
A Brief Essay of Issues Related to E-commerce, the Internet and Developing Countries

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Introduction

Some have speculated that the industrial age is coming to a close and that a new age is dawning. This new age of economic development is referred to as the digital age and has, as its backbone, e-commerce. E-commerce represents a new way of transacting between sellers and buyers. By utilizing information and communication technologies (ICT), transaction costs between buyers and sellers can be greatly reduced. However, the form and nature of those technologies are still under development. Some applications of information and communication technology have been helpful, while others have failed miserably. Through the crash of “dot com” enterprises the world learned more about what applications were relevant to the digital age and what applications could not reduce transaction costs. In general, with the advent of the Internet huge advantages in efficiency are possible although numerous obstacles still exist. This paper briefly highlights some general issues related to the development of e-commerce in the U.S. However, the paper will also highlight some of the potential pitfalls and put forth a general strategy that utilizes an existing infrastructure that is much different than the infrastructure that exists in developed countries. It is the author’s hope that this paper might stimulate discussions that could ultimately lead developing countries to capitalize on ICTs and to begin a process of innovation that could lead to reduced transaction costs and enhanced economic efficiency.

A. Definitions and notions

In the United States the commerce has reached a point where virtually any commodity can be purchased by virtually anyone in the United States. The only exceptions to this are very specialized products whose owners do not have access to the Internet. A person with Internet access in America can purchase any good with only a few minutes of searching

on the web. In other words, a person, sitting in his own home and wishing to make any purchase, needs only to turn on his computer, search the web and within moments can place an order for that good to be delivered to his home. A personal computer in America represents a portal through which he or she can purchase any good or commodity of his or her choosing. Never before in the history of the world has it been possible to make transactions as quickly and effortlessly as it is in developed countries where Internet access abounds and where financial institutions are equipped to make secure financial transfers.

When commercial transactions are facilitated between willing buyers and existing sellers, then transaction costs are lowered and efficiency is enhanced. There are at least two ways in which efficiency is enhanced through the Internet. First, through the Internet sellers who have products that need to go to market cannot only advertise but can also devise means and mechanisms by which seeking buyers can purchase directly from them. For instance, on two occasions when I have had to purchase a personal computer, I simply went to the website of the manufacture of my choice. On the website, I could purchase a computer that was ready-made or I could purchase one that had special features that would take a week longer. After making the choice, I provided my credit card number and elected to have the computer delivered by parcel post to my door. Within minutes of turning on my computer, getting on the web, looking through their web site, making some selections, I had ordered a personal computer to be delivered to my door. This sort of scenario happens a million times a day in developed countries. Thus, the Internet is now a powerful tool in the hands of everyday consumers to purchase within minutes any commodity of their choosing directly from the manufacturer.

Secondly, through the Internet a market environment can be created by which multiple sellers can meet multiple buyers and pass messages to one another in such a way that real time matches between sellers and buyers can be made such that both buyer and seller mutually benefit. In essence the Internet has created an open cry auction environment in a way that literally, encompasses the entire globe. Not only can any individual buy any good on the Internet, it is also true that any individual can sell any good on the Internet. The website called Ebay has created an environment where anyone with a commodity to sell can post the commodity along with many other individuals who are trying to sell the same type of commodity. In this way, high levels of market efficiency can be obtained because multiple sellers and buyers can congregate in the same location in cyberspace.

Using the Internet as a means to conduct commercial transactions is only the narrowest view of e-commerce. A broader view of e-commerce includes the provision of all sorts of business information through the Internet. Web sites are now designed and created by businesses to promote products, announce prices, provide product support and customer service. Because business activity is not limited only to transactions, the Internet is a tool that is used for more than just transactions. Information that is readily available on the Internet used to cost thousands, even millions, of dollars to obtain by an individual from the previous generation. For instance, product information from France, America and China can be readily compared. With proper product information the appropriate supplier can be identified and a business relationship can begin through email correspondence. In

the past the search for business partners was a complicated search procedure that involved extensive networking. With the Internet the search process can be greatly simplified and suitable business partners can be identified at a fraction of the costs that was required in previous generations.

B. Facts about US e-commerce

E-commerce in the United States greatly depends on the availability of Internet services. E-commerce has made noteworthy gains in recent years as U.S. Internet service has expanded in reach, increased in quality, and lowered in price. Indeed, the rapid increase of household usage of Internet services represents a fundamental social shift that makes the growth of e-commerce possible in the U.S. Figure 1 shows the exponential growth of household Internet use. The trend shows no signs of reversing in the near future. Clearly, in a society where using the Internet is as common as reading the newspaper, the prospects are very good that e-commerce will continue to grow.

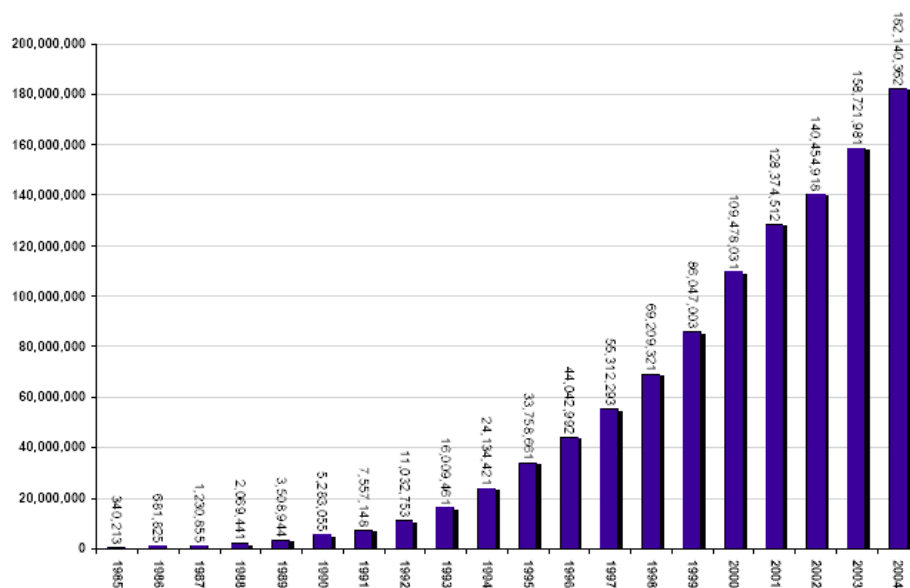


Figure 1. Household Internet use in the U.S. (taken from the CTIA survey report)

