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December 2005

Cyber "Lemons" Problem and Quality-Intermediary Based on Trust in the E-Market
—— A Case Study from AUCNET (Japan)—

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RIIM Working Paper No.17

Working Paper

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by

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Abstract

The web makes it easier for buyers to purchase products from distant seller. But, the inability of the buyer to examine the merchandise brings on the cyber “lemons” problem resulting form the asymmetry of information. However, it’s a pity that we merely idolize the convenient such as the products customization or personalization from the technology of the Internet and ignore these problems. Based on the lemon principle put forward by American economist George Akerlof, who is one of Nobel economics prize laureates in 2001, the paper analyzes the inherent mechanism in eliminating the cyber lemons. For providing empirical evidence, the paper discusses a case from AUCNET (Japan). The paper concludes that the quality-intermediaries as a trusted third party in electronic commerce may play an important role in eliminating the cyber “lemon”. The Internet maybe become a fertile field for quality-intermediaries’. A successful intermediary in the e-commerce market is the establishment of trust for market participants. That Japanese accept the online used-car market (AUCNET) completely lie in the trust for the web AUCNET. The trust as the firm specific resource can form and consolidate competitive edge. At last, the paper puts forward individual view about higher price and quality distribution of the used car in AUCNET.

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1. The “Lemons” Problem

The “lemons” problem in the information economics refers to the informational asymmetries resulted from the products quality uncertainty in the traditional markets. Akerlof’s article, “The Market for Lemons: Quality Uncertainty and the Market Mechanism” (Akerlof, 1970) has analyzed a market for a product where sellers are better informed than buyers about the quality of the good. In his paper Akerlof initiated “lemons market” model.

1.1 Akerlof’s “Lemons Market” Model

- **Quality uncertainty and prices**

Akerlof looked at the market for used cars. In the used car market, seller (owner) knows more about the true quality of car than the buyer. Suppose (for modelling simplicity) that there are two types of used cars -- bad used cars (“lemons”, a colloquialism for defective cars) and good used cars (“peaches”). Potential sellers know which type her car is, but buyer cannot distinguish between types.

Generally speaking, a buyer is prepared to pay higher price for peach than lemon. If she cannot distinguish between the two, she may contemplate paying an “average price”. However, at the average price, owners of peaches may be reluctant to sell, while owners of lemons are happy to. The cars actually in the market are mostly lemons. Anticipating this, buyers must reconsider paying less than the average price.

- **Market Outcome: Adverse Selection**

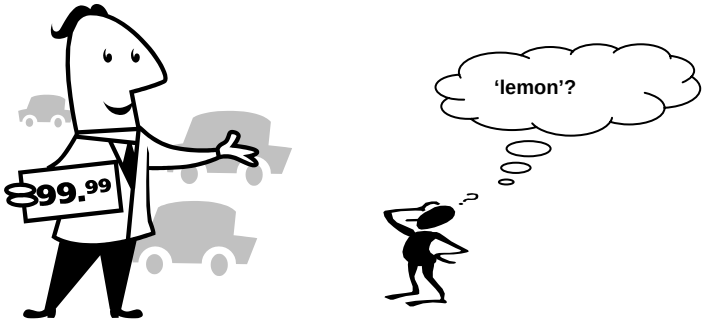
The selection of cars offered in the market is adverse from a buyer’s viewpoint. The market works fine for lemons, but the market for good quality cars disappears: lemons drive out peaches from the markets. Akerlof called this phenomenon Gresham’s law in the used car market[①]. Adverse selection[②] is a consequence of informational asymmetry between buyers and sellers, and the problem of trust.

After Akerlof’s article has been published, “lemons” has become a well-known metaphor in every economist’s vocabulary. With the “lemons markets” model, Akerlof indeed explains many economic institutions and many important aspects of uncertainty. “Lemons” theory illustrates the result of asymmetric information: adverse selection leads to decline of market efficiency and market economy is not sufficiently effective.

Figure 1 “Lemons” Problem — Resulting from the Products Quality Uncertainty

① Gresham’s law means “Bad coinage drive out good out of circulation”, which was known by English financier, Sir Gresham (1519-1579).

② The concept initially come from the insurance market (Rasmusen, 1994), which means the selection by the consumer when faced with the circumstance of asymmetric information.



The lemons problem in the information economics refers to the informational asymmetries resulted from the products quality uncertainty in the conventional markets. But, how about the lemons problem in the e-commerce markets that is based on the Internet?

1.2 “The Internet is a Lemon”

《Fortune》 has published a paper “The internet is a lemon”(MccLea and Wheat,2000).In this paper, the authors have pointed out a phenomenon that there are many consumers only just use the Web to research cars but not to buy them via the internet. They have compared the different consumer’s behaviors in the e-commerce markets (see table 1).

Although the paper mainly discussed the channel conflict between the tangible and internet market, the figures in the table shows that the consumers online worry about the quality of online products much more than other products online — especially the autos — so they make the adverse selection.

