Fall 9-30-2008

A Case Study in eGovernment Solutions

Bernard C. Soriano

A Case Study in eGovernment Solutions

Bernard C. Soriano, California State University, Sacramento, USA, sorianob@csus.edu

Abstract

This work examines a challenge faced by governments in implementing private sector delivery solutions. More specifically, an inherent problem when attempting to shift government services provided at traditional point-of-sale facilities to alternative delivery channels, such as kiosks or through the internet, is studied. It is shown that while technical solutions, such as internet applications, can be readily developed to achieve a desired business objective, the non-technical operational aspects such as payment structure, customer expectations and acceptance, and marketing have a larger role in determining success.

The experiences of the California Department of Motor Vehicles are used as an example in this paper. The department's funding and cost recovery challenges in implementing internet based solutions are discussed. Actual measurement output data from the department are presented.

Keywords: eGovernment, credit card transaction fees, internet transactions, service delivery channel

1. Background

A basic problem for government lies in the collection of fees for products and services that are delivered through delivery channels such as the internet. Private sector companies faced this problem in the 1970s, particularly the retail industry with the increased adoption of credit cards as a form of payment, and again in the late 1990s and early 2000s with the emergence of the internet as a viable product delivery venue. [6]

As new technologies emerged - such as financial networking systems, telephone service centers, and the internet - companies adapted and incorporated them as an additional means of provisioning goods and services. Typically the preferred form of payment in these types of transactions was a credit card. The transactions were completed faster as there was no need to wait for delivery of cash or check and generally required less staff and overhead to conduct. However, the associated fees levied on merchants for utilizing credit cards eroded any operational savings and also posed a dilemma – should this new cost of doing business be reflected in the price of goods and services and should those prices be segmented between alternative delivery channels and traditional channels?

This dilemma was further expanded with the introduction of other forms of non-cash or non-check payments, i.e. debit cards, electronic checks, etc.

Merchants who accept credit cards, debit cards, or other forms of electronic payment are charged fees by the companies issuing the cards. The fee amount varies and is typically a percentage of the transaction amount. Thus, it is sometimes referred to as a transaction fee. Some states have legal restrictions on the use and handling of credit cards. For example, in California, the Song-Beverly Credit Card Act of 1971 explicitly states, "No retailer in any sales, service, or lease transaction with a consumer may impose a surcharge on a cardholder who elects to use a credit card in lieu of payment by cash, check, or similar means. A retailer may, however, offer discounts for the purpose of inducing payments by cash, check, or other means not involving the use of a credit card, provided that the discount is offered to all prospective buyers". [1] Thus, retailers often build the credit card transaction fees into the overall price of the product or service. Essentially every purchase of the item, irrespective of the payment format, subsidizes the transaction fees.

Companies typically incorporate the business cost of providing alternative payment features, such as credit cards, into the overall price structure of their products irrespective of the delivery channel. Furthermore, this product price structure is sufficiently built to allow incentives for customers to utilize the more efficient delivery channels. For example, a product from a retail electronics company will be offered in the retail establishment at a same price for cash payment, for check payment, for debit card payment, or for credit card payment. A customer pays the same price in the store no matter what payment option is used. Yet that price is set at a level large enough so the same

item can be sold through the company's website at a discount, in spite of the fact that the only payment option in this channel is via credit card.

Examples of this are readily found in not only product offerings – electronics, office supplies, hardware, etc. – but also in service offerings. Airlines, hotels, brokerage firms, cable television providers all provide services at discounted prices if procured through the internet and paid for using non-cash or non-check methods.

Public acceptance of this practice has led to an expectation that makes it difficult for governments to emulate. Citizens expect goods, products and services to be consistently priced irrespective of payment options. Furthermore, there is an expectation that prices should remain at the same level, if not discounted, for utilizing more efficient delivery channels. The price is set at a baseline through the traditional delivery means. Any additional delivery channels are expected to maintain that baselined price. And, in some instances, there is an increased expectation that prices should be reduced for these non-traditional delivery channels.