C. Experience in US agriculture

The trend of increased Internet use in the U.S. is also apparent in the agricultural sector. Although rural areas were among the last regions to obtain reliable Internet service, the extensive range of Internet services into even remote areas is allowing farmers to access the Internet as well. Table one shows that farmers in the United States have made rapid advances in Internet use. By the year 2001 nearly half of farmers in the United States had access to the Internet. Currently, the proportion is much higher.

Table 1. Internet access in rural U.S.

	1997	1999	2001
Farm households with Internet access	13%	29%	43%

Source: McFarlane, et al. (2003) and Henderson, et al. (2000)

Within the agricultural sector in the U.S., the growth of e-commerce has resulted in strengthening relationships in the supply chain. It does not appear that existing supplier relationships have been disturbed by the growth of the Internet. Rather than creating increased competition among farmers, e-commerce has instead increased competition among supply chains. That is, it may be the case that the existing relationships in the supply chain now compete with another set of existing relationships in the supply chain in a way that has not happened before (Leroux, et al. (2001)).

D. Limitations and weaknesses

E-commerce in America did not have a smooth start, nor did the growth of e-commerce experience a smooth upward trend. Rather, e-commerce experienced various fits and starts that exposed the limitations and weaknesses of conducting commercial transactions using the Internet. One of the early limitations of e-commerce was the absence of a formal legal framework by which claims of fraud could be prosecuted. Without clear laws dictating who is liable for a breach in a contractual agreement established via the Internet, it was impossible to stimulate public confidence in the use of e-commerce as a normal way of conducting business. Gradually, the necessary legal framework began to emerge in the U.S. and proper liabilities were assigned when fraudulent activity occurred. Now, very specific laws dictate various aspects of conducting commercial transactions by the Internet. In addition, an effective legal system is available to process nearly all allegations of fraudulent activity.

In addition to a legal framework, it was necessary also for the U.S. to develop new perceptions regarding the purchase of products. The traditional view of purchasing products involved traveling to a retail outlet, making the transaction with an acceptable financial instrument and then bringing the product home. The notion of buying a product that is not first examined represented an obstacle for many consumers in the U.S. In addition, the notion of going to a computer to make a purchase instead of going to your car to make a purchase was similarly an obstacle for many consumers. The transition to e-commerce in the U.S. has been made a bit smoother because U.S. consumers had already experienced transactions by phone. Using a product catalog, telephone orders can be made by the consumer with the seller, who would ship the product directly to the consumer's home. Nevertheless, using a keyboard to make a transaction is much different than using a telephone to make a transaction. Unlike in developing countries, U.S. consumers have grown accustomed to multiple methods of making purchases, which assists the effort of exposing U.S. consumers to e-commerce. Nevertheless, purchasing notions embodied in e-commerce are not readily embraced by U.S. consumers. Rather, a shift in perception about purchasing products is necessary if U.S. consumers are to

transition into more and more e-commerce. Transacting over the Internet requires perceptions that take time to develop.

E. Information and communication technology (ICT)

A closer examination of e-commerce reveals two fundamental elements, including information and communication. The Internet provides advanced technologies of both information and communication. Business information is available on the web. Communication is possible through the web. Bringing those two elements together—information and communication, the Internet has made it possible for transactions to occur. However, the Internet is not the only way to utilize information and communication technologies. ICT is the more general notion that encompasses the Internet as only one specific technology.

It is possible for the growth of ICT to take many paths of development. In the U.S. the Internet has emerged as the primary technology of ICT. A vast telecommunications system that utilizes an extensive cable network made it possible for the Internet to emerge as the primary application of ICT in the U.S. Later, as the demand for Internet services increased, usage of the Internet depended on the pre-existing cable networks of entertainment providers, specifically cable television, who could provide users with broadband Internet. Because of the cable infrastructures in the U.S., provided first by the telecommunications industry and then by cable television providers, Internet use has now become a fundamental part of life in America. In other words, the cable infrastructure made it possible for the U.S. to manifest the shift toward widespread Internet use.

How might ICT develop in developing countries where there is not a preexisting cable infrastructure? Is it necessary for developing countries to make heavy investments in the cable infrastructure so that Internet services can be made available to the entire population at low cost? Is there existing communication infrastructure that might provide both information and communication in a way that can make commercial transactions possible? What should we call such transactions? Should we call it e-commerce? Or should we call it ICT-commerce?

In most developing countries it is far less expensive to construct towers of cellular service than it is to lay cable for telecommunications. Consequently, even in some of the poorest cities of the world cellular service is available. In fact, remote rural areas often have fairly reliable cellular service. Because the preexisting infrastructure consists of a network of cellular towers and not a network of telecommunications cable, ICT in developing countries will develop in a different way than what happened in the U.S. In particular, ICT in developing countries should utilize wireless, not cable, infrastructures.

F. ICT in Indonesia

The situation in Indonesia is worth considering. In Indonesia only a fraction of the population has access to Internet services. The underlying infrastructure in Indonesia

does not adequately support the growth of Internet use. Telephone lines service only a portion of the total population. Cable-based entertainment providers are also rare and exist only in urban areas. So, a cable infrastructure that can support widespread Internet use does not exist in Indonesia. It is not surprising then, that Internet use in Indonesia is low¹ and that e-commerce in Indonesia is virtually nonexistent.