This fact illustrates that there exist the “lemon” problems resulting from asymmetry of quality information in the e-commerce market especially for the product, which of the quality is judged difficultly by the Internet.

Table1 Consumer’s Behaviors in the E-Commerce Markets

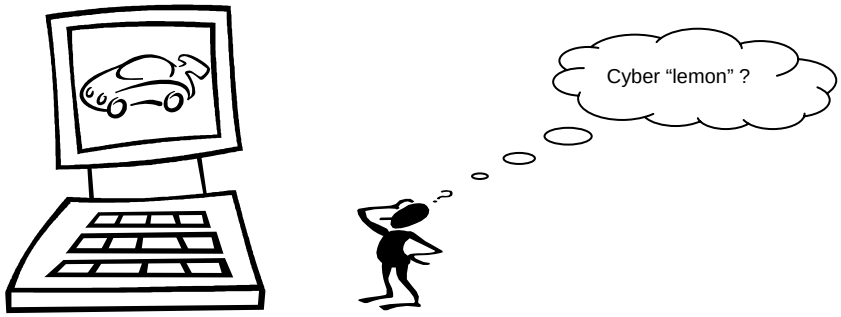
	Research Online	Buy Online
Books	31%	30%
Airline tickets	35%	19%
Hotel reservations	29%	13%
Computer hardware	24%	13%
Autos	31%	1%

(Source: MccLea and Wheat, Fortune, 2000)

1.3 Cyber ‘Lemons’ Problem

In fact, all the products online have the quality uncertainty. When we triumphed about the convenient and the high efficiency from the internet we are up against a predicament: Because the network gets rid of the limit of space-time and bring up the unreality in the e-marketing, the informational asymmetries from the qualitative uncertainty are likely to deteriorate.

Figure 2 Cyber “Lemons” Problem



1.3.1 The Reasons Resulting In Cyber Lemons

The reasons are as below:

- **E-Commerce changes the nature of transactions**

In e-commerce the buyers and sellers are geographically separated, they do not interact face-to-face. So it is hard to physically inspect the quality of the good prior to buying it. There is temporal separation between exchange of merchandise and cash.

- **Unclear identity for online producers**

In the Internet the cyber-store can be built in one day, and disappear simultaneously too. For this type of uncertainty, the marketing efficiency in e-commerce will be extremely low. Unclear identity for online producers makes us not know well the products quality.

- **The subjectivity of evaluation about quality online**

There is no doubt that the personalized service in the Internet enables customers more frequently and more convenient. However, the personalized services make it difficult to diffuse the reputation built in a customer to other customers, which strengthen the informational asymmetries about product quality.

- **Alternating personality of producers in network**

Unlike the tangible products, the online goods are produced and sold by the virtual persons, who exist in short time or numerously. All the users are the potential producers or vendor by the individual homepage or web server. Hence in the e-commerce market the lemons problem will be serious.

- **The influence of “information paradox”**

Because the digital products mostly are experience goods, their quality is known clearly only after being used. However, once consumers acquaint oneself with its quality they unwillingly buy it – this is an insuperable barrier in producing the digital commodities. This attribute makes the manufacturers find no good methods to guarantee their products quality to customers. Despite a great deal of advertisements and product’s news, the customers still not accept manufacturers’ speaking and unlikely buy it.

1.3.2 Facts and Current Study

Despite the network market has many advantages, especially the high information efficiency, it not implies that there should be high marketing efficiency. E-consumers may have stronger “lemons sensitivity” than the tangible market. However, few analysts to date have published papers about the cyber lemons in mainstream journals.

Huston and Spence (2002) have study the online coin auction market in American. They find that higher quality coins are less likely to sell than lower quality coins. This fact shows that buyers are clearly aware that sellers could be offering a lower quality coin than claimed. They also find that, of the coins which do sell, price rises with quality but only by 87 cents for each dollar of claimed quality improvement, they suggest that consumers discount seller claims of increased quality. Also, the more highly grade coins fetch lower price relative to their market value. Their empirical evidence indicates that a greater informational asymmetry results in more substantial lemons problem in internet market.

According to the "China Statistical Survey Report on Popular Internet Issues"[③], in China e-commerce market, the quality of online goods is the problem that e-consumers concerns most. Recent three times report shows that the proportion of “thinks the biggest problem in e-commerce market is good quality” is 43.8% (2004-11), 42.5% (2005-1) and 48.4% (2005-7). It has seriously affected the development of the Chinese electronic commerce. The fact ask us attach importance to it.

2. Remedies for the "Lemons” Problem and Quality-Intermediary

What are possible remedies for the lemons problem? According to Akerlof (1970), there are numerous mechanisms or institutions to do this. He has given some example to illustrate these mechanisms or institutions such as insurance market, employment of

[③] This report published by China Internet Network Information Center (CNNIC).

minorities, credit markets in underdeveloped countries and counteracting institutions. Akerlof (1970) has concluded:” we have been discussing economic model in which ‘trust’ is important”.

