated. Although RosettaNet can be scalable for small businesses, a full-scale implementation for maximum efficiency requires a lot of resources that the vast majority of businesses do not have access to (Malkooty 14).

Another problem with RosettaNet is its close relationship with government. In almost every part of the world where RosettaNet operates, it has integrated government into its business plan. Government partnerships enable RosettaNet to gain credibility relatively quickly, and many of the companies implementing RosettaNet have received government subsidies for working with the standard. This raises the question of whether or not government can regulate RosettaNet's activities. Government involvement in the private sector is not acceptable in many countries, and RosettaNet

has received criticism from its member businesses for involving government in its standards strategy (Chai).

The final major drawback of RosettaNet is its open standards approach. While RosettaNet brings together trade partners, it also brings competitors from the same industry together in one consortium. Since competition is so fierce in the electronics industry, many businesses have questioned the value-add of RosettaNet versus the potential disclosure of proprietary information. Once a PIP is created through the RosettaNet process, it can become the template for similar transactions. If a computer manufacturer and a processor chip manufacturer create a PIP via RosettaNet for the ordering of processor chips, that PIP could become a template for all similar transactions. This example of process information sharing might seem threatening to a business that competes on the unique processes it uses to conduct business. This can also lead to ease in substitution of suppliers based on price sensitivity since many suppliers manufacture similar parts. RosettaNet may seem like a bad standard to adopt for businesses that closely guard their processes (Malkooty 14-15).

Towards A Cross-Industry Standard

After recounting information about RosettaNet and comparing it to another cross-industry standard, it is entirely possible that the consortium could spread to more industries. However, what would it take for RosettaNet to be successful in becoming a

cross-industry standard? The following items are key things that would facilitate RosettaNet's success in other industries:

- Keep the consortium model
- Isolate industry areas
- Study the proposed industries

One of the most valuable opportunities that RosettaNet provides lies in the consortium model. The consortium provides a forum for industry leaders involved in RosettaNet to help direct industry-wide objectives in e-commerce. The consortium also allows newcomers to RosettaNet to experience the standard to assess its usefulness before paying exorbitant consulting fees for implementation. Although the costs of a consortium are high and it is not common for a standard to encourage collaboration among competitors in the same industry, companies can standardize e-commerce communications while being more competitive in their specialized practices with RosettaNet (Praznik). The RosettaNet standard provides a valuable social infrastructure that helps companies meet their e-commerce objectives.

Another requirement for RosettaNet to succeed in other industries is the emergence of independent industry areas. RosettaNet has been so successful within the electronics industry because it made a focused effort. RosettaNet has formed into an e-commerce solution that the electronics industry needs without interference from other industry areas. If RosettaNet is going to branch out to other industries, it must do so as an entity separate from the RosettaNet of the electronics industry. The new divisions will be able

to take all the lessons learned and relationships made from the current RosettaNet, and apply them to the specific e-commerce needs of a target industry. This condition for success also requires that new RosettaNet organizations branch into industries large enough to benefit from such intricate e-commerce infrastructure (Praznik). Each industry-specific version of RosettaNet will also require a group of champions. RosettaNet first emerged with several large organizations willing to adopt and contribute to the standard. After the initial commitment of industry giants, RosettaNet spread to many different businesses within the electronics industry. Any cross-industry expansion of RosettaNet should have an isolated division for different industries while utilizing the established knowledge from the current RosettaNet to make the effort successful.

Before RosettaNet can spread to other industries, great care should be taken to profile the ways in which RosettaNet can benefit the target industry. RosettaNet was accepted in the electronics industry as a customized solution because it targets many generalized e-commerce problems as well as specific problems that the electronics industry faces. The new instances of RosettaNet will have to target problems unique to the industries they expand to. The great strength of RosettaNet is that it provides a degree of flexibility that can be used to customize it for a myriad of industries (Praznik).