Suppose Internet access was widely available in Indonesia. In order to enable the development of e-commerce a legal framework needs to be constructed to secure the rights of both buyers and sellers. Without clarity about prosecutable contract breaches, legislation that dictates commercial transactions via the Internet, and the enforcement of relevant legislation, e-commerce in Indonesia will never develop significantly. The possibility of cyberfraud will scare people away from e-commerce. Consequently, because of the absence of both a cable infrastructure and an appropriate body of laws, Internet-based commercial transactions, i.e. e-commerce, cannot develop in any meaningful way.

Although a cable infrastructure does not exist in Indonesia, a cellular infrastructure does. Hand phone use is widespread in Indonesia. Multiple providers of cellular service compete for market share in Indonesia. Telkomsel, as the nation's largest provider of cellular services, provides service into nearly every location in Indonesia. Because cellular services can also provide both information and communication, it is possible for transactions to be facilitated through the existing infrastructure in Indonesia. By developing the appropriate ICT applications it is possible to facilitate ICT-commerce in Indonesia.

REI-Indonesia has developed an ICT application that utilizes a GSM modem to send and receive text messages as a means for buyers and sellers to communicate with one another, using the existing infrastructure. Although still in its infancy, the technology has already produced enhanced revenues for participating farmers. REI-Indonesia expects that several more years of development are necessary before an application is ready for widespread deployment that would result in community-wide efficiency improvements. It is the author's hope that such applications might prepare the way for more sophisticated applications of ICT-commerce. Only as developing countries experiment with ICT and innovate new applications of ICT-commerce, which utilize the existing wireless communication infrastructure, can they hope to keep pace with the global move into the digital age.

¹ As of the year 2002, household internet use in Indonesia reached only one million, representing about 0.5% of the population (see "Suram, Pertumbuhan Internet Indonesia 2003" by Donny B.U.). Although that statistic has undoubtedly risen, it remains a very low number compared to neighboring countries.

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E-commerce: Strengths, Obstacles and a Solution for Developing Countries

A brief presentation

Definitions

- E-commerce – commercial transactions conducted via the Internet

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- Information technology – ways and means to disseminate and process information

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Definitions

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- Information technology – ways and means to disseminate and process information
- Communication technology – ways and means to send and receive messages
- The Internet – a collection of servers throughout the world that allows rapid messaging and information processing

Reducing transactions costs with the Internet

- Providing powerful information and communication technology

Reducing transactions costs with the Internet

- Providing powerful information and communication technology
- Facilitating the search and purchase of goods by consumers

Reducing transactions costs with the Internet

- Providing powerful information and communication technology
- Facilitating the search and purchase of goods by consumers
- Facilitating the emergence of new markets by bringing together multiple buyers and multiple sellers

Business information on the Web

- E-commerce relies on massive amounts of business information

Business information on the Web

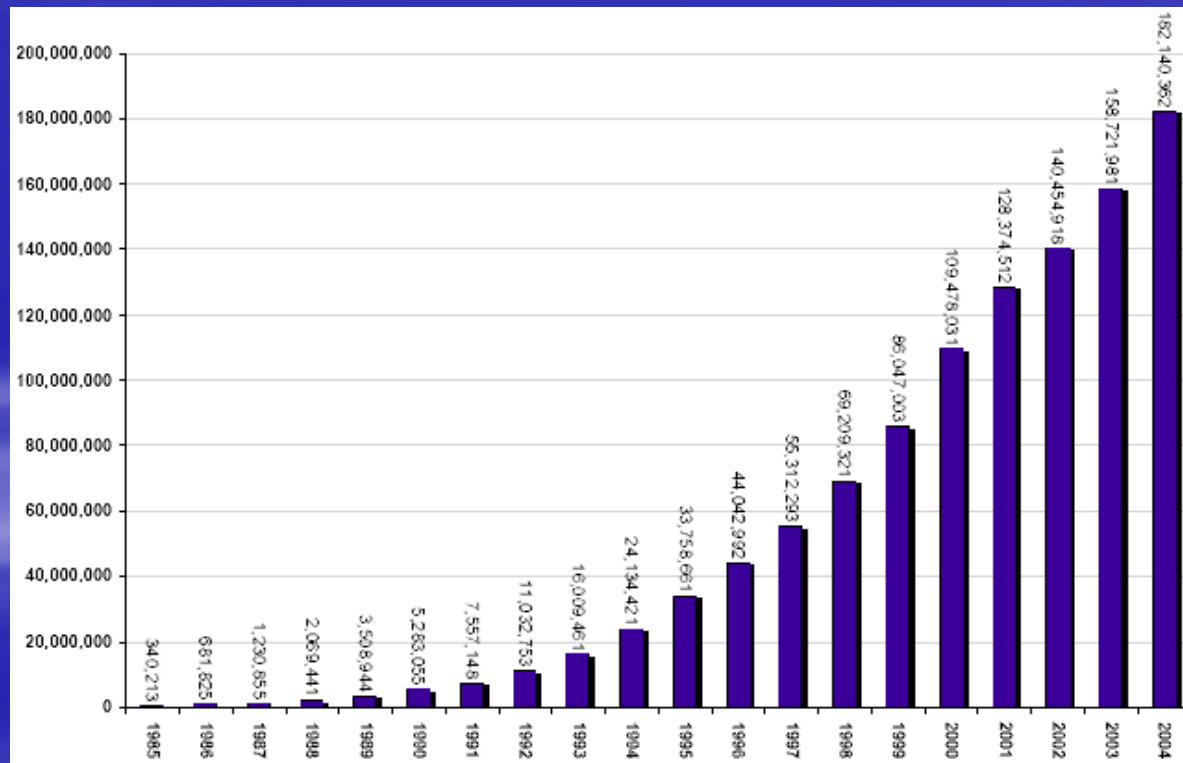
- E-commerce relies on massive amounts of business information
- Businesses use the Internet to service customers with information