2.1 The Possible Strategies or Approaches

Since the lemons problem results from asymmetric information, i.e. buyers don't have the same information as sellers, the obvious remedy is to inform—and convince—buyers about the product quality, i.e. to crate the trust between seller and buyer.

Now we discuss the possible strategies or approaches creating trust:

- **Diffusing Signal**

The firms would like to signal that they are trustworthy. Of course, anyone can say that they are trustworthy. So in order to signal trustworthiness effectively, they must do something that less trustworthy firms cannot do.

- **Guarantees**

One way manufacturers signal quality effectively is by offering guarantees. If you know your product to be good, offering a guarantee has low expected costs. If you know your product to be a lemon, guarantees are costly. So presence (or length) of guarantees can signal private information about quality.

- **Brand Names**

Firms can also invest in building brands: these can serve as transmitters of trust. A firm with a valuable brand name has more as stake: it risks losing more if it lets down its customers. Knowing this, consumers feel more comfortable dealing with branded firms. Branded firms can charge more (Amazon, for instance)

- **The Role of Regulations**

Governments can legislate consumer protection, and create dispute-resolution processes that help the trust. For instance, After Akerlof’s article (1970), many “lemon law” has been enacted in American[④]. Consumers can use state and federal lemon laws to qualify for money back, or a replacement for lemon.

- **The Standard of Quality**

In the conventional market the government and the consumer association always set up some certified standard about the product quality to guarantee the quality. But this standard virtually put forward a lowest request that merely indicate if the product can be used, not a quality standard in nature. So the manoeuvrability of this method will be relatively poor.

- **Trusted Third Parties**

Instead of setting quality standards, trusted third parties can provide detailed quality

[④] http://www.lemonlawamerica.com/

information by comparing each brand as does the Consumers' Union who publishes Consumers' Reports. Similarly, a trusted mechanic may examine a used car to determine whether it is a lemon. The common criterion is that third parties need to be neutral, trustworthy, and equipped with a necessary expertise to evaluate products.

The strategy or approaches above have happened in conventional market. For example, in conventional market, diffusing signal, brand, guarantee and so on can distinguish their self-product from the ‘lemon’. Yet, in the e-market the effect of these methods may be restricted. For instance, the signal, guarantee and brand mostly are indirect information, whereas these indirect signals in the e-market are unfurnished or change constantly, so the approaches that are available in the conventional market are no better than unworthy. In addition, while it is easy to build brand recognition through marketing, to preserve reputations is not easy and requires recurrent expenditure. Reputations may be very fragile in cyber-space. One consumer’s bad experience can easily be communicated to others through chat groups.

In a related approach, trusted third parties (public or private) can provide detailed quality information. As a trusted third party, the quality intermediaries may play a very important role than other methods in the e-commerce market. Because they profit by evaluating product quality in the network they need supplying credible information to preserve their reputation.

2.2 Quality-Intermediary

In conventional market, Intermediaries create value by providing a range of services. For example, if a specific trade would not take place without the help of an intermediary, then the intermediary, the buyer and the seller all have a claim to the value created by the trade. Clearly, if new kinds of intermediaries are possible in e-commerce, the issue of value capture will be important. Changes that reduce the value of intermediaries will also be important to analyze.

Intermediaries as experts operate more frequently in certain types of markets (Biglaiserb,1993). They are common where the difference between low-quality and high-quality products is large, giving a larger profit margin from the two expected prices. Also, if there are more low-quality goods than high-quality goods, the cost to search for a high-quality good may justify the use of an expert intermediary. In contrast, experts add little value if products are in general of a high quality.

Thus, a successful intermediary must assure buyers of product quality. In fact we can prove that, the more difference quality of product-online, distributes the more quality intermediaries are needed in the network market. The more severe the uncertainty about the quality is, the stronger the need for an efficient intermediary will be in electronic commerce (Yong Pan, 2005). The used-car markets should need this type intermediary in point, because no two used cars are considered to be alike —— “one used car has one quality”, such as make and model, color, registration year, mileage, model options, and owner care.

3. AUCNET: A Case Study

> “E-commerce is nothing new at AUCNET. In 1985, we invented the TV used car auction, a feat we proudly look back on now as perhaps the first e-commerce business model in the world. …… Our growth has been rooted in our reputation as a fair and reliable source of information. As most buyers never physically inspect vehicles prior to a purchase, they rely on us completely for accurate information. We meet this demand with our exclusive inspection and evaluation system, a set of standards that is highly regarded throughout the automobile industry.”
>
> Kiyotaka Fujisaki, president of AUCNET
> (Source: http://www.aucnet.co.jp/e/pm/index.html)

3.1 Profile of AUCNET

AUCNET is an electronic intermediary for used-car transactions in Japan, which was established in March 1984. In 1998, AUCNET entered its 14th year in business as the undisputed leader of the used car auction industry.