The problem is similar to one currently faced by the banking industry and the operation of their automated teller machines (ATMs), particularly off-site ATMs and "off-us" ATMs. Practical use of ATMs first began in the 1970s with banks installing the machines on the premises of their branches, either inside the building or immediately outside the branch offices. These machines offered customers the convenience of conducting business – withdrawals, deposits, etc. – without having to interface with a human teller. Initially, banks did not charge customers a fee for using these machines. The customers were exclusively the bank's customers, as the ATMs could not process competitor's transactions, and utilizing the machines provided the bank a competitive advantage.[8] However, technological advances soon made it practical for banks to provide basic services to customers from other banks. Customers could now utilize other financial institution's ATMs, i.e. "off-us" ATMs, for withdrawal, transfer, and deposit transactions. This was made possible through shared ATM networks with other banks. This feature, however, also made it possible for fees to be charged between banks for providing these services to their customers. As a result, some banks passed the fees directly to the customer by charging them for utilizing the ATMs from other institutions.

This practice has further expanded with the emergence of privately owned ATMs. Owners of these ATMs charge a fee for using the machine in addition to the fee charged by the customer's financial institution.

With the advent of these privately owned ATMs, banks and other financial institutions also began debuting their ATMs in locations away from their branch offices. The cost to maintain and operate these off-site or off-premise ATMs is generally more than the cost to maintain and operate the ATMs in traditional offices. [7] Without a cost recovery strategy, operating an off-site or off-premise ATM results in an overall financial loss for the bank. Thus, banks have sought to recover these costs through additional transaction fees levied on transactions using the ATMs. This has led to consumer complaints and subsequent legislative action. [9] Banking customers are faced with inconsistent pricing for the same service delivered through different channels.

Governmental agencies face the same problem. However, in contrast, they often have the price or fee for their products and services determined by legislation. For example, the fee for a Class C California driver license is defined in statute as $28. [2] Governmental agencies are limited in their ability to change the fees that are charged for services. Thus, lacking legislative action, they have no authority or flexibility in altering the fee as retailers do when changing product prices to account for varying payment options or delivery channels.

This problem is examined in more detail with a California governmental agency that interfaces with the vast majority of citizens: the Department of Motor Vehicles.

2. Discussion

At its core, the California Department of Motor Vehicles (DMV) is responsible for registering vehicles and licensing drivers. There are currently approximately 33 million registered vehicles and approximately 23 million licensed drivers in California. The department also performs various other functions, including licensing and regulating automobile dealers, recording vehicle ownership, maintaining driving records, issuing identification cards, and collecting various fees and tax revenues for state and local agencies.

The department operates 169 field offices throughout the state that serve the general public. It is through these field offices that the department provides a myriad of services in the traditional over-the-counter transaction model. The department also provisions some of the services through the mail. These two channels have historically been the only venue for customers to transact with the department, and payment for the services was in the form of cash or check. The department operated for decades with this model of dual delivery channels.

The model was modified slightly in the mid to late 1980s. Beginning in 1986 the DMV partnered with automobile clubs (the American Automobile Association, or AAA) to provide specific DMV services to customers in the AAA offices. Payment methods for these services were consistent with a field office visit or mail transaction: cash or check. There was no additional fee charged to the customer for this service and the department combined the tracking statistics with the field office statistics, as the field offices reconciled the transactions completed in the AAA facilities. Essentially, the AAA offices were considered an extension of field offices. Thus, the department provided its customers three service delivery channels.

In the 1990s, the DMV expanded with the addition of other service delivery channels. The department partnered with various business entities and provided them the authority and means to conduct certain transactions on behalf of the department. For example, companies began offering vehicle registration services so customers did not have to interface with the DMV. Within these channels payment from the business partner to the department is via an electronic funds transfer (EFT). Payment from the end customer and the business partner is through any means provided by the company. Thus, in this channel, alternative payment options such as a credit card or debit card are available. However, there is an expectation and acceptance of any additional fees, such as service fees, as a value added service is being provided to the customer.

Another delivery channel that was added involved telephone services. The department currently operates various telephone service centers that provide services via telephone. Telephone calls are handled by staff members or by an automatic speech recognition system, which does not require human intervention. It is through these telephone service centers that the department first began accepting alternative payment options for services.