Conclusion

RosettaNet can be viewed as a successful pilot project. With its initial success in the electronics industry, RosettaNet is now ready to expand into other industries as a global cross-industry standard. After being benchmarked with EDI, it is obvious that RosettaNet is just as good as the B-2-B incumbent with the added benefits of the consortium model and a single global standard. Although RosettaNet, like EDI, is not a solution for every business, it has a lot of untapped potential that can be put to good use in many different industries.

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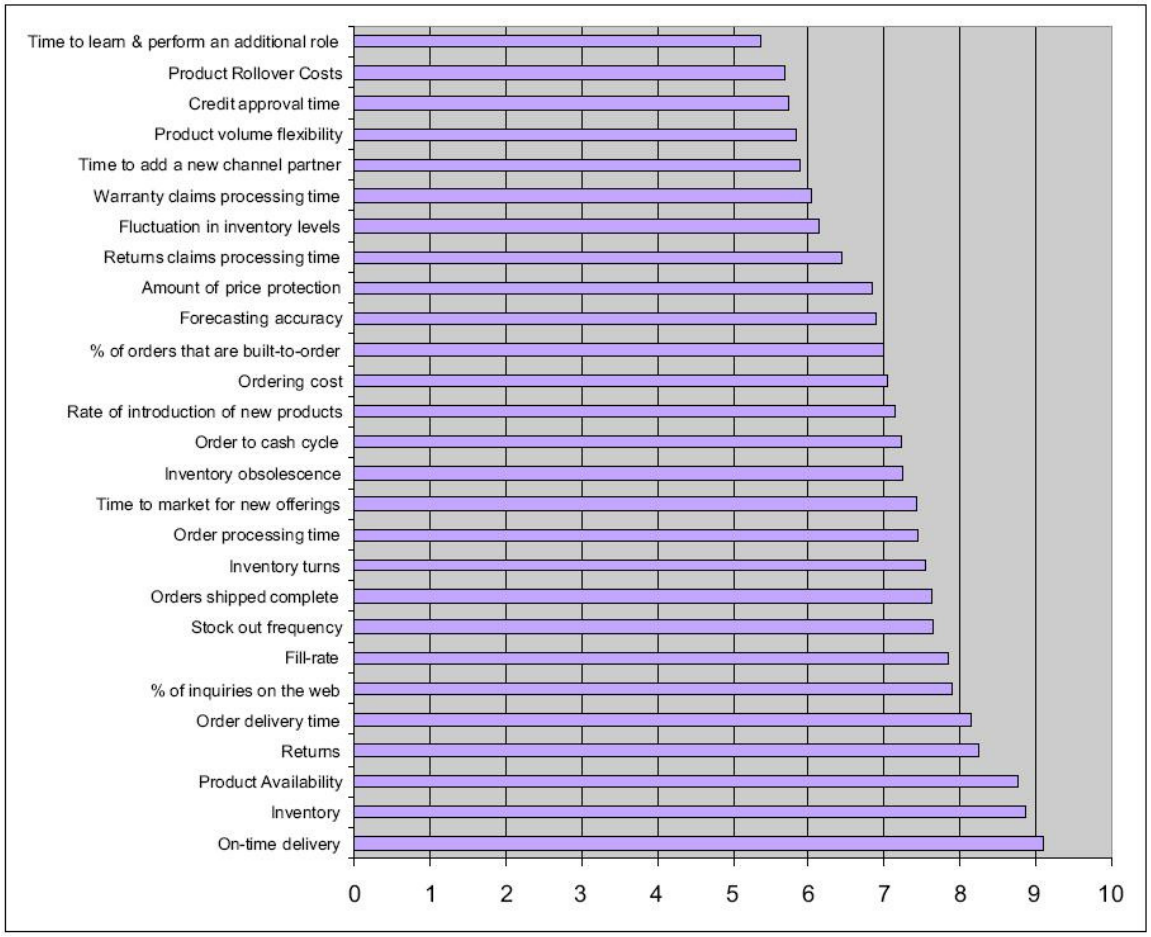
Appendix 1.) B2B Supply Chain Concerns



Source: (Gosain et al.)