First we need to introduce the background of AUCNET appearance.

3.1.1 Used Cars Market in Japan

Japan used cars were previously sold at 140 auction sites, where buyers and sellers convened together. The conventional auction markets adopt a POS (point of sales) system, introduced in late 1970s, in which buyers press a POS button to register their bid, instead of raising their hands. But sellers had to bear high transportation costs to move a car to the auction site, and back again if it was not sold. About 45% of cars brought to the auction sites remained unsold. Because Japanese consumer’s preference was to deal with a reliable, substantial business and avoid the risks of hidden defects, so most buying dealers personally inspect the cars prior to the auction.

The maintenance of cars was strictly regulated and the inspection costs for older cars were higher. A new car could be driven in private use for three years, after which an inspection was required, and every two years thereafter until the car was ten years old, when an inspection was required every year. The required inspection typically cost about ¥80,000 (Warbelow A., Kokuryo J., and Konsynski B., 1996).

On the side, Japan’s crowded streets made direct exchanging difficult. To attend car auctions, most car dealers typically had to leave their offices and travel to distant auction grounds off in the suburbs. Many dealerships, however, were small, family-run businesses that found it difficult to hire more than a few part-timers on a regular basis. Having their car inventory transported to conventional auctions for liquidation also confronted dealers with trucking expenses. That was okay as long as someone bought the merchandise.

3.1.2 History of AUCNET and Business

Masataka Fujisaki（the current AUCNET president's elder brother）had started in the used auto business in 1967, building Flex Auto, Inc. into a major used car retailer in Tokyo. He still owned several retail stores. A subsidiary called Flex Japan was established to trade in used personal computer in 1982.

As part of a decision to expand Flex Japan into computer systems and other electronic equipment, AUCNET was established as subsidiary of Flex Japan with Orient Finance Inc. as a second principal shareholder in 1984. The goal was to establish an auto auction business utilizing computers and advanced communication technology to be used by auto dealers to buy and sell inventory in the wholesale market. After a year of development, the first TV auction was held in June,1985 and were converted to a satellite-based system in 1989. Profits had been doubling every year since.

AUCNET’s network auctions consist of TVAA and network AA (Live Link Auctions and Internet Bidding Services).

TVAA are real time network auctions led and managed by AUCNET and are characterized by the preponderance of high end cars (i.e., late model year and limited mileage cars in good condition).TVAA members can consign and bid on vehicles up for auction through dedicated terminals in the comfort of their homes or offices. TVAA car auction membership has grown to 7,200 members (as of the end of December 2004).

The Live Link Auctions has signed agreements with 30 on-site auction sites located throughout Japan (as of December 2004) to provide live links for members to bid on consigned vehicles through dedicated terminals. The number of vehicles broadcasting to partner auction sites per year has reached approximately 1.95 million units, and the number of vehicles sold is growing yearly, given the variety of vehicle models and types consigned.

Internet Bidding Services do not use a dedicated terminal, but instead provide bidding services for consigned vehicles on behalf of members over the Internet at TVAA or at 59 participating on-site auction sites (as of December 2004).

Table 2　The AUCNET Lineup

1985. 6～	TVAA (TV Auto Auction)
1989. 8～	Began using satellite-based system for TV used car auctions
1993. 6～	Used motorcycle auctions
1997. 5～	Fresh flower auctions
2001. 1～	Live Link Auctions
2001. 9～	Internet Bidding Services
2005. autumn	Used PC auctions

Subsequently, the company has expanded into used motorcycle auctions (from 1993)

and fresh flower auctions (from 1997), and fresh flower auctions were converted to a broadband Internet-based auction system from November 2004.

AUCNET’s used car business is centred on network auctions. Used car auctions account for 76.4% of total sales.The characteristic of network auctions is that auctions can be conducted real time utilizing the multiple address characteristics of communication satellites.

The TVAA business, which is AUCNET’s main business and the major source of earnings, is characterized by the fact that AUCNET leads and manages these networked auctions. Now the AUCNET are planning to begin Quick Auto Auction (second version of TV auction). Unlike conventional TV auto auctions, each quick auction will be restricted to a particular vehicle category. Their aim is to capture synergies that can raise the number of vehicle consigned and sold. They also plan to offer more types of TV auctions by building a network of alliances with on-site auctions such as Live Auction Broadcast and Internet Bidding Service.

3.1.3 The AUCNET Earnings Model

AUCNET generates earnings from auction commission，which consists of membership fees , consignment fees, purchase fees and bidding fees. Consequently, earnings growth is dependent on membership growth and the number of participants in auctions, as well as a growing number of vehicles consigned to auction. Growing membership involves providing services that meet the needs of used car dealers, while expanding earnings involves providing attractive auctions that increase the number of vehicles consigned and purchased through auction. In addition, AUCNET is expanding sources of revenue by providing new services that meet the needs of its members (see table 3).