Business information on the Web

- E-commerce relies on massive amounts of business information
- Businesses use the Internet to service customers with information
- Like: product promotion, announcing prices, product support, customer service

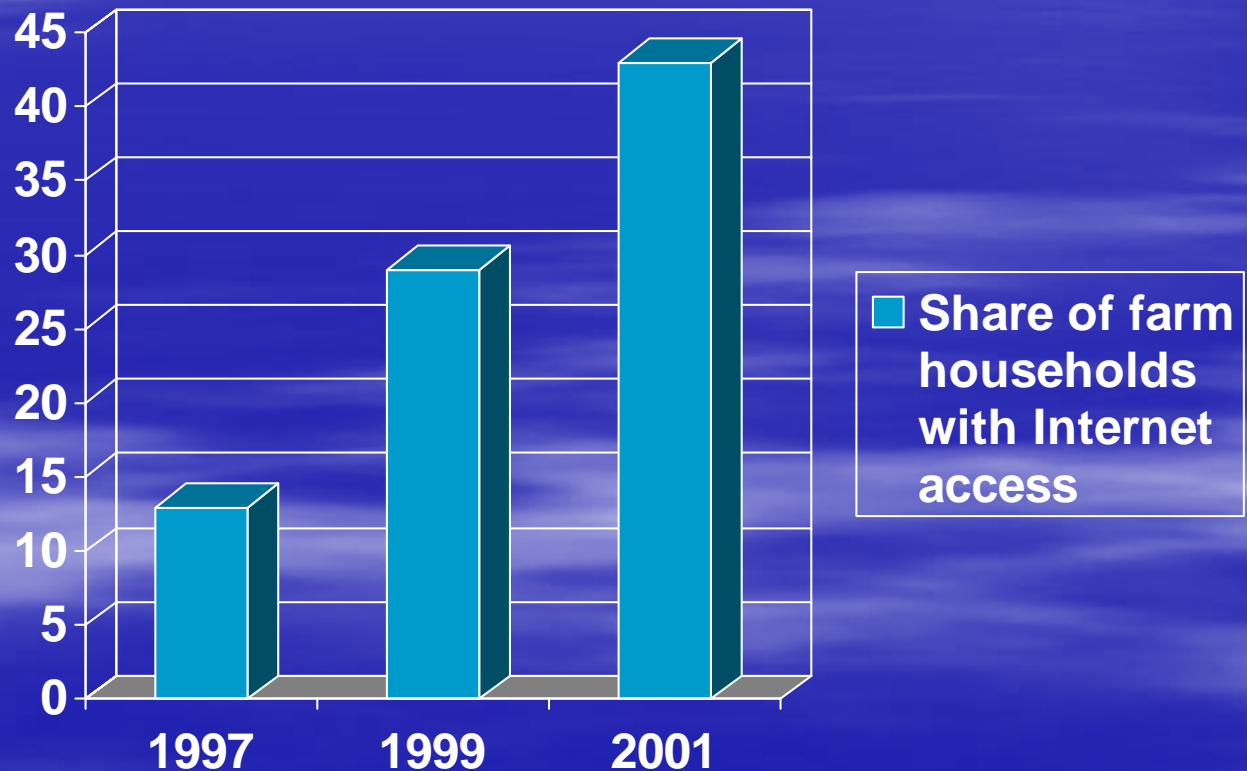
The US experience

- Exponential growth of household Internet use



Experience in Rural US

- Delayed growth but catching up



What fueled the growth?

- Early growth utilized pre-existing telecommunications cable network

What fueled the growth?

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- Subsequent growth utilized infrastructure of cable entertainment providers

What fueled the growth?

- Early growth utilized pre-existing telecommunications cable network
- Subsequent growth utilized infrastructure of cable entertainment providers

- Conclusion: A vast cable infrastructure made widespread Internet use possible.

Implications for E-commerce

- Without widespread Internet use, a conducive environment for the growth of e-commerce may not exist
- An appropriate legal framework must also develop so that both buyers' and sellers' rights are protected
- Conclusion: E-commerce must be both feasible and appealing

ICT in developing countries

- Internet use is very low – an extensive cable infrastructure does not exist

ICT in developing countries

- Internet use is very low – an extensive cable infrastructure does not exist
- Use of cellular service is very high – the construction of cellular towers is a low cost alternative to a cable infrastructure

ICT in developing countries

- Internet use is very low – an extensive cable infrastructure does not exist
- Use of cellular service is very high – the construction of cellular towers is a low cost alternative to a cable infrastructure
- Conclusion: Developing countries must create appropriate ICTs that utilize wireless communication

ICT in Indonesia

- Telkomsel provides cellular service in nearly every location in Indonesia

ICT in Indonesia

- Telkomsel provides cellular service in nearly every location in Indonesia
- High quality telephone cables in rural areas not common

ICT in Indonesia

- Telkomsel provides cellular service in nearly every location in Indonesia
- High quality telephone cables in rural areas not common
- Conclusion: Appropriate ICT will use the inexpensive wireless infrastructure

ICT in Indonesia

- Using existing ***information technology***, we in Indonesia can reduce transactions costs.

ICT in Indonesia

- Using existing **information technology**, we in Indonesia can reduce transactions costs.
- Using existing **communication technology**, we in Indonesia can reduce transactions costs.