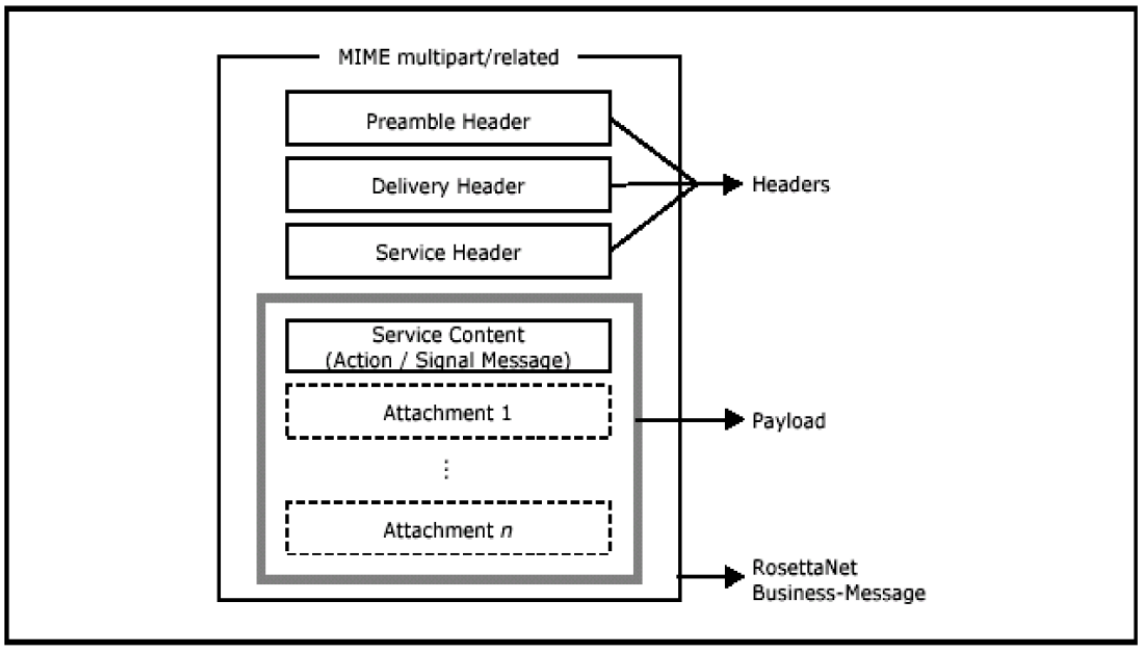
**Metrics are on a scale of 1 to 10 with 1 being the least important and 10 being the most important*

Appendix 2.) ***RosettaNet Councils***

Council	Representative Group
CCE Council	Consumer Products supply chain, including Original Equipment Manufacturers (OEM), distributors, retailers and service providers
EC Council	Electronics Components supply chain, including semiconductor suppliers, passive suppliers, connector suppliers, distributors and customers
LG Council	Logistics sector including manufacturers, third-party logistics providers, freight forwarders, distributors, sea ports, ocean liners and airlines
SM Council	Semiconductor Manufacturing supply chain, including integrated device manufacturers, fabless device manufacturers, foundries, materials suppliers, and assembly, test and probe companies
SP Council	Solution Provider community, including enterprise application developers, solution integrators, and consultancies
TC Council	Telecommunications supply chain, including global network operators and equipment suppliers

Source: www.rosettanet.org

Appendix 3.) RosettaNet Implementation Framework



Source: (Damodaran)

Appendix 4.) ***RosettaNet versus EDI Summary***

Metric	EDI	RosettaNet
Costs	$5,000-$500,000; continuing fixed cost	$10,000-$5,000,000; scalable
Target Business Size	Mostly Large	All Business Types
Number of Standards	3	1
Standards Evolution	Different Transport	Iterative Methodology
Standards Focus	Data Centered	Process Centered
Nature of Partnership	Business function	Industry focus

Source: (Praznik)

Appendix 5.) EDI Purchase Order Example

US Version 4060 EDI PO (850)-Example for The Home Depot
ISA*00* *00* *14*0722717110100 * YOUR 2-DIGIT QUALIFIER*YOUR ISA ID
*990801*0628*|*00406*000000001*0*P*\
GS*PO*072271711* YOUR GS ID *19990801*0628*001*X*004060
ST*850*0000001
BEG*22*NE(NS=New Store Order)* 8-Digit HD PO #** CCYYMMDD (PO date)*HD
Reference #
CUR*BY*USD*99
REF*S3*LENGTH:12 (Attribute Type: Attribute) Segment used for Special Orders Only!
SAC*A*I170****3*.5*****02 (eg. 1/2% EDI/Trade discount - Gross - Off Invoice)
SAC*A*E750****3*10*****02 (eg. 10% New Store discount - Gross - Off Invoice)
DTM*038* CCYYMMDD (Ship No Later Than)
DTM*002* CCYYMMDD (Delivery Requested)
DTM*061* CCYYMMDD (Cancel if Not Delivered By)
N1*OB**92*0121 (4-digit HD store #)
N3*STORE STREET ADDRESS*ADDITIONAL STREET ADDRESS
N4*CITY*STATE/PROVINCE*POSTAL CODE*COUNTRY CODE
N1*ST*CUSTOMER LAST NAME*92*0121 (4-digit HD store #)
N3*SHIP TO STREET ADDRESS*ADDITIONAL STREET ADDRESS
N4*CITY*STATE/PROVINCE*POSTAL CODE*COUNTRY CODE
REF*DP*026 (HD Dept. #)
REF*3J*0003 (HD Buying Office #)
REF*ST*0121 (Originating store number for transit facility shipments)
REF*MR*12345 (Merchandising Vendor Number as assigned by Home Depot)
PER*NT*SHIP TO CONTACT NAME*TE*CONTACT PHONE
NUMBER*AP*ALTERNATE PHONE NUMBER
PO1*1*15*EA*2.1225**VP* YOUR PART #*SK* HD SKU #*UP*UPC#
PID*F**** HD PRODUCT DESCRIPTION
PO4**PACK*UNIT OF MEASURE
PO1*2*12*EA*3.55**VP* YOUR PART #*SK* HD SKU #*UP*UPC#
PID*F**** HD PRODUCT DESCRIPTION
PO4**PACK*UNIT OF MEASURE
PO1*3*144*EA*7.8**VP* YOUR PART #*SK* HD SKU #*UP*UPC#
PID*F**** HD PRODUCT DESCRIPTION
PO4**PACK*UNIT OF MEASURE
CTT*3*171 {# of Line Items*Hash Totals (Sum of PO102 elements)}
AMT*TT*2411.52 (The total RETAIL dollar amount of the purchase order)
SE*32*0000001
GE*1*001
IEA*1*000000001

Source: http://www.homedepot.com

Appendix 6.) RosettaNet Sales Report Notification Example

```
<xs:element name="SalesReportNotification"
type="tns:SalesReportNotificationType"/>
 <xs:complexType name="ProductTransferType">
        <xs:annotation>
            <xs:appinfo>
                <urss:Definition>This object describes a POS
(point of sale) information for known/unknown end
user(s).</urss:Definition>
                <urss:Context/>

 <urss:CreationDate>08/01/2004</urss:CreationDate>
                <urss:Keyword/>

 <urss:LastUpdatedDate>08/01/2004</urss:LastUpdatedDate>
                <urss:TypeVersion>1.0</urss:TypeVersion>
            </xs:appinfo>
            <xs:documentation>
                <urss:Purpose/>
            </xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element ref="dsspt:ParticipatingPartner"
minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="SalesReportLineItem"
type="tns:SalesReportLineItemType"
maxOccurs="unbounded"/>
        </xs:sequence>
          <xs:attribute                    name="schemaVersion"
type="xs::listOfVersions" fixed="1.0"/>
          </xs:complexType>
...
</xs:element>
```

Source: (Damodaran)