Table3　AUCNET’s Basic Revenue
(2004 Results of Operations)

Auction transaction fees	Yen
TV auctions (¥7,000 per vehicle paid by buyer and seller)	14,000
Live link auctions (per-vehicle fee paid by buyer)	7,000
Web bidding service (per-vehicle fee paid by buyer)	18,500
Vehicle consignment fees	Yen

TV auctions (per-vehicle fee, including inspection fee, paid by seller)	10,000
Broadcasting fee (alliance partner auction firm pays per-vehicle fee)	100
Membership fee	Yen
TV auctions (monthly fee per member)	39,500
Live link auctions (additional monthly fee for TV auction members)	5,000
Web bidding service (monthly fee per member)	6,800
Initial cost	Yen
TV auctions (cost of purchasing one terminal)	550,000
autoBank	Yen
autoBank System software (cost per license)	720,000
autoBank System information fee (monthly fee per license)	9,800
Rental fee for old AUCNAVi system (monthly fee per terminal)	39,500

* TV auction consignment and inspection fees and bidding fees are for Japanese vehicles.

* Fees for live link are for typical situations.

(Source: Information Meeting for 2004 Results of Operations, Aucnet Inc.,2005)

3.2 Quality-Intermediary Model and Trust Strategy

The need for an intermediary is often dismissed in the direct seller-to-buyer transaction model and often envisioned for Internet commerce. However, a market-driven solution to the lemons problem involves relying on an intermediary who has an incentive to provide truthful information about quality in the manner buyers can trust. AUCNET as an intermediary that collects and disseminates information does not change the product, but it creates value by improving the quality of the transactions that take place. The company matched buyers with sellers, or informed buyers about the quality of products sold, thereby mitigated the lemons problem. Then information adds value to market transactions. Not surprisingly, we can think the AUCNET's success mainly resulted from it's trust model and strategy.

AUCNET's trust strategy and quality-intermediary model are as follows.

3.2.1 Rigorous Inspection that Support AUCTION Credibility

As AUCNET's auctions beginning with TVAA are conducted through satellite networks or over the Internet, participants are not able to physically view vehicles

consigned. At conventional auctions, buyers had opportunities to stroll around and visually examine the cars entered for sale before the auction bidding process actually got under way. In televised auctions, still photos provided the only means of identifying car entries, and they did not allow buyers an adequate means of gauging car quality. These differences make it extremely difficult for auto dealers to purchase used cars.

In order to reduce these transaction risks "Cyber Lemons" that resulting from uncertain product quality, AUCNET established a rigorous car inspection process. AUCNET from its earliest days continually honed its car inspection skills and sought to foster trust in its inspection results. AUCNET know that the absolute reliability of information is essential for vehicle transactions without a personal inspection.

- **Automobile Inspection System (AIS)**

First of all, AUCNET realized that the important solution was the establishment of an evaluation system able to accurately determine the condition of each vehicle. In 1997, AUCNET began working to improve the quality and competence of its inspection personnel by establishing AUCNET Inspection Services Co., Ltd. (AIS), a company devoted to training aspiring inspectors, setting inspection standards, and refining related technologies. AIS's inspections are respected within the industry for their high standards and thoroughness, as over 250 checklist items are evaluated on the results in terms of numerical scores (form 0 to 10 , see table 4). These inspections have the credibility of over 3 million vehicles inspected to date, and AIS's inspections provide an important underpinning for AUCNET's auction transactions.

These AIS inspection standards are being provided to the used car dealer affiliates of major automobile manufacturers, such as Toyota, Honda, Nissan and Mazda, and are helping to establish an industry standard. Thus, AIS inspection standards are steadily gaining widespread acceptance and have been adopted by manufacturer-related auctions (where AIS provides outsourced inspection services). In addition, an increasing number of used car dealers are beginning to display AIS inspection certificates on the used cars they display, which is helping to promote the use of AIS as a public third-party inspection certificate.

- **Inspectors**

AUCNET has employed eight full time inspectors, and had 64 contract agents who did inspections all over Japan. The AUCNET inspectors were used mostly to train new inspectors, and to fill in case of emergency or illness. New inspectors were selected based on knowledge of the used auto business, and an eagerness to learn and work.

Masanori Tokuhashi, chief vehicle inspector for AUNNET has discussed the train process:

> "First they learn about the AUCNET system, wth special emphasis on the inspector as the heart of the system. Then we teach about the vital contact between the inspector and the customer. We start them with the spiritual stuff – we "brainwash" them although that might not be a good word! Finally we teach them the technical aspects of inspecting cars. There is no specific test afterwards, we just let the participant think about whether they are able and willing,

and if not, they quit. The trainee then undergoes an apprenticeship which may last three weeks to three months, traveling with an AUCNET inspector – it is on the job training.

Inspection work is physical labor, a tough job. It is done outside, and often in bad weather. That is why people willing to do the job are limited. So AUCNET is trying to raise the social status of the inspector, coupled with increasing reliability, so that customers can feel safe that they are trying a good car.

An inspection on average took 7 minutes, and the top inspectors averaged around 130 cars per week. Inspectors in rural areas often worked part time at other jobs, and inspected fewer cars. Most inspections were done Sunday through Tuseday, but inspectors were free to arrange their own schedules, and FAX reports on their activity back to headquarters.

Each inspector was given an exclusive geographic area. Within that area, they served as the sales force for AUCNET, calling dealers and encouraging them to list cars. If an inspector was particularly busy one week, or unable to respond quickly to an important customer in a fringe area of his territory, AUCNET would dispatch an inspector from headquarter or an adjacent area to fill in.”

(Source: Warbelow A., Kokuryo J., and Konsynski B., AUCNET: TV Auction Network System, Harvard Business School,1989. Rev.1996)

In conclusion, AUCNET’s business is built on the credibility of these inspections. The vehicle inspection process was fundamental to AUCNET’s success.

Figure 3 Automobile Inspection System (AIS)

3.2.2 The Third Party

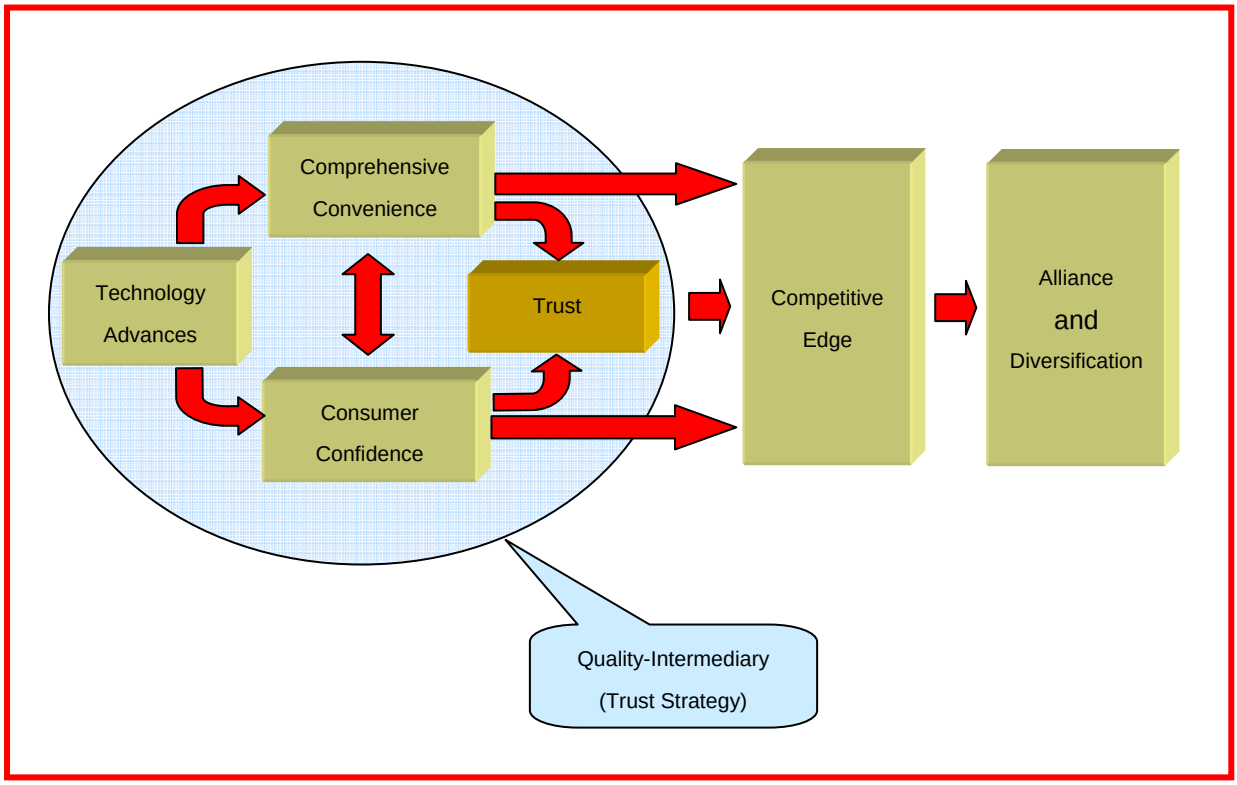
In order to ensure the impartiality of used car bidding, AUCNET has introduced a third party to resolve disputes over the condition of a car sold by its system. When cars are delivered, buyers have five days to register complaints with AUCNET. If consumer complaint missing parts in the car or other mechanical defects, AUCNET then has the car assessed by a third partyand to obtain a judgment of the car's condition and estimate to repair it. This third party usually maybe is a manufacturer's dealer. The consignment contract requires that AUCNET members abide by AUCNET's decisions in such matters. If either party is not satisfied by this arbitration, AUCNET allows them to appeal to a claims committee. The committee consists of peer dealers and makes a final decision

over the claims, which assures neutral and trustworthy.

3.2.3 The Quality-Intermediary Model and Trust Strategy

The implement of trust strategy needs support from advanced technology. The key to successful e-commerce of AUCNET is his technology and services that transform “virtual” into “real”. These technology and services realize the organic integration of technology, convenience and confidence, and finally form a specific quality-intermediary model (see figure 4).

Figure 4 Quality-Intermediary Model



- **Technological advances**

AUCNET’s unique communication network based on satellites and terrestrial lines connects a host computer with 7,000 used car dealers throughout Japan. Auction bid signals received from dealers in all parts of Japan are reliably delivered to the host in real time. This technology guarantees the fairness that is an indispensable element of any auction. The sharp images and excellent performance and convenience of the auction terminals provide bidders with the feeling of actually being at an auction site.

- **Comprehensive convenience**

High efficiency is a must in payment processing, vehicle delivery and the submission of legal documents such as registrations. To ensure quick and efficient processing, AUCNET manages all formalities related to vehicle transactions. This system reduces volume of work at used car dealers and creates a high level of satisfaction. AUCNET also acts as an intermediary between dealers in settling claims, thereby promoting reliable and accurate communications among all parties involved in network transactions.

As a real-time bidding system with a nationwide network, TV auction business allows people to participate in auctions (submit vehicles and bids) from their places of business and supports logistics and brokerage services (logistics service, documentation delivery, settlement service, financing).

- **Customer’s trust**

Can a Used Car Be Trusted? Potential problems involving used cars are countless —— turning back odometers, selling stolen vehicles to unsuspecting customers, illegal modifications, and much more. This is exactly the ”lemons” problem that AUCNET face!

Although IT infrastructure was a necessary factor for AUCNET's success, the firm's ability to translate technical feasibility into institutional realities was real challenge in creating new electronic intermediary services. In conventional auto auction markets, all vehicles are brought to a market site for evaluation and buying dealers personally inspect cars in the market location. In contrast, AUCNET does not allow a buying dealer to "kick the wheels" to formulate personal assessments of used-car qualities. Buyers in AUCNET have to make purchasing decisions based upon information alone without physically inspecting cars, thus facing risks of incomplete and distorted information by sellers.

How to create the trust between seller and buyer? How to build the trust strategy? According to Kiyotaka Fujisaki, president of AUCNET:

> “ …… Early on, we realized that the only solution was the establishment of an evaluation system able to accurately determine the condition of each vehicle. This is why we have worked hard on establishing reliable automobile inspection standard ever since our establishment.
>
> Despite our efforts, we have not yet achieved our goal of putting in place uniform inspection and assessment standards across the used car industry. This is an issue that affects the entire industry. Leading our drive to establish uniform standards has been subsidiary AUCNET Inspection Service. To better position this company as an organization dedicated to serving the entire used car industry, we changed its name to Automobile Inspection System in August 2003. To set the stage for the new name, we established uniform inspection and assessment standards covering the used car operations of Toyota, Honda and Nissan. Our goal now is to make our system the de facto standard for the entire Japanese used car industry.
>
> We believe our mission is to refine these standards to the point where they are used not only by used car companies and dealers, but also for transactions between individuals.
>
> For many years, we have also been addressing such pressing issues as the prevention of sales of stolen cars and odometer fraud. More work remains. I am confident that AUCNET has the resources to continue making headway in creating a used car market that is sound and

trustworthy. I am convinced that this process is the best means for us to achieve growth in the years to come.”

(Source: http://www.aucnet.co.jp/e/ir/pm/index.html)

So at AUCNET, “trust” is what defines their operations. They have created an environment in which used cars can be bought and sold solely on the basis of reliable information, eliminating the need to inspect vehicles in person. AUCNET as a quality intermediary creates an open and trustworthy market for used-car transactions and gives the consumers confidence for this company. The absolute confidence of the customer in these inspection criteria backs up the smooth transactions at all AUCNET auctions. They will soon reach the point where an AUCNET-inspected used car is synonymous with absolute reliability in the minds of buyers. AUCNET is determined to leverage this strength to make the used car market an even more active and fair place to do business.

3.3 Competitive Edge

The organic integration of technology, convenience and confidence has resulted in the following competitive advantages:

- First, AUCNET have created the inspection and appraisal system permits worry-free purchases. They have a nationwide network of 150 certified inspectors. The basic inspection standards are the same as those of Toyota, Nissan, Honda and other manufacturer-affiliated used car companies.

The inspection process was the key factor for AUCNET. According to Masanori Tokuhashi, chief vehicle inspector for AUNNET:

> “The reliability of the inspections is at the heart of the system. If someone tried to copy us, even if they had the hardware, the inspections would be our competitive edge. Originally we copied the inspection criteria of the auction sites, but this has been adjusted based on claims and experience- it is now much more rigorous… We leave them for the auction sites, and have continued to increase the rigidity of our inspections.”
>
> (Source: Warbelow A., Kokuryo J., and Konsynski B., AUCNET: TV Auction Network System, Harvard Business School,1989. Rev.1996)

- Second, the company have an exclusive, internally developed IT and auction system. They unified the system by supplying terminals to other companies and compatible with many communication infrastructures.

- Third, they have a nationwide coverage, which has about 10,000 companies involved in the auto business are members. They also have alliances with 30 used car auction sites all over Japan.

3.4 Conclusions

The success of AUCNET tells us that the quality-intermediaries in electronic commerce may play an important role in enhancing market efficiency by providing product information. The Internet maybe becomes a fertile field for quality-intermediaries. There are also quality-intermediaries in the conventional markets. But we need much more online intermediary which has superior knowledge and skills to evaluate quality, especially for online product that has multiple levels of quality--such as the used-car market --“one used car has one quality”.

The successful intermediary in the e-commerce market is the establishment of trust for market participants. That Japanese accept the online used-car market completely lie in the trust for the web AUCNET. The quality-intermediary as a trusted third party needs a trusted mechanic examining the goods-online to determine whether it is a lemon. The common criterion is that third parties need to be neutral, trustworthy, and equipped with a necessary expertise to evaluate products that buyers may not trust seller-provided information.

The success of AUCNET also tells us that if firms must compete on price alone, it is unlikely that the firm with the lowest price is going to be the most reliable (i.e. trustworthy). Indeed, low prices are often viewed as “suspiciously low”. Competing on price alone may not be a viable strategy. Problem may be quite acute for goods and services whose quality is hard to determine, because the qualitive implication of online price is lower than the tangible market (Yong Pan, 2005). New firms that try to undercut on price may not succeed. The industry structure could be concentrated.

3.5 Discussions

Lee (1998) used archival data acquired from AUCNET and concluded that prices were higher for vehicles sold via AUCNET than for those sold via conventional auctions. The paper show that consumers are willing to pay a higher price for a product that has gone through a strict evaluation system before being put up for sale. The author point out the quality of cars this market attracts has risen significantly, and since the number of potential buyers is increased manyfold, the sellers tend to set a price that is nearly double the price in the conventional market. I agree his view about the price. Further, I think the reason of the higher price is because of the price including a “ reputation rent “ that is the specific resource of AUCNET, which shows a basic rule that “ high price incents the high quality “.

This phenomenon also arouses another problem about AUCNET: the firm focused on high-quality used car more than low-quality. Such as Masanori Tokuhashi, chief vehicle inspector for AUNNET has said: “We ended up weeding out low quality cars, because they were thehardest to describe accurately by inspection.” Actually they just pay attention

to the used car that the quality score is S to 3.5 (see table 4). The average purchase price through auction is ¥1,460,000 (for 2004), which is the highest average price in the industry. We think AUCNET should focus on all quality degree used car, for my model has showed that the more difference quality of product-online distributes, the more quality intermediaries are needed in the network market. Another reason is that the people use the car longer before selling the new car now.

Table 4 AUCNET’s Quality Score

QUALITY SCORE	CAR CONDITIONS
S	same as a new car; less than one year old, odometer under 5,000km
6	less than two years old, odometer under 20,000km; best condition for a used car
5	less than three years old, odometer under 40,000km; no need for repairs
4.5	less than five years old, odometer under 60,000km;minor damage
4	odometer under 100,000km; some conspicuous damage
3.5	some scratches, dents and other damage; some repairs needed
3	many scratches, dents and other damage; repairs needed
2	considerable damage; significant repairs needed
1	major repairs and replacements needed
0	vehicle has been repaired following and accident

Many Transactions through TVAA (Late model year luxury cars)

Few Transactions through TVAA (older model year economy cars)

Only Traded through the E&R (Export & Reasonable) Corner

* In addition to the above score, additional ratings from S to E are assigned depending on the condition of each vehicle’s exterior and interior.

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Appendix: How to Use AUCNET ?

For selling dealers to use AUCNET system, the first step in the process is to apply for the consignment to offer cars through AUCNET. Once the consignment application is received, AUCNET dispatches one of its mechanics to inspect the offered vehicle.

The inspector assesses the condition of cars and takes several photos of the vehicle. The inspection results are then entered into AUCNET central computer for the auction catalogue editing. The auction catalogue is transmitted to all members prior to the electronic auction. If a dealer is interested in a specific car listed in the catalogue, he or she can access text-based information and can preview its mages from his/her computer terminal.

Figure 5 Auction Screen display

When auction is started in AUCNET, buyers and sellers remain at their respective businesses. Buyers use joysticks in their dedicated terminal that are connected to the central computer of AUCNET (see Figure 5). Each button of joysticks increase the current bid by ¥3000. If the bid price approaches the reserve price, the system informs the bidders that the car would actually be sold. If the time between bids reaches a certain threshold, the system selects the last high bid as the winner, and the auctioneer announces that the car is sold with text signal of "SOLD" flashed on the screen. This real time auction with a used car auctioned every 20 seconds.

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