Conclusion

***ICT-commerce can
be made technically
feasible in Indonesia
right now!***

REI-Indonesia

- The “SMS Gateway for Agriculture” is an attempt by REI-Indonesia to develop ICT-commerce to benefit farmers
- “Mobile Fresh” is the brand name of a service that markets fresh vegetables for local farmers

SMS Gateway for Agriculture



Marketing Channel

Farmer Empowerment

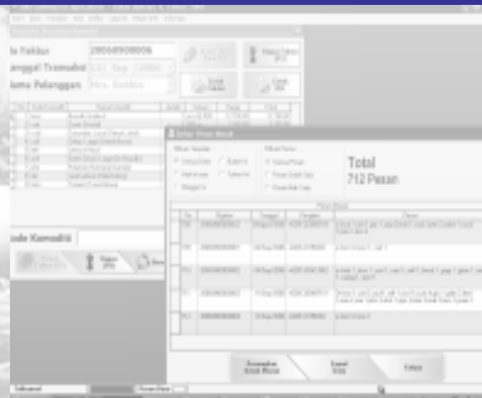
Mobile Fresh



Information Technology

Business Process

Challenges and Constraints



Marketing Channel



Farmer Benefits

Customer Benefits





SMS Gateway for Ag Marketing Software

Utilization of Cellular System



Farmer Empowerment



1. Strengthening institutions
2. Providing technology
3. Providing market access



Business Process



1. Registration
2. Filling orders according to quality standards
3. Delivery to MF
4. Immediate payment

1. Conduct registration of farmers and customers
2. Process customer orders
3. Receive orders and make payment to farmers
4. Deliver orders to customers
5. Receive payment from customers

1. Registration
2. Customers submit orders
3. Receive the goods and make payment to MF



Delivery Vehicle

Appropriate design features

Marketing service area



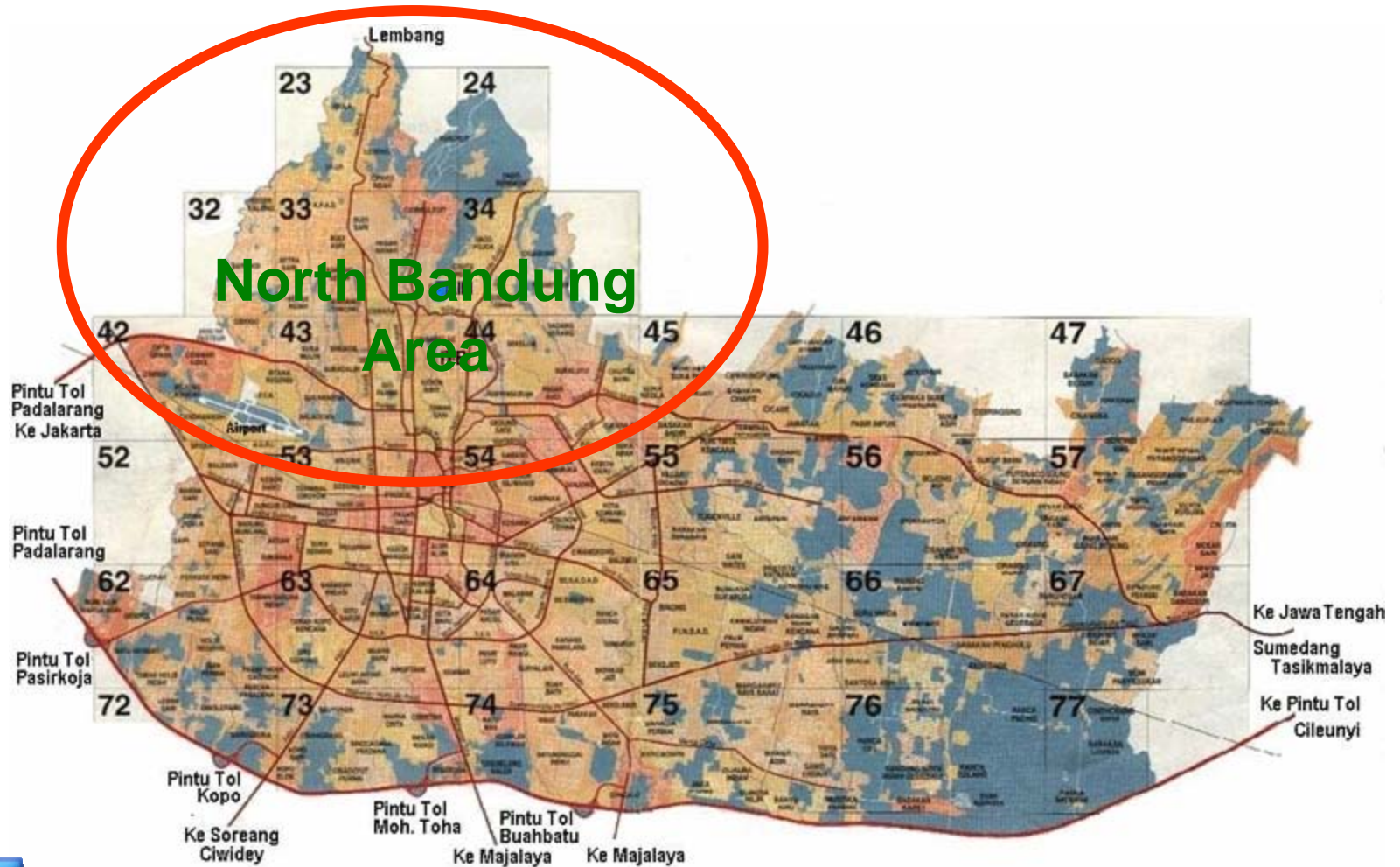
Challenges and Constraints

Farmer challenges and constraints

Market challenges



Map of Bandung



Delivery Vehicle

Specifications:

Honda Mega Pro 160cc

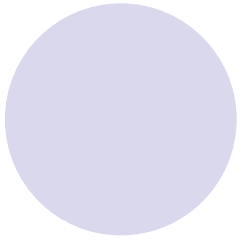
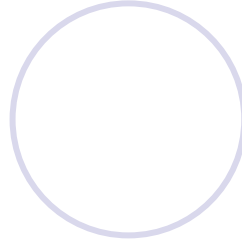
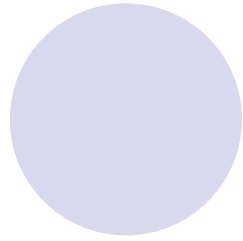
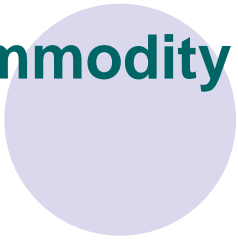
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Volume : 0,19 m³

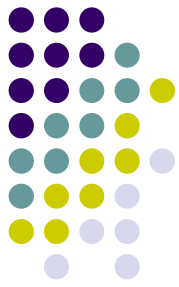
Weight Capacity : 40 kg



Commodity Samples



Utilization of Cellular System



- Represents a familiar type of communication technology
- Creates convenience for the purchase of fresh vegetables
- Orders can be place any time and from any place
- Ordering is nearly free (only the cost of a text message)



SMS Gateway for Agriculture Software



(c) 2005 By RADEMAR Comp.,



Quality Standards

- Size, physical features and quality must conform to information communicated to customers.
- Proper packaging to protect the commodity
- By reducing the time required for marketing, freshness is maintained
- Customers can return goods that do not conform to their quality expectations.



Daftar Pesan Masuk

Pilihan Tampilan

- Semua Data
- Bulan Ini
- Hari ini saja
- Tahun Ini
- Minggu Ini

Pilihan Pesan

- Semua Pesan
- Pesan Salah Saja
- Pesan Baik Saja

Total
712 Pesan

Pesan Masuk

No.	Rigister	Tanggal	Pengirim	Pesan
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710	20060900000002	04/Sep/2006	+6281320413902	or tmt0 1, broc 1, cart 1, caul 1, onll 1, bwcb 1, gngr 1, grbm 1, onin 1, wang 1, spot 1
711	20060900000003	11/Sep/2006	+6281320407611	Or broc 1, cart 2, caul 1, cell 1, scrd 1, cucb 4, gric 1, grbm 2, leml 1, onin 2, onir 1, ptto 3, rdsh 1, rppr 3, tmt0 3, tmal 3, tmic 1, pnap 1
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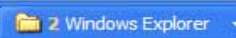
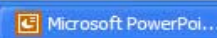
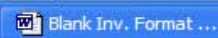
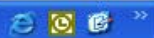
Kosongkan
Kotak Masuk

Export
Data

Keluar

Telkomsel

Pesan Baru



Transaksi Penjualan Komoditi

No Faktur

Tanggal Transaksi 14/ Sep /2006

Nama Pelanggan -Pilih Satu-



No	Kode Komoditi	Nama Komoditi	Jumlah	Satuan	Harga	Total

Kode Komoditi



Daftar Faktur Penjualan

No. Faktur	Nama Pelanggan	Tanggal	Total
20060800001	Mrs. Andrea Hensley	02/Agust/2006	34.900,00
20060800002	Mr. Brian	04/Agust/2006	32.250,00
20060800003	Mr. Brian	08/Agust/2006	12.750,00
20060800004	Sdri. Hotna Sianipar	09/Agust/2006	36.400,00
20060800005	Jonathan Winter	09/Agust/2006	37.800,00
20060800006	Mrs. Andrea Hensley	14/Agust/2006	46.100,00
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20060800009	Mrs. Bonnie Armistead	19/Agust/2006	49.250,00
20060800010	Mr. Brian	22/Agust/2006	25.450,00
20060800011	Jonathan Winter	23/Agust/2006	32.800,00
20060800012	Mrs. Hilda	24/Agust/2006	21.500,00
20060800013	Wahyu TMP	25/Agust/2006	4.000,00
20060800014	Ms. Basa Sianipar	25/Agust/2006	10.800,00
20060800015	Mr. Brian	28/Agust/2006	12.850,00
20060800016	Sdri. Hotna Sianipar	29/Agust/2006	24.250,00
20060800017	Mrs. Debbie	30/Agust/2006	46.900,00
20060800018	Jonathan Winter	30/Agust/2006	59.900,00
20060800019	Mrs. Bonnie Armistead	31/Agust/2006	42.650,00

Tampilkan Keluar

Telkomsel

Pesan Baru

Revisi Harga Jual Komoditi

Kode Komoditi	Nama	Jenis	Kelas	Satuan
		- Pilih Satu -	- Pilih Satu -	- Pilih Satu -

Kode	Nama Komoditi	Jenis	Kelas	Satuan	Harga Jual	Harga Baru	Proses
cels	Celery, Small (Seledri	Non Organik	A	250 gr	2.300,00		Proses
bwcb	Chinese Cbbge S (Ba	Non Organik	A	500 gr	3.250,00		Proses
cucb	Cucumber (Timun Acar)	Non Organik	A	500 gr	2.450,00		Proses
ccbj	Cucumber, Japanese	Non Organik	A	500 gr	3.850,00		Proses
eggp	Eggplant, Purple	Non Organik	A	pcs @	2.250,00		Proses
gngr	Ginger (Jahe)	Non Organik	A	pcs @	1.900,00		Proses
grbm	Green Bean, Mini	Non Organik	A	500 gr	4.250,00		
grbu	Green Bean, Underrp	Non Organik	A	500 gr	2.900,00		
grcl	Chili Green, Lrg (Cbe ljo	Non Organik	A	100 gr	1.700,00		
leml	Lemon, Local (Jrk	Non Organik	A	250 gr	2.150,00		
leth	Lettuce Head	Non Organik	A	pcs @	3.900,00		
lime	Lime (Jeruk nipis)	Non Organik	A	250 gr	2.150,00		
milv	Mint Leaves (Daun Mint)	Non Organik	A	100 gr	1.300,00		
mshr	Mushroom (Jamur	Non Organik	A	100 gr	1.800,00		
mshs	Mushroom, Shitake	Non Organik	A	100 gr	3.850,00		



Data Pelanggan

Kode Pelanggan: 20050800003

Nama: Bpk. Teja Harjaya

Alamat: Perum. Tamansari Bukit Bandung, Blok 2/19
Jl. Raya Sindanglaya - Arcamanik, Sukamiskin Bandung

Telephone: 0227805259

HP: +628156107145

Berlangganan: Ya

Jenis Langganan: Harian

Perulangan:

Format Perulangan:
 <perulangan>:<Kode Komoditi> <banyaknya>.[<perulangan>:<Kode Komoditi> <banyaknya>]
 Senin:001 10,Selasa:005 5

Tambah Perbaiki Simpan Hapus Cari

Cetak Bersihkan Tutup

Telkomsel Pesan Baru



INVOICE

Mobile Fresh

Jl. Cihampelas 212B
 Bandung
 SMS Gateway Number: 081 220 380 50
 Customer Service Number: 081 220 451 45

Invoice Date : 12/Sep/2006
 Sold To : Mrs. Debbie
 Jl. Ranca Bentang No. 70
 Ciumbuleuit - Bandung

Customer PO	Payment Terms	Due Date
20060900006	Cash	12/Sep/2006

Quantity	Code	Comodity	Unit Price	Extension
1	broc	Broccoli, Grade A	12.700,00	12.700,00
2	cart	Carrot (Wortel)	2.350,00	4.700,00
1	ccbl	Cucumber, Local (Timun Lokal)	1.900,00	1.900,00
1	cell	Celery, Large (Seledri Besar)	5.950,00	5.950,00
1	leth	Lettuce Head	3.900,00	3.900,00
1	onll	Green Onion, Large (Dn Bwg Bs)	2.250,00	2.250,00
2	ptto	Potatoes (Kentang Granola)	2.800,00	5.600,00
1	rlet	Leaf Lettuce (Slda Kriting)	1.550,00	1.550,00
1	tmto	Tomato (Tomat Biasa)	2.450,00	2.450,00

Receiver

Sub Total	Rp	41.000,00
Sales Tax		-
Total Invoice Ammount		41.000,00
Payment Received		-
T O T A L	Rp	41.000,00

()



Registration

Registration can be carried out with a text message as follows:

Format: `reg<nama>*<alamat rumah>*<nomer telepon rumah>`

Example: `reg Kartika*Jl. Pajajaran 25*0222034015`

(send to 081.22038050)

If the message conforms to the proper format, the following message will be sent:

Thank you for registering. Your request will be processed and we will contact you shortly.||Mobile Fresh

After verification, the customer receives the following message:

Congratulations! You are the newest member of Mobile Fresh! Your membership number is: xxxxx.||Mobile Fresh



Procedures for submitting an order by text message

To place an order by text message, the customer follows the following simple steps:

First, check the price

Format : `cek<space>commodity code` (unlimited number)

Example: Check the price of potatoes, tomatoes and broccoli
type: `cek ptto,tmt0,broc` (send to 081.22038050)

A moment later the customer will receive the following message:
`ptto:.,0 2800|tmt0:., 0 2450|broc;., 0 12700||Mobile Fresh`



Procedures for submitting an order by text message

Second, place an order

Format : `or<space>commodity code<space>amount`

Example: Order 5 units of potatos, 2 units of tomatoes, 2 units of brocolli

Type: `or ptto 5,tmtto 2,broc 2` (send to 081.22038050)

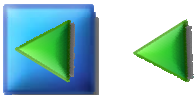
A moment later the customer will receive the following message :

(If the format is correct)

`Thank you for your order.||Mobile Fresh`

(If the format is incorrect)

`The format of your message is incorrect.||Mobile Fresh`



List of Commodity Codes

Broccoli grade A code **broc**

Granola Potato code **ptto**

Large Tomato code **tmto**

No	Item (English)	Item (Indonesia)	Unit	SMS Code	Note
NON ORGANICS					
1	Asparagus	Asparagus	500gr	aspg	
2	Baby Caisim	Baby Caisim	500gr	bcai	
3	Baby Carrot	Baby Wortel	500gr	bcr	
4	Baby Pak Choy	Baby Pak Choy	500gr	bpcy	
5	Broccoli	Brokoli	500gr	brcl	
6	Broccoli Grade A	Brokoli Grade A	Pcs	broc	1 pcs @ 0.5kg +/- 50gr
7	Broccoli Grade B	Brokoli Grade B	Pcs	brcb	1 pcs @ 0.5kg +/- 50gr
8	Cabbage, Red	Kol Merah	Pcs	cabr	1 pcs @ 1kg +/- 100gr
9	Cabbage, White	Kol Putih	Pcs	cabw	1 pcs @ 1kg +/- 100gr
10	Cabbage, White, Small	Kol Putih Kecil	Pcs	calw	1 pcs @ 0.5kg +/- 50gr
11	Cailan	Kailan	500gr	cail	
12	Caisim	Caisim	500gr	cais	
13	Carrot	Wortel	500gr	cart	
14	Cauliflower	Kembang kol	Pcs	caul	1 pcs @ 0.5kg +/- 50gr
15	Celery (large)	Seledri Besar	500gr	cell	
16	Celery (small)	Seledri Kecil	250gr	cels	
17	Chili, Green, Large	Cabe Hijau Besar	100gr	grcl	
18	Chili, Green, Small	Cabe Rawit Hijau	100gr	scgr	
19	Chili, Red, Large	Cabe Merah Besar	100gr	recl	
20	Chili, Red, Small	Cabe Rawit Merah	100gr	srcl	
21	Chinese Cabbage	Sawi Putih	Pcs	ccab	1 pcs @ 1kg +/- 0.1kg
22	Chinese Cabbage, Small	Baby Sawi Putih	500gr	bvcb	
23	Cucumber	Timun Acar	500gr	cucb	
24	Cucumber, Local	Timun Lokal	500gr	ccbl	
25	Cucumber, Japanese	Kyuri/Timun Jepang	500gr	ccbj	
26	Eggplant, Purple	Terong Sayur Unggu	Pcs	eggp	1 pcs @ 0.5kg +/- 50gr
27	Garlic	Bawang Putih	500gr	gnc	
28	Ginger	Jahe	100gr	gngr	
29	Green Bean (mini)	Buncis Mini	500gr	grbm	
30	Green Bean (underripe)	Buncis Muda	500gr	grbu	
31	Green Onions, Large	Daun Bawang Besar	250gr	onll	
32	Leaf Lettuce	Selada Keriting	250gr	riet	
33	Lemon, Local	Jeruk Lemon Lokal	250gr	leml	
34	Lettuce Head	Lettuce Head	Pcs	leth	1 pcs @ 500gr +/- 25gr
35	Lime	Jeruk Nipis	250gr	lime	
36	Mint Leaves	Daun Mint	100gr	mih	
37	Mushroom	Jamur Kuping	100gr	mshr	
38	Mushroom, Shitake	Jamur Shitake	100gr	mshs	
39	Okra	Okra	500gr	okra	
40	Onions	Bawang Bombay	500gr	onin	
41	Onions Red	Bawang Merah	500gr	onir	
42	Pak Choy, Green	Pak Choy Hijau	500gr	pkcg	
43	Peanuts	Kacang Tanah	500gr	pnts	
44	Potatoes, Granola	Kentang Granola	500gr	ptto	1 pcs @ 1.5kg +/- 0.1kg
45	Potatoes	Kentang Biasa	500gr	ptts	
46	Potatoes, Small	Kentang Potongan	500gr	ptss	
47	Pumpkin (large)	Labu Parang	Pcs	pmpL	1 pcs @ 1kg +/- 0.1kg
48	Pumpkin (small)	Labu Air	Pcs	pmps	1 pcs @ 0.5kg +/- 50gr
49	Radish	Lobak Merah/Radish	250gr	rdsh	
50	Red Beans (peeled)	Kacang Merah Kupas	500gr	rbep	
51	Red Beans (whole)	Kacang Merah Kulit	500gr	rbew	
52	Red Paprika	Paprika Merah	Pcs	rprr	1 pcs @ 250gr +/- 25gr
53	Spinach, Green	Bayam Hijau	250gr	spig	
54	Spinach, Red	Bayam Merah	250gr	spir	
55	Sweet Potato	Selada Merah	250gr	spst	
56	Tomato	Tomat Biasa	500gr	tmto	
57	Tomato, Apple Cherry	Tomat Apple Cherry	500gr	tmal	
58	Tomato, Red Cherry	Tomat Cherry Merah	500gr	tmrc	
59	Water Crest	Selada Air	250gr	wacr	
60	Water Morning Glory	Kangkung	250gr	wamg	
61	Zucchini	Zukini	500gr	zuch	
ORGANICS					
62	Broccoli Organic B	Broccoli Organik B	500gr	brob	
63	Lettuce, Endives	Selada Endives	250gr	leno	
64	Lettuce, Leaf	Selada Keriting	250gr	llto	
65	Lettuce, Lolorosa	Selada Lolorosa	100gr	lrso	
66	Lettuce, Romaine	Selada Romaine	250gr	rto	



Strengthening Institutions

1. Providing incentives for collective action in production and marketing, resulting in the creation of new farmer groups and the expansion of existing groups.
2. Creating a forum for group problem solving.
3. Creating networks among farmers and between farmers and input suppliers



Providing Technology

1. Training participating farmers in the use of cell phones and the marketing system
2. Training to increase product quality in order for farmers to obtain higher prices.
3. Training and assistance in processing and packaging so that farmers can obtain added value



Providing market access

1. Creating a connection between vegetable producers and end consumers.
2. Shortening the distribution chain distance between farmer and consumer so that farmers can obtain a greater share of the marketed value.
3. Creating more marketing options for farmers, thus empowering farmers in the marketplace.
4. Establishing profit sharing with farmers by giving back a portion of the marketing margin.



Farmer challenges and constraints

1. Farmers hope to sell all their produce in one transaction, whereas the marketing capacity of MF is still small
2. Farmers have difficulty maintaining quality and consistency.
3. Ongoing debt has made it difficult for farmers to establish new marketing relationships.
4. Farmers expect that every commodity planted will be sold immediately in the market.



Market challenges

1. Consumers have many retail options for buying vegetables, like traditional markets, supermarkets and convenience stores.
2. Use of text messaging to make purchases is regarded by many customers as an inconvenience.
3. For customers that cannot schedule purchases, the lead time is difficult to manage. (Delivery is made the day after the order is submitted.)
4. The limited selection is surpassed by competing retailers.



Farmer Benefits

1. Access to an alternative marketing channel in addition to the traditional marketing channel
2. Exposure to new methods and technologies to increase their success in new markets.
3. Market feedback that can allow farmers to adjust planting decisions and marketing decisions.



Customer Benefits

1. Alternative purchasing method to obtain fresh vegetables at discount prices.
2. Supermarket quality vegetables.
3. Convenience of having produce delivered to the home.
4. Fresh produce that has been recently picked.

