

# LEVERAGING IT FOR A COMPETITIVE ADVANTAGE— CASE OF EBAY

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## ABSTRACT

*eBay is a highly visible company that has been immensely successful in their implementation of a business strategy that incorporates their information strategy. It is a shining example of an Internet era company that actually turns a profit, and managed to outlast the “dotcom crash”. By remaining flexible and adaptable, the ever-changing eBay has developed a technology platform that differentiates them from their rivals. This paper analyzes the information technology strategy and information systems policy adopted by eBay to react to the business dynamics while maintaining the leading position in the industry. The company is resilient, versatile, and an excellent example of how a company can successfully leverage information technology for a competitive advantage.*

**Keywords:** business strategy, information strategy, technology platform, competitive advantage

## INTRODUCTION

The business strategy of eBay is exemplified in the company’s mission statement, “eBay’s mission is to provide a global trading platform where practically anyone can trade practically anything” [3]. Technology and information systems are critical to the success and future of the company. eBay does not have any physical store locations; the company’s presence is that of a marketplace. Warehouses or inventories do not exist. The business is based on community, and the marketplace is what enables this community to come together. eBay’s revenue is based on commissions received from the sales that occur in their community, so the more people they can reach and the more these people are able to buy and sell, the higher eBay’s profits. eBay may collect as little as 6 percent on each sale, but most of that is profit. It’s truly the sort of business that couldn’t exist offline [5].

eBay uses technology and information systems to help the community members buy and sell items online. First, eBay develops and acquires programs and services to help the community transact business easily, safely and more effectively, such as Buy It Now, Pay Pal, buyer protection, educational tools, and feedback ratings. Second, they are focused on providing a strong technology platform, so that customers can have reliable access the website from anywhere in the world. And lastly, eBay establishes policies and guidelines for the community to help increase safety and trust in their online marketplace.

## ARCHITECTURE AND INFRASTRUCTURE

Founder Pierre Omidyar’s homegrown auction application was the beginning of eBay. His original application vision, which began as a two-tier application in a proprietary C++ procedural system, surprisingly managed to support the eBay business model for a considerable period [8].

Certainly, Omidyar had no idea, nor had he built his application for, how eBay would evolve into the technology platform it has become. The presentation logic was not separate from the data logic [8] and there was no significant fail over or redundancy strategy. The system was never designed to handle the growth in traffic or the various business processes required of an eBay beyond auctions.

Despite these limitations, eBay Technologies president Maynard Webb spearheaded a series of minor upgrades to keep eBay viable. However, it was clear that eBay needed both a new architecture and infrastructure. While the upgrades helped to temporarily address some of the shortcomings of the architecture; flexibility, scalability, and manageability were still primary limitations. Because the original application was designed to facilitate business rules relating to auctions, it proved difficult to adopt new business strategies. This lack of flexibility was preventing eBay from moving into new markets.

Scalability was a major limiting factor. The application was running on a single instance—an Oracle database on one instance of the Solaris™ Operating System on one Sun Enterprise™ 10000 server [8]. While migration from a single server to a storage area network and some performance enhancements improved the situation, there was still much room for improvement.

Modifications over time (feature enhancements, emergency bug fixes, etc.) were making the application difficult to manage. One particular program contained 3.3 million lines of code [8]. This made debugging and finding problem source code extremely difficult. Engineers and architects were spending the majority of their time fixing problems and keeping the site alive with little or no time to proactively develop architectural strategy. If eBay wanted to successfully expand to meet the needs of its growing customer base and new business models, it had to incorporate a new architecture while simultaneously keeping the present architecture running smoothly. This would require a focused and ambitious effort.

## **EBAY TOOLS AND COMPONENTS**

eBay created a developer program for businesses and individuals, for modest user fees, to incorporate “eBay” technology and functionality in to their personal or business applications using eBay components. And even though the architecture adheres to the principles of J2EE, the technology is available to practically any platform. The eBay API, which is the primary component, is a collection of database calls that will return results in a consistent XML based format. This allows for developers to easily incorporate the eBay API in software applications to customize or modify as desired. The API includes, but is not limited to, the following functionality: listing items for sale, viewing information for listed items, getting categories of items for sale, retrieving lists of items for sale by a specific seller, and leaving feedback on a specific seller after a transaction.

The Software Developer Kit (SDK) is a wrapper application for the eBay API. It encompasses the common API functionality and exposes it using pre written code, which further simplifies use of the API. There are two versions of the SDK, one for the Java programming language and the other for a variety of Windows programming languages including Visual Basic (version 6 and .NET), C#, and C++. While these components are useful and helpful for developers, they

may not be that useful to many end users or others without the desire to deal with technology. For those, eBay created some applications to leverage the eBay technology.

eBay Tools is a collection of solutions designed to improve the eBay experience with less technical involvement than using the API or an SDK. This solution includes Seller Tools, the Merchant Kit, the eBay Toolbar, and the Editor Kit. The Seller Tools simplify the buying and selling process by providing functionality for listing multiple items, creating templates for repeated use, inventory management, sales and account management, email tools, and financial reporting. The Merchant Kit allows the seller to display their items on their own website with one line of HTML code. The eBay toolbar allows a user to monitor eBay activity from the desktop such as keeping track of items for which bids have been placed. The Editor Kit provides for simple inclusion of eBay content to client's website.

### **BUILDING COMMUNITY THROUGH CUSTOMER SERVICE**

Since a website cannot be successful if people cannot figure out how to use it, eBay strives to provide high quality customer service, with the help of many different technologies to provide online support, such as chat rooms, discussion boards, and frequently asked questions (FAQs). The FAQ refers to a section of the eBay website that houses an extensive collection of many commonly asked user questions that are listed and categorized on their web site in order to help newer users. There are some categories available in the help section that would be useful for the newest members, including "Becoming an eBay member," "Finding an Item" and "Getting Started on eBay," as well as some moderately more advanced categories of questions for more experienced users, such as "Selling" and "eBay Stores." If the topic in the site user is looking for is not listed on the first page of categories, they can view them sorted into an extended A-Z index, or they can enter a topic into the "search help" box in order to generate a list of subjects [4].

If the user either doesn't want to use the FAQs or cannot find the answer they need, there is an option for the user to click on a "Contact Us" link on every help page. This is where a person can send an email to eBay's customer service representatives, who are located in customer support centers in Burnaby, British Columbia; Salt Lake City, UT; Omaha, NE; and Berlin, Germany. A second European customer support center is planned for Dublin, Ireland by the end of 2005. The "Contact Us" hyperlink directs web users to an online email form. The first part of this email submission form is three pull down charts in which the user can narrow down the topic of their question, so that the email can be directed, using an email filtering technology, to a customer service representative who is trained especially in that area, and who would be most likely to be able to answer the question accurately.

eBay uses an automatic email response technology to immediately send a message to the email sender that the staff has received their email question. Another email is sent out with the actual answer within 24 to 48 hours in most cases, often even faster. The quality assurance department monitors the customer service representatives' email replies to make sure that all inquiries are being answered appropriately. Another tool used to measure the quality level of customer service is email surveys, sent to customers who have requested and received email support.

Customers can also receive assistance through eBay's live help capabilities, a software solution provided by LivePerson, Inc. The live help tool uses instant messaging technology to enable the customer and an eBay service representative to communicate online in a real time chat environment to resolve their inquiry. LivePerson also has some other useful applications, it allows eBay to monitor and gather information to use to report on chat traffic, customer service performance and customer satisfaction, and has features to support special promotions. This program follows eBay's privacy policies by working in conjunction with their customer profiles notification preferences [9].

Another means of fast customer support is the "Community Answer Center". This area is a forum where eBay members can use discussion boards and chat rooms to ask questions, give or get answers, and share information about eBay. Other members usually quickly answer the questions posed in this area, which saves eBay customer service time and money. The forums are not moderated by eBay, but customer service representatives are present and will often post to the chat rooms and discussion boards. Listening to the customer comments and feedback has proven very beneficial for the company.

Meg Whitman, CEO of eBay, reads posts on the discussion boards a couple of times a week, and often sits in on the Voice of the Customer groups where users are asked to comment on the site and features. According to Ms. Whitman, "We've learned that the best ideas and the best feedback come from our community of users. We're far more effective if we interact with them much more frequently than ... think about it by ourselves" [7]. By using the interactive technologies to foster input from customers, eBay is leveraging this strength for a competitive advantage over traditional retailers, who do not have this capability readily available.

## **EVOLVING POLICY**

For consistent and safe trading in the Internet based marketplace environment, eBay has developed a set of community policies. eBay's policies are developing and implementing community standards. The company constantly conducts reviews of its policies and user agreement and makes changes and adjustments every year. The community does have an influence over this process. When eBay proposed new fees for reserve auctions, community members used the bulletin boards on the site to protest, leading to eBay reducing the proposed fees [1].

In following with this example, eBay has just announced that it is creating the eBay consumer panel in conjunction with Keynote Systems, formerly Vividence, as a way to solicit more input from the community using a tool called the Connector [2]. This ability to leverage information technology to instantly communicate with community members provides eBay with a significant competitive advantage over offline stores without this type of information system in place.

eBay periodically updates its policies to reflect new corporate stances especially on issues such as which items are permitted for auction on the site and how it will use personal information received from its members. Some of the updates are routine and some of them are necessary due to information system issues. For example, in 2001, when the company had discovered a bug in its registration procedure, it reset the personalized settings for over 6 million of its customers. As

another example, eBay changed its policies about some JavaScript functions used in online auctions for security purposes. SpinImages created with some versions of the software are not allowed for use on eBay.

eBay requires that all users be at least 18 years of age. The reason behind this policy is that in the past underage bidders have placed bids on items that they never intended to purchase, and as minors they cannot be held legally responsible [1]. eBay policies also prohibit making threats of physical harm to another user. Significantly misrepresenting an item by not meeting the terms and item description in the listing, or failing to deliver an item for which you accepted payment, are other violations of eBay policies and may also be considered criminal fraud [6].

One of the changes to eBay's user agreement involves the circumstances under which the company may suspend a member or remove a seller's listings. Currently, the company warns customers that, among other reasons, their account can be suspended if their actions will cause a legal liability to the company, other customers or themselves. The company can also suspend customers if eBay believes their actions may cause a financial loss to the company, other customers or themselves. eBay's new user agreement could allow the company to change its rules immediately by posting a note anywhere on the site, even on scrolling chat boards where the messages disappear after a certain time.

It is the official policy of eBay to prohibit members from arranging deals outside the confines of eBay's marketplace. This is because buyers who choose to conduct business outside of eBay are not protected by the company's insurance program, feedback system, or any policies. Under the eBay policy, sellers who use their eBay connections to conduct business offline will first be warned and then suspended from the site. Prohibited conduct includes offering to sell a listed item outside of eBay to avoid paying a listing fee, as well as offering to sell users' merchandise similar to what they are bidding on at eBay. Also prohibited is the sending of unsolicited e-mail (spam), to the email addresses of people that were acquired through eBay [10].

All eBay users bear the ultimate responsibility for making sure that the items they are selling on eBay are legal to sell according to all applicable jurisdictions and as permitted by eBay policies. eBay has only made a few restrictions on the type of merchandise that is allowed for sale on the site. For instance, it stopped the auction of a human kidney, a baby boy, and restricted the sale of guns, alcohol, and tobacco [11]. The law does not permit some of these items and some are against eBay policy. The Internet expands boundaries, and information technologies enable eBay to operate not only nationwide, but on a global level. As the eBay community continues to spread around the world and the company has to operate in more countries, it needs to learn about different laws and develop a cultural understanding about the different points of view as to what constitutes illegal, offensive or inappropriate items.

## **CONCLUSION**

There are many more uses of technology and information systems in eBay's business strategy than those listed in this paper. The company is constantly developing additional tools and features to assist the user community to buy and sell items, to promote the sense of community in the marketplace, and to increase the levels of trust and safety throughout the site. Also of the

foremost importance to the mission of eBay is the stability and scalability of the system platform, it needs to be able to adjust to accommodate more members as the community's global presence expands. Technology and information systems are critical to the success and future of the company. The business is based on community, and the marketplace is what enables this community to come together.

By establishing a stable Internet platform and using technologies such as chat rooms, bulletin boards, and email, eBay has established a type of “community” or “marketplace” that does not exist in a physical store shopping experience. By developing new features, such as “Buy It Now”, automatic bidding, and the purchase of Pay Pal, shopping and payment have become even easier. eBay is constantly expanding and improving, adding categories and options for their customers. eBay uses their management information systems to reach new territories, expand their online community and enable trade on a local, national and international basis with customized sites in markets around the world. Overall, this case analysis of eBay provides a successful implementation of information technology project. With continuous improvement in IT architecture and infrastructure, eBay remains a leading position in the industry with a unique business model. In sum, this study contributes to the theory and practice in the IS domain by focusing on the IT strategy as the crucial aspect of IT implementation.

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