The government service initially offered with a credit card payment option was the renewal of vehicle registrations. The fees for this service have a wide variance, depending upon the type of vehicle and its age. For example, a customer renewing the registration for a year old automobile pays a higher amount of registration fees than a customer renewing the registration for a ten year old automobile. In contrast, the fee for renewing a driver's license is the same amount for everyone. Typically, vehicle renewal registration fees are the highest of all the fees collected by the department.

2.1 Alternative Payment via Telephone

In 1989, the DMV began accepting credit cards as a means of payment for services delivered over the telephone. This option was made available for the telephone calls handled by DMV personnel, as the advanced speech processing technology was not yet available at the time. In providing this service, Californians had the ability to renew their vehicle registration over the telephone and pay for the registration using a credit card. For a government agency that was often ridiculed for long lines and wait times in the field offices, this option was an appealing alternative for citizens.

Prior to offering this service through the telephone service center, citizens had two options for renewing their vehicle registration: visiting a field office or mailing the renewal notice with a check payment. The department provided the service and the associated payment option in line with the general expectation – that the price for the service remain constant irrespective of payment option. No transaction fee was imposed on the customer for utilizing a credit card and, in essence, the transaction fee was borne by the department.

Customer interest in this new service started slowly and remained at a low level. There was no concerted marketing effort to highlight the new service. As a result, only a small percentage of customers utilized this service. Segmented records for that time period are unavailable, however estimates indicate the total number of customers utilizing this service peaked at approximately 30,000 per year, accounting for less than one percent of the total number of annual vehicle registration renewals processed by the department. Table 1 details the number of vehicle registration renewals that the department processed through the mail and through the field offices. At the time of

collection, data for the telephone service centers were combined with the data from the field offices; thus, making analysis at this stage difficult.

Table 1. Number of vehicle registration renewals processed

Fiscal Year *	Field Offices	Mail	Total
FY 1988/89	10,404,685	11,228,388	21,633,073
FY 1989/90	11,262,844	11,048,073	22,310,917
FY 1990/91	10,201,643	12,457,788	22,659,431
FY 1991/92	10,351,898	12,761,467	23,113,365
FY 1992/93	8,005,004	15,224,071	23,229,075
FY 1993/94	7,078,836	15,802,940	22,881,776
FY 1994/95	7,120,311	15,790,943	22,911,254
FY 1995/96	7,362,999	16,054,766	23,417,765

* A fiscal year begins on July 1 and ends on June 30.

The data clearly show in 1988 there existed a fairly even split between vehicle registration renewals processed in the field offices and those processed through the mail, leading to a gradual shift in transactions from the field offices to the mail. By 1995, the number of vehicle registration renewals processed through the mail outnumbered the vehicle registration renewals processed in the field offices by almost 2.2 to 1.

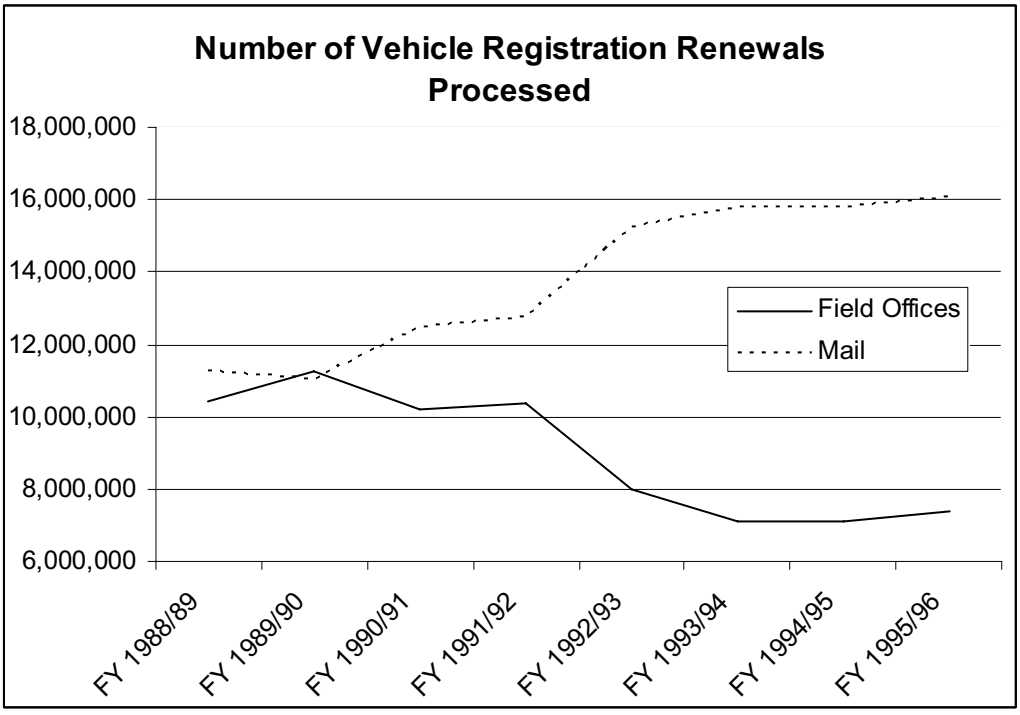

Figure 1. Shift of vehicle registration renewals

Figure 1 graphically displays the shift of annual vehicle registration renewals from the field offices to mail processing. In addition, it is important to note a gradual increase in total annual vehicle registration renewals.

Initially the department did not include the credit card transaction fee in the price of the transaction. A citizen could renew their vehicle registration by visiting a field office and pay via cash or check, they could renew their vehicle registration by mailing the renewal forms and pay by check, or they could renew their vehicle registration by placing a telephone call and pay by credit card. All of these transactions carried the same fee (price) for the customer. It

was the same service provided over three distinct delivery channels with three different payment options and the same price throughout.

In spite of the relative low volume of telephone service transactions, the department realized the situation was not financially feasible to continue, particularly because of the credit card transaction fees. Thus in 1995, the department instituted a $3 convenience fee for credit card transactions performed over the telephone to cover the cost of the credit card transaction fees. While this was the first attempt at providing alternative, non-cash and non-check payment options, data for this phase are not readily available for analysis. Thus, this paper will focus its examination on the second stage – using the internet – as data are more readily available.

2.2 Alternative Payment via the Internet

In April 2000, the department debuted its first internet transactional application: the Vehicle Registration Internet Renewal (VRIR) program. The application allowed qualified customers to renew their vehicles online and to make payment via credit card. The department did not impose an additional fee for utilizing this service. The cost for renewing a vehicle registration by visiting the field office was the same as the cost for renewing via the internet. This was done to encourage use of the new service. It was felt that imposing a transaction fee would discourage use rather than encourage participation. It was estimated that approximately 350,000 customers would be using the online application annually and the associated credit card transaction fees would be approximately $1.3 million annually.

This application was a major step forward for the department not only in improving customer service, but also in utilizing new technologies. The department had a reputation of long lines in field offices, poor customer service, and outdated computer systems. This internet program was a technical challenge to develop and the result was a program that customers could utilize instead of visiting a field office and provided a faster delivery of service.

However, the new application was not viewed in a positive light by all. The Legislative Analyst's Office (LAO), a nonpartisan fiscal and policy advisory office for the Legislature, reported in its *Analysis of the 2000-01 Budget Bill* several reservations about the new project. [4] One of the main concerns was the cost-effectiveness of the project, particularly with the transaction fees. The LAO reported applying a flat fee – similar to the $3 fee imposed on vehicle registration renewals over the telephone – to the online program was appropriate. Furthermore, it was "not appropriate for the state to absorb these fees. Instead, they should be borne by customers who are willing to pay what amounts to a 'convenience fee.'" The LAO also believed that the project was premature for the following reasons:

- It was felt conducting the renewal transaction via mail is easier than conducting it via the internet.
- Only a limited amount of vehicle owners would be eligible (a requirement to participate is insurance information is electronically available from the respective insurance company – at the time, only three companies provided information electronically).
- It was expected that actual participation would be very low because of reservations about providing credit card data over the internet.
- It was felt the department should focus on other technology projects.

In July 2000 – four months after introduction of the VRIR program – a convenience fee of $4 was introduced into the application because of the 2000 Budget Act. [3] The control language in the Act stated, "Funds for this program (VRIR) shall not be available for payment of credit card discount fees or similar card related charges. The Department shall attempt to secure agreement with credit card vendors to waive discount fees and, where these efforts are unsuccessful, shall pass any and all credit card related costs on to customers with clear disclosure that the customer is paying a convenience fