

Presentation of Various B2B Business Models Case Studies

Philippe Deschênes, *Mediagrif Interactive Technologies*

Abstract—Over the years, the Internet has become more and more present in commerce and industry. During this time, many sectors of the industry embraced the Web and professional buyers, sellers and brokers started using new tools to conduct their business. This endorsement led to the creation of communities relying on a Web hub to communicate, as well as to exchange goods, services and critical business information - hence the emergence of electronic networks. Various business models were introduced to serve these industries and build these networks. Their respective communities of users, along with technology providers, carved these networks. As a result, many forms of business models emerged. Some of them evolved into mature markets while others were being created. During the process, several challenges were faced. Amongst them: Creating a critical mass of users, operating the networks, getting to know the targeted industries, all the while maintaining a strong, reliable and competitive technology framework.

Mediagrif is celebrating a decade of Electronic Commerce enablement and has acquired a unique experience in this field. This paper presents an overview of some of these business models, through case studies, and attempts to shed some light on the challenges that were encountered.

I. INTRODUCTION

The business-to-business (B2B) electronic network, or exchange, can loosely be defined as a software system aimed at publishing goods and services on the Internet, linking buyers and sellers, and facilitating the flow of information between the parties involved in the negotiation or transaction process.

The purpose of this paper is to present various B2B networks, in the form of mini-case studies. *Mediagrif* is a provider of eCommerce technology and an operator of such networks. The networks presented here were selected from *Mediagrif's* portfolio of B2B e-business networks, which are subsidiaries wholly or partially owned by the company. The four examples chosen for this paper illustrate various business models, address different industries and are at various stages in their evolution.

The *Broker Forum* is *Mediagrif's* first network. It publishes electronic components for sale (such as electronic chips) from vendors, or “want to buy” from buyers across the world. Buyers may search for parts on the Web site while sellers may post their parts inventory and then close a deal if

they wish so. This is a typical “many-to-many” network in the electronic components industry.

MERX is an electronic tendering network. Tenders are published on *MERX* (especially those from the Canadian government) and businesses looking for opportunities can find them on the Web site. *MERX* is a network addressing several verticals, and offering both a public and a private section.

Global Wine and Spirits provides an Internet network for buyers and sellers of the wine industry. It is a network offering many services, from basic goods exchange to private procurement.

Finally, the *Polygon Trading Network* will bring us back to a buyer/seller, “many-to-many” model similar to *Broker Forum's*. This network covers the diamond and jewelry industry.

The next sections describe these networks, with an emphasis on their idiosyncrasies and key elements that make them unique. Each table at the beginning of the sections provides metrics to help comparing the networks.

Following these network reviews is a section going over related aspects and challenges. The final section concludes with lessons learned and the next foreseeable steps for *Mediagrif*.

So let us move on to the first network, *The Broker Forum*.

II. A B2B TRADER'S NETWORK: THE BROKER FORUM [1]

The *Broker Forum* (BF) is a network in the electronic components industry. Brokers and distributors use BF on a daily basis to sell or buy electronic chips and components.

The sellers post their inventory either online or send it via files over the Internet. The files pick-up mechanism is automated and the inventory files get refreshed on a regular basis. Members have access to these inventories via BF's Web site and can search for a specific part. The following table gives basic facts about BF:

TABLE I
THE BROKER FORUM (AS OF JUNE, 2005)¹

Industry	Electronic Components
Year Launched	1996
No. of Members	Approx. 3500 companies
No. of Visits (members) / Month	Approx. 80,000
No. of Searchable Parts	Approx. 85 million
No. of Part Searches / Day	Approx. 160,000
No. of RFQs posted / Day	Approx. 90,000
Reach	55 countries, 20 languages

A. The Community

As it is the case with most networks, BF owes its existence to its community of users. Most of them are brokers (60%), the others, distributors (40%). Both groups can buy or sell components. Early on, the goal was to get as much vendors as possible on the network, and this, from as many countries as possible.

Rules were put in place to attract members from this community and strengthen the bonds between them. One such rule was to limit this community to those members whose core business is to exchange or distribute electronic components. The actual final buyers, such as the original equipment manufacturers (OEM) were excluded. One has to remember that this is primarily a trader's world, and the intent of the network is not to bypass existing sales channels, but rather generate additional business for their members.

Reaching the critical mass and becoming the predominant network goes hand in hand. Today, BF has attained this critical mass of users, and because of that, is the leader in its market.

BF members share this recognition. And with it comes additional responsibilities for the network. Case in point is the issue of members' misconduct and fraud. Recently, members asked BF to take measures to help prevent malicious members from transacting on the network. Even though BF is independent and does not take part in the transaction process between members, the community requested that BF take action and provide help resolving these issues. BF decided that based on member's feedback, those members known to fail to abide by the network rules would be banned from it. As a result, BF introduced the "revoked membership list" that is published and broadcasted to the community. The introduction of this feature proved to the community that the network was willing to become accountable. The community's reaction was positive, as these lists are being read and used by a majority of users today.

This community relies heavily on the network to do their business. For a majority of users, BF has become a tool as important as *MS Outlook*. Members may spend most of their

working time searching for parts, looking for vendors and sellers. Furthermore, it contributed to creating a new type of business, that of the Internet broker. Such businesses are now reaching the masses, as we see more and more brokers at the small and medium scale B2C market.

As the BF network became the tool of the trade, it was natural that users were reluctant to changes, particularly those specific to the user interface. These changes need to be carefully planned and introduced. Experience has demonstrated how important this aspect can be. At one point, the BF team introduced a new and revamped user interface. Even though this was an improvement, the community feedback was quick. As the changes were perhaps too numerous and impacted sensitive areas of the Web site, BF had to revert to its previous version. This fact illustrates how critical this tool is, and how deeply integrated within the member's business process it has become. It also demonstrates that user interface changes require planning.

In order to grow and improve the network, BF created a user group. Once or twice a year, selected network members gather and spend several days together, bringing their input and giving BF a feedback from the community.

B. The BF Revenue Model

BF is primarily a subscription-based model. Businesses join by paying a monthly fee and they are assigned a given role: Broker or distributor. The membership is granted at the company level, and employees access the network sharing the same username. BF has the right to decline or grant a subscription and does so according to its strict community policies.

Growth is achieved in part by increasing the membership base. BF has been around for 10 years now, and the electronic component industry evolved significantly during this period. The market has definitively moved from the US and Europe territories towards Asia. This situation impacted BF's membership base. US and European membership was stabilizing, while the Asian market was booming. Efforts have been made to address this new market and BF's Asian membership increased accordingly.

But this alone cannot account for the important revenue growth this network has generated. This is even more true considering that the basic membership fees did not increase for the past 5 years. Revenue growth comes also from value added services offered to members.

The most valuable added services rendered are arguably the mechanisms put in place to increase the level of trust between members:

1) The ISCP Certification

Upon agreement with BF, a member can request a specific level of certification. This program is called the *In Stock Certification Program* (ISCP). Members interested in the certification must abide by certain rules and regulations under the ISCP program. Once the company is accepted in the

¹ Because of strategic reasons, Mediagrif no longer discloses metrics on a per network basis. Since June 2005, these figures are now consolidated.

program, the ISCP symbol is attached next to the company's name. The symbol provides the company greater recognition and affords other members to conduct new business with greater confidence. The basic level (blue level) warrants that this vendor is refreshing its inventory information on a weekly basis. The gold level warrants a daily update of inventory.

2) *The Verified Status*

The members can push the certification one step further. Upon demand, BF network employees (or accredited associations) can perform on-site visits. An inspection follows, and key business information is verified (typically, the physical address, checks on the claimed inventory, etc.). This verification provides additional value to the members as this information is displayed on the network.

3) *The Transaction Assistant*

In the event of disputes between members, a notification can be issued using a form so that the nature of the conflict is brought at the BF administration level. BF may decide to get involved in solving the dispute. One such action could potentially lead to revoking a membership if the member is in fault.

4) *The Escrow Service*

The BF escrow service enforces the terms agreed upon by the buyer and seller. The buyer will receive the products and have time to inspect them for accuracy. The vendor will have confirmation that the buyer's funds are secured in the BF trust account before shipping.

Finally, other revenue streams exist, although contributing to a lesser extent. Such revenues come from the sale of space on the network for banner ads and member sponsorships for various BF tours.

C. *The Importance of Network Operations*

Many post 2000 dot-com failures were caused because owners did not recognize that after all, networks are businesses and should be operated as such.

BF's strategy was to adopt a traditional operational model. It consists of: Closely monitoring the members and their community; selling the benefits of the network to new potential members; up-selling added value services to existing customers; and above all, making sure that every member makes money using the network.

BF still relies mostly on telemarketing to reach the members. A team of customer support representatives (CSR) provides help over the phone for customers. This group is also responsible to grow the business by up-selling new services to customers.

Telemarketing vendors increase the membership base by "cold calling" prospects. Lists of prospects are derived from information obtained on the Internet, and from other sources. New members are offered a "trial" membership and CSRs help them getting around the network. Although remaining the primary channel of communication, the telemarketing activities are decreasing. To address the Asian market, local

agencies are hired that favor reaching customers with a "door-to-door" approach.

BF managers evaluate the network activity by closely monitoring some business indicators. The most important one is called the "3 loggings per week, on 3 distinct days". This figure represents the number of users logging on the network more than 3 times per week, on 3 different days. This is a simple, but quite efficient indicator of how much value the network brings to the member. The 3 logging value was determined empirically years ago, but is still used in BF and in most of our other networks. This value, divided by the total number of members, gives the usage tendency of the network. The BF ratio is around 90% and has increased steadily for the past couple of years. This means that the network is being used more and more by its members, despite the fact that the membership base is increasing.

A corporate marketing team works closely with the network team in defining future functionalities. It also seeks new ways to increase the Web visibility.

The technology team finally brings the network to life. It is responsible to create the network and host the system in production. It provides technology expertise and Web knowledge. It develops monitoring and customer relationship management tools for the BF team.

Being an international community, BF is required to support many languages. That means both on the Web site and within the customer support team. Operations are around the clock, and more than 20 languages are spoken among the staff.

D. *Contributing Success Factors*

On top of proper operations as mentioned above, the BF network benefited from key ingredients that contributed significantly to its success.

First, the timing. BF was launched right before the Internet wave hit, and at that time, was the only such service offered on the Web. The competition then was small businesses, relying solely on the fax service as a communication medium. Another key factor was the choice of industry. In the early years of the Internet, a computer literate community was likely to adapt faster to this new technological reality.

Part of reaching the critical mass of users also includes acquiring a sufficient inventory of parts to provide buyers with a big enough offer. Therefore the distributors had to provide the network with files of data containing parts inventories. One of the strategies that were put in place was to ease this process. BF encouraged their members to provide these inventory files, no matter what. BF did not impose a file format; rather it encouraged members to send what they had, regardless of the format. BF ended up with files of various formats, emails and faxes. Limiting the barrier to entry proved to be wise. Right there, members could see the added value of having their inventory information taken as is, without additional work for them, and posted on the network in a short

period of time.

Also contributing to BF's success: Strategic alliances with industry partners. This brings visibility, trust and valuable information to the network.

E. Challenges

Today, BF is considered a mature and profitable network. Despite this commercial success, the network must provide its share of growth.

One of the challenges BF is facing relates to its very social mission – that is, bringing benefits to the community. The lack of presence from the OEMs and buyers in general is a mixed blessing. On one hand, it permits brokers to buy on the network and then sell their products outside of it (most likely to those OEMs). On the other, it prevents BF from generating additional revenues from those OEMs. Ways are yet to be found on how these buying members could be introduced on the network without harming the brokers.

This problem will also have an impact on how we address the Search Engine Optimization (SEO). OEMs are likely to search for products using trendy search engines. Conversely, future plans of introducing Pay-per-Click options will also be impacted by OEMs, because it is the preferred paying method for occasional buyers.

Today, the buyer is ruling and the Holy Grail is to find a way to integrate them into the network.

Another challenge worth mentioning is the need to handle mass communications. As we have seen, the community wants to be heard by the network. There needs to be a communication channel so that members can easily express themselves to both the community and the network management team. Mechanisms are already in place today, and the benefit is measurable. BF is managing this information and can therefore be notified when something goes wrong, then picks-up the issues quickly and acts on them fast. Obviously, efforts in this area need to be maintained.

Last but not least, promoting the usage of Internet for business is still a challenge, even in this market space. Evangelization of this community will always be an important part of this business.

III. THE B2G E-TENDERING MODEL: MERX [2]

MERX is an electronic network dedicated to the publication of public and private tenders. It provides a Web presence to various levels of government (public side) and to the private sector to post tenders. Businesses and individuals looking for tenders can access the MERX Web site to search and find business opportunities. MERX serves Canadian businesses via three main services: The public tendering service, the private tendering service and the private construction service.

TABLE II
MERX (AS OF JUNE, 2005)

Industry	Government and Private Tendering System
Year Launched	1997, acquired in 2002
No. of Members	Approx. 20,000 (subscribers)
No. of Tenders	Approx. 1,500 new postings / month
No. of Visits (members) / Month	Approx. 70,000
Reach	Canadian market, 2 languages

A. Public Tendering

The public side of MERX represents the core of this business. It is the exclusive channel (above a given threshold dollar value) used by the Canadian federal government to electronically publish its tenders. MERX receives daily tenders from various departments such as *Public Works and Government Services Canada* (PWGSC), the *Department of Defence*, etc. These tenders are forwarded to MERX, via feeds, or can be uploaded on the Web site by the issuer.

Besides the federal government, other public authorities also contribute to feeding MERX with tenders. MASH institutions (Municipal, Academic, School and Hospital) provide their feeds too. At the provincial level, both Ontario and Manitoba use MERX as their primary e-Tendering service. The Atlantic provinces and Saskatchewan repost on MERX tenders that are being published on their local Web sites.

These groups represent a total of approximately 1,000 members.

B. Private Tendering

The Private Tendering provides MERX suppliers a way to post their own tenders on the Web site. The level of functionality is tiered against the size of the business using it, as both a basic and a personalized service is offered. Large enterprises, such as *Bombardier*, create an important number of tenders. Small and Medium Enterprises (SME), on the other hand, are likely to use this feature on an ad hoc basis.

Either way, the functionality is the same. The features are virtually identical as those found within the public section. The only difference resides in some functions being restricted. In order to access the detailed contact information (e.g. phone number, email, etc.), the user has to purchase this information (while this information is free on the public side).

This is an interesting feature for up selling to existing MERX suppliers. On the public side, a MERX supplier can find business opportunities. They can then switch over to the private side to request tenders for goods and services to address the newly found opportunity.

C. Private Construction

The Private Construction section brings tenders from the private construction sector. Tenders come from *McGraw Hill Construction*, well known in the print and construction

industries. Tender feeds are uploaded daily. MERX suppliers can then search these aggregated tenders on the network.

D. Tender Documents

Tender feeds come in the form of files or can be uploaded interactively online. These files contain abstracts that are categorized and displayed on the Web site. Along with this summary information, additional documents are provided. These are usually the tender detailed documentation, amendments, blue prints, etc. Sometimes, physical items, like samples, can be provided.

The *MERX Distribution Unit* (MDU) receives all these collaterals. It validates the information and handles the documentation. MERX users can place orders to print a given subset of documents and have them sent via courier, mail, pick-up, etc. Document handling and distribution is MDU's mandate.

E. The MERX Revenue Model

MERX drives its revenues from different sources. Several subscription and pay-per-use packages are available, somewhat similar to the other networks. What sets this network apart, though, is its relationship with the federal government.

The federal government originally solicited this e-Tendering initiative, through which the MERX Web site was created. By law, the government required its internal services to use this technology to publish any tender over a certain threshold dollar value. The actual tender for this e-Tendering initiative (not to be confused with tenders published on MERX) issued by the government requested that proposals include three different business model scenarios. Bidders had to come up with a solution for all three to be eligible.

The solution selected, MERX, was designed against one of these three scenarios, and later adopted a 'hybrid' model. Under this model, MERX, a private entity, is partially subsidized by the government. In virtue of freedom of access to government public tenders, MERX provides its members a no-cost option for these opportunities. Anyone can search federal government bids and electronically preview the information. This privilege though, is restricted to federal bids.

Despite this constraint, the look and feel of the Web site does not have to match that of the government's. MERX also had the option to add non-federal tenders, if it so wished. This is obviously the case today with the Private Tendering service.

However, access to other tenders, such as those issued by provinces, MASH and private sector, all require a billable membership.

Physical items, such as printed versions of the tender documents, can be ordered through the MDU, providing additional fees.

Electronic versions of these documents can be downloaded from MERX as well. This service is free. However, by

bringing additional value to MERX subscribers, it also creates traffic on the Web site, generates interest and represents an opportunity to cross or up-sell other services.

F. Challenges

MERX, along with other Mediagrif e-Tendering networks demonstrate that information aggregation does have substantial value. MERX has become the main hub around which the government, suppliers and private buyers communicate. Part of it is due to the fact that MERX was originally a government initiative. It brings with it several thousand members who need to use MERX if they want to access government contracts.

This situation brings interesting challenges. First, the government has a say in defining the content of the MERX Web site. This is especially true when it comes to modifying the user interface of the Web site. The members are used to a given look and feel and changing it has the potential to generate a negative reaction from them. There are businesses that access MERX and make a living out of the contracts they get from the government. So you cannot easily change the way they work unless it is carefully planned – and properly approved.

MERX is facing a similar issue with the revenue model. The government participates in setting the membership fee, and the basic access is free. So from that standpoint, the revenue growth has to come from alternate sources.

As we have seen, several packages offer additional value to the member. Most members use one or more of these services already. Marketing and sales activities help in selling these services.

The next natural step is to implement an electronic bid submission system. This feature would extend MERX's reach within the supplier's business process and add substantial value to a large number of members. Another initiative could be, at the government level, to offer support for tenders other than those above the threshold value. As well, ramping up the provinces and bringing them on MERX is also an interesting option.

The other side of MERX, the private side, is another sector from which growth is generated. Both large corporations as well as SMEs contribute to this growth. In fact, the private tendering is a good example of how existing business models can be extended and leveraged to generate a parallel revenue stream.

On a final note, this model can be replicated and exported so that other countries could benefit from it. Of particular interest, implementation of e-Tendering systems in third world countries could contribute to lower the level of corruption related to government contract granting. The *Philippines Procurement Service* Web site, built on the MERX technology, is an example.

IV. AN INTEGRATED B2B NETWORK / PROCUREMENT SYSTEM: GLOBAL WINE AND SPIRITS [3]

Global Wine & Spirits (GWS) is a network in the wine and spirits industry. It is made of modules, each one addressing various aspects of this industry. GWS has a greater reach and scope than traditional B2B networks as its mission goes beyond simply linking a buyer with a seller.

TABLE III
GLOBAL WINE & SPIRITS (AS OF JUNE, 2005)

Industry	Wine and Spirits
Year Launched	2000
No. of Members	Approx. 1,000
No. of Opened "Call for Tenders" and "Spot Market Place" Offers	Approx. 400 at any time
No. of Visits (member) / Month	Approx. 11,000
Reach	Approx. 60 countries. Site translated in 5 languages. Customer service in 13 languages

A. *The Global Wine & Spirits Network*

Four major actors play a role within GWS. First, the suppliers (wine producers) provide their product description and inventory. Supplier sizes can range from small family enterprises, listing only a handful of wine products with a low volume, to large enterprises with mass production volumes. The buyers are ranging in size from small hotels and restaurants up to monopolistic corporations (e.g. *Société des alcools du Québec* - SAQ) looking for wine sourcing or purchasing. Agents play a role similar to that of BF, i.e. brokerage. Finally, freight forwarders provide logistic and transportation services.

The broad range of company sizes along with GWS's reach call for tiered services.

1) *The Call for Tenders and Spot Market Place Functions*

The *Call for Tender* (CFT) section is a dynamic listing of requests for quotes for wine and spirits. For each request, a link leads to the detailed information page, where the user can issue a response by providing a quote. CFT have duration in time, similar to auctions.

The *Spot Market Place* (SMP) function does exactly the opposite. Suppliers list their featured products hoping to find a buyer for the goods.

2) *The World Wide Product Directory*

Essentially, the *World Wide Product Directory* (WWPD) is an electronic product catalogue, fed and maintained by suppliers and GWS's customer support.

Products can be described with a significant number of attributes, such as alcohol percentage, format, type of wine, contest ratings, etc. Along with the product descriptions, a label's photograph can also be attached.

Wine and Spirits items are searchable by members, which, most of the time are looking for products, or searching for suppliers for sourcing purposes. But members are not the only

one searching for products. Search engines are also crawling the Web site. This brings additional and desirable visibility to GWS suppliers.

3) *The Member Web Sites*

If they so desire, members can have their own specific zone, or Web site within GWS. They can add a short company description and promote their own products. This feature is particularly valuable for small producers, as it provides a personalized Web presence at low cost and virtually no effort.

Another collateral benefit is the visibility it brings, as these Web sites get to be crawled often by major search engines.

4) *The Wine Traders Club*

The *Wine Traders Club* (WTC) is a somewhat different service. While being part of the GWS offer, it is not linked to the network. It addresses a different market segment, the fine and rare wines market. While GWS allows wine producers to connect directly with buyers, WTC is rather a community of intermediaries (brokers, wine merchants, distributors) acting in a secondary market. As GWS is more oriented towards high volume market, the WTC complements this offer.

The WTC is a membership based network, although it does accommodate non-member visitors. These guests can post offers on WTC. The reach of WTC therefore exceeds the B2B limits because it opens the door to B2C activities.

5) *The Integrated Transport Tracking*

A sophisticated transport-tracking module (ITT) integrates large buyers with major wine freight forwarders. Transport orders can be created on GWS, along with the purchase orders. The transport order specifies the goods to be delivered, the source, the destination, and the packaging information. The freight forwarder provides the routing and logistic required to fulfill the order.

Using this hub, the freight forwarders transmit feedback to the buyers so they can track their orders. If required, the buyers can also extract detailed error conditions and take action on them by sending back a response.

B. *The SAQB2B Procurement System*

Liquor distribution in the province of Québec is legislated at the provincial level and restricted so that only the SAQ can sell wine and spirits. The SAQ had a need to improve its technological infrastructure and helped GWS shape the network. The SAQ has been a GWS partner from the start.

The SAQ benefits from GWS in that the network provides access to their suppliers, electronically, and because it brings procurement functionality. Initially, the SAQ wanted all its suppliers to become a member of the GWS network so that purchase transactions would be issued exclusively using this channel. Funneling all purchase orders through GWS would streamline and simplify the procurement process. However, because of pressure from the suppliers and for ethical reasons the SAQ had to abandon the idea. Instead, it would provide its own private procurement portal, and offer a free access to its suppliers - hence the creation of the

SAQB2B portal.

The SAQB2B portal is built on the GWS technology framework. The SAQ manages its own subset of suppliers themselves, using the portal tools. The GWS content team is responsible to import inventory items from the suppliers and to feed the portal catalog.

The portal is coupled to the SAQ's internal system, enabling data exchanges with the suppliers. For example, a typical purchase order transaction is created by SAQ's personnel or automatically generated by the SAQ's internal systems. This transaction is forwarded via an XML file to the SAQB2B portal. The supplier will be notified of this purchase order through an email or fax, and will respond to it via electronic data interchange (EDI) or simply by login into the portal. If an agent participated in the transaction, he will also be notified.

C. Other Related Portals

GWS has the industry knowledge and the technology to address different initiatives that come up. Its infrastructure has been in place for years, and the mechanisms and hooks to link to enterprise systems have been proven and used every day. Also, from a content management standpoint, thousands of suppliers have been providing their inventory. This expertise makes GWS an attractive solution provider for many businesses in the wine industry. As a result, GWS extended its business model and launched its *GWS eBusiness Solution* initiative. This group undertook two private portal projects so far:

1) Bordeaux-Aquitaine portal

The *Bordeaux-Aquitaine* portal regroups 120 wine producers from this region. This group owns the portal and the Web pages' content are under their own responsibility. Products uploading and searching uses the GWS infrastructure, and by means of data syndication, product pages can be displayed with a distinct *Bordeaux-Aquitaine* look and feel on their own portal.

2) Grands Chais de France Portal

A major producer and first French wine exporter, *Grands Chais de France*, wanted a portal so they could show their products to their distributor network. Sales representatives would then be able to place orders on the portal. *Grands Chais de France* is also EDI enabled and orders are sent directly into their internal systems.

D. Operations

Similar to BF, GWS relied on a sound operational strategy. Here again, a team of customer service representatives is working around the clock and speaking many languages to reach a worldwide territory.

During its start-up and emerging phases "cold calling" was the main member recruiting activity. CSRs called businesses from lists of companies. Although this is still an essential activity, GWS introduced new marketing vehicles, such as

their "Newsletter" flyer, that helped reduce the need for cold calls. Printed and electronic versions of this flyer are sent on a regular basis to a large number of recipients (both members and prospects).

The "Newsletters" along with CFTs and SMPs have contributed significantly to the growth of GWS. The CFTs, which are essentially lists of "want to buy" ads, is an attractive feature for suppliers. As a consequence, GWS is now receiving an increasing number of incoming calls from businesses interested to join the network.

GWS also invests considerable efforts in promoting the network. GWS takes part in several trade shows around the world, is sponsoring major events and is partnering in wine contests.

E. The GWS Revenue Model

GWS is driving its revenues mainly from its business solutions division although growth also comes from member subscriptions. The value added services, such as the member's Web sites and the WTC, are also contributing.

GWS provides to its members optional data aggregation services. These include digital assets acquisition, photographic work and integration of this information on the network.

Finally, integrations to internal systems are yet another revenue source.

F. Challenges

GWS had a hard time fine tuning its business model. It took longer than other initiatives to reach maturity. The GWS network was initially designed against the more simple and straightforward business model of BF. It proved not entirely applicable as is.

The wine industry is one of culture and tradition. Trying to introduce computers and Internet in this world is an audacious task. Although benefits are numerous (after all, this is a fragmented market, international by nature, producers could use more visibility, etc.) the initial low level of adoption slowed the growth of the network.

Wine traders and agents felt threaten by the network, fearing they would loose their role in this multiple-century old industry.

Clearly, GWS was ahead of its time.

Today, as this network is getting more imbedded with the wine industry processes, new challenges are faced. The question of allowing visitors and end-user buyers (consumers) is still pending. New ways of providing increased visibility to suppliers need to be found.

Nonetheless, after 5 years in operations, this network has won the recognition from the industry and it has become the largest wine-trading platform. It is the only network with such a broad and complete offer in the wine market today.

V. A COMMUNITY BASED B2B NETWORK: POLYGON [4]

The *Polygon Trading Network* (Polygon) is a membership-based Web site providing an environment for business-to-business trading and communicating between jewelry industry retailers, suppliers, and related groups. Among other resources, its key features are: Four searchable databases of products (diamonds, colored stones, jewelry, and watches) in which members post inventories and search for specific items, and; An extensive list of functionalities for sending and receiving messages between jewelry dealers. Typically these messages are requests to buy or sell specific items of merchandise (trading channels) or are contributions to ongoing discussions involving industry topics (discussion channels).

TABLE IV
POLYGON (AS OF JUNE, 2005)

Industry	Diamonds, Colored Stones, Jewelry and Watches
Year Launched	1984 (Internet presence since 1996), Acquired by Mediagrif in 2004
No. of Members	Approx. 3000
No. of Visits (member)/Month	Approx. 36,000 visits/month
Reach	US market, mostly

The history of Polygon dates back way before the Internet era. The need for linking sellers and buyers in this industry was recognized by its founder more than 30 years ago. This business took many shapes during that period and moved from a listing based system, relying on slow modem connections to a BBS style download service, then to a complete interactive network on the Internet. Of the four networks presented in this paper Polygon has the oldest members.

A. The Polygon Trading Network

Polygon provides all the necessary features that need to be assembled to make up a comprehensive and effective B2B network.

1) Message Center

The Polygon Message Center is a telecommunication network for sending and receiving messages between jewelry dealers.

Most of the activity that occurs on the Message Center consists of messages posted from one subscriber to the rest of the network. Broadcast type messages are sent over various channels. For example, if you were to send a message advertising a watch for sale, you would send it over the channel called "Watches for Sale", which is abbreviated WS.

Most of the channels are set aside for buying and selling merchandise. Others are for non-trading purposes, such as business discussion, conversation, information, etc. Channels have been created to give those who aren't interested in certain subjects the ability to skip past them.

2) Content Management

This group of features can be used in Polygon to support vendor operations. Vendors can update their inventory information at any time and from any desktop Web browser, provided they have the proper authorization to do so.

There are currently four databases on Polygon that allow members to offer large quantities of jewelry related goods for sale, in a list format that can then be searched conveniently by buyers.

These databases are:

- The CertNet database - which lists loose diamonds for sale
- The JewelryNet database – which lists finished jewelry for sale
- The ColorNet database – which lists colored stones for sale
- The WatchNet database – which lists watches for sale

3) Search Functionality

This group of features allows buyers to search through the content of the different databases to find the products that they are looking for.

The search interface for Polygon databases was developed in very similar ways to offer the same functionality to help members switch easily between the different databases.

B. The Community

The diamond and jewelry industry is an old institution that carries its own traditions. Therefore the introduction of the Polygon network was quite disruptive. However, it allowed members to access a wealth of opportunities, especially those coming from the secondary market (stones bought on the street rather than from wholesalers). The electronic platform eventually became a must-have because this market is fragmented and opportunities are spread across the country. Indeed, Polygon helps numerous jewelry retailers sell and buy stones with good profit margin.

Discussion forums provide these members a communication channel for their business exchanges. As there are many areas of interests, several channels are available, ranging from trade related discussions to casual chats.

The Polygon network is a powerful tool but cannot replace a face-to-face meeting. To complement activities on the Web site, Polygon holds industry meetings, appropriately called "conclaves", so that members can have the opportunity to meet each other. More than any other network, Polygon is a community-based network.

Today, Polygon covers a large cross section of the industry, and has become the tool of the trade for many businesses.

C. The Vetting Process

As one might expect, transactions negotiated on the Polygon network can reach high prices. This is the reason why members triggered the implementation of a vetting process, so

that Polygon memberships would be granted to those who are trusted in the industry.

A separate business entity, called *TradeLock Password Protection* (TradeLock), was created. TradeLock is a universal password protection system for jewelry industry Web sites. For such B2B Web sites, TradeLock provides a way to ensure that only verified members of the trade are allowed access. For members of the jewelry industry, a single TradeLock ID provides access to many trade-restricted jewelry industry sites, including Polygon.

The TradeLock accounts are created based on a manual vetting process. Once the applicant gets approved, its TradeLock ID is generated and can then be used to access the various sites that are protected via TradeLock.

Joining Polygon is a distinct process. Once TradeLock enabled, the company can subscribe to Polygon and then access the Web site.

Today, members would like to see a similar vetting process to TradeLock's, within Polygon, to improve how applicants become members.

Currently, there are two schools of thoughts on how this process could be implemented. First, there is the thorough check at the gate, preventing non-appropriate applicants to even become members of Polygon. Candidate members would submit to a fairly rigorous process regarding credit-worthiness, years in business, good references, etc. The second method calls for providing more information about the member, so to inform the community about the member's track record. This later option offers some advantages. It is somewhat more liberal, in the sense that it allows more users the opportunity to join the network. It also provides members enough tools to have them take their own decisions on whether or not they want to do business with a given member.

D. Operations

As it is the case with the other networks, Polygon monitors the Web site activity. Some simple but key metrics are routinely evaluated such as the number of times a user logs on the Web site and the number of message postings. This gives an empirical measure of the Web site activity. Feedback is also obtained by moderating the various discussion channels.

A CSR team is dedicated to Polygon. In the early days, support calls were more technology oriented, since modem connections were less reliable and more complex than using the Internet. Today, more time is spent promoting and giving a hand on using the Web site or helping with dispute resolutions.

On the sales side several channels are used to promote and sell Polygon. Direct mail, telemarketing and word of mouth are all standard methods similar to those used by other networks. The distinctive element encountered with Polygon is the good relationship it maintains with publishers of magazines from the industry. Polygon was able to get national advertising and it helped create its good reputation and reach

the critical mass, largely because of barter exchanges with the trade publications.

E. Revenue Model

Most of Polygon's revenues come from membership fees. Additional revenues also come from other sources such as banner ads.

F. Challenges

Polygon has faced stiff competition from the day it opened. However, its competitors have generally been short lived. Since its inception, Polygon has fought off over two dozen competitors. Most of them lasted three years or less before going out of business.

Polygon has had a relative long existence and went through several technology shifts and trends with success. It did so by demonstrating flexibility and adaptability. Today, most of the challenges Polygon is facing are related to the evolution of the Internet and the way it impacted electronic commerce:

- As a result of the universal access to the Internet, the procurement chain is shrinking. More and more consumers have the perception that mark-ups are high in the jewelry industry and that they are better off buying directly from the wholesalers. This means buyers are slowly bypassing retailers. The long-term impact of this trend is still unclear, therefore addressing this market segment is challenging.
- Increased competition from major Internet players may represent a threat. Auction based Web sites offer all kinds of goods and they have become quite popular. How this might effect a community-based network focused on a given industry is yet unknown.
- Today, buyers are usually given free access to networks, while sellers pay for the service. Polygon's revenue model may need to be revisited accordingly.
- Large companies and mass merchandisers market segment is an opportunity that should not be overlooked. Polygon needs to find ways to provide these enterprises enough value to bring them onboard. Polygon's membership today is largely made up of independent retailers, plus wholesalers, but does not include the mass merchandisers.
- The free trial membership (similar to what *Broker Forum* uses) is a good selling tool. However, because of the current vetting process, this is problematic for Polygon.
- Polygon is expanding its reach and is now addressing the Asian market.

VI. CONCLUSION

The Mediagrif business model is quite unique because it allows side-by-side network comparison and provides a good opportunity to experience electronic commerce in various

industries. This knowledge is shared amongst the networks and efficient synergy can take place.

To conclude, here are some findings:

A. Lessons Learned

1) *The industry knowledge is an asset*

Although some networks were able to grow and succeed with little or no initial industry knowledge, this is no longer possible today. The market is more demanding and member expectation increases with time. As a result, the industry knowledge is inevitable, and some fundamental parameters need to be known:

a) *Product Characteristics*

Since products are likely to be the cornerstone of the network, their characteristics are of primal interest. Product information can be roughly segregated in two categories: the catalog information and the inventories. Catalogs contain the product definition, its characteristics, specifications, attributes, etc., while inventories assign a quantity and a price to the product.

Product information does impact the network's business model. It will drive how the products get loaded on the system, maintained, displayed and searched. Also related is the product uniqueness. As an example, BF's electronic components need not be catalogued and described with several attributes. Usually, only a product part number will suffice. Therefore BF utilizes only inventories. GWS is at the other end of the spectrum. Bottles of wine need several attributes (such as color, grape type, region, etc.) and can be searched using any of them.

The price/weight ratio is another good example of a product attribute. The price/weight ratio for a container of wine is low compared to a box of electronic chips. This is why logistic and shipping issues are so important to GWS.

Data volume and refresh frequencies can also vary considerably from one network to another.

b) *Transaction Characteristics*

The nature of the business transactions performed on the network also contributes to shaping the business model. It starts by identifying if the network will primarily be used for sourcing (as it is the case with a majority of GWS members), for procurement (e.g. SAQB2B, Polygon) or if it will be used to post tenders (MERX).

Another factor to evaluate is the time to transaction. Using the same example as above, we observe that sourcing and ordering a crate of wine may take several months, while purchasing electronic components may take minutes. The transaction cycle and follow-up will therefore be different for each network.

Transaction security and privacy may be critical for a network, while being not so important for another.

Finally, some market niches require more exploration before reaching maturity and may end up being too soon or too late to market. A partnership with an industry player

maybe desirable and can quickly become an asset (e.g. GWS and SAQ).

2) *Business models cannot be blindly cloned*

Besides those mentioned in the previous section, business models depend on several factors, such as: the community, the industry, the size of enterprises targeted, the market fragmentation, etc. Properly tuning a business model is challenging and may take time. GWS started up with the assumption that a BF style business model would probably work in the wine-sourcing context. This is a case in point that business models cannot be cloned with the expectation of reaching the same level of adoption and immediate success.

3) *The human factor is important*

One of the lessons learned was that commerce is human by nature and as such cannot be replaced by technology. The electronic commerce is merely a tool to bring additional business or to improve business processes.

As seen in the mid '90s with Enterprise Resource Planning systems, the technology is slowly becoming more of a commodity than a goal. Members are shaping the networks, not the other way around. The e-Commerce focus today is oriented towards providing additional visibility through SEO techniques, better and trendy user interfaces, and up-to-date information. Obviously, to achieve these objectives, the technology aspect is critical, but is no longer the main differentiator, as it was 5 or 10 years ago.

Feedback mechanisms are increasing in popularity as it helps securing a transaction with a new business partner. This is bringing the network one step closer to human nature – by providing tools to evaluate a seller's (or buyer's) reputation. Protecting the members is probably the most important added value service.

4) *Good network operation is a success factor*

A B2B network is a business, and needs to be constantly monitored. Fortunately, tools such as data warehouses and Web monitoring software can provide lots of metrics to measure the network trends. Traditional methods of reaching the members or promote the network are also invaluable.

It takes years before a network dominates the market. But once this mark is set, it is difficult to move members from one network to a competing one. As an example, in the late '90s, one of Polygon's competitors network tried to dominate the same market, pouring in considerable resources. Because of members being pleased and satisfied with Polygon, the competing initiative failed, and members remained on Polygon. That should not prevent constant vigilance however, as today major players have become bigger and their visibility on the Internet is increasing.

5) *The buyers rule*

There is a natural tendency for buyers to expect a free access to any Internet service. This trend is observed on the Internet in general and is becoming more and more present, as more consumers want to access wholesalers directly.

6) *The revenue model is evolving*

The revenue model is evolving, influenced by various external factors shaping the network, but also because the Internet is slowly imposing trends. Pay-per-click options are being adopted as many Internet services have popularized this option.

Value Added Services need to be introduced on a regular basis to complement the offer and keep up with the competition. That being said, the bottom line is that additional value is good, but additional *business* is even better.

7) *Supporting various business models and vertical markets require an agile technological infrastructure*

The four networks presented here demonstrate how deep into business processes they have delved. The network's ramifications go beyond the Web to reach the members in various ways, depending on the industry, the nature of the link between the members and the network, and the members' needs. They also address different vertical markets.

This complex and dynamic environment influences the technology strategy.

The software and hardware infrastructure has to be flexible to provide the level of agility required to support the networks. In particular, the software development strategy is crucial. At *Mediagrif*, a software development team owns the responsibility of creating this infrastructure. Most of the software has been developed in-house. Having the ownership of your own technology brings the autonomy and flexibility needed.

The software infrastructure is based on industry standards, when seen fit, and sometimes uses commercial components or open source code. Technology choices need to be taken diligently.

B. *Challenges*

Each network has its own priorities and challenges, as mentioned in their respective sections, but most of these share a common ground.

The networks are exposed to competition from other "cloned" Web sites. Although it is difficult to gather a sufficient number of members to reach critical mass, competing sites can potentially solicit members from *Mediagrif's* networks to switch over to their own. The Internet, while providing a unique entry point to the B2B electronic commerce, has in some way sanitized the access to information. As a result, customer loyalty is hard to acquire and constant efforts are needed to maintain a good retention rate.

Major sites, such as *eBay* and *Google* also represent a potential threat or opportunity, as they have started to address the B2B market space.

New technologies can provide additional benefits, but at the same time may create new challenges. One such example is the Real Simple Syndication (RSS) technology. RSS feeds syndicate information to those who subscribe to this service.

Web sites, by adopting this new standard, simplify the process of acquiring information for the Web users and could, in some cases, question the need for information aggregation networks. Networks based on an information aggregation business model may need to factor this in.

C. *Next Steps*

Each network has its own business plan, and objectives are set accordingly. However, at a more global level, *Mediagrif* identified certain business areas that would be addressed in the coming year.

First, the Asian market represents an undeniable potential and some networks, such as *Broker Forum* and *Polygon* have already strengthened their presence in this region of the world. More is to come during 2006.

Mediagrif, through its pool of B2B networks, inherits thousands of companies as customers. Expansion of current business models is a natural path to increase revenues and opportunities. One of them is to address cross selling between industries.

On the technology side, constant efforts are made to consolidate the expertise and resources so that a central application can serve multiple networks. New technologies will be introduced and bring additional value to the world of the B2B networks.

VII. SUMMARY

This paper presents an overview of four established B2B networks. Key functionalities are laid out to describe these networks, to bring out their respective business model characteristics and to ultimately demonstrate lessons learned and industry trends.

This case study is by no mean complete and no formal scientific methodology was followed to write it up. Rather, it is based on the author's field experience and on interviews conducted with various players from these networks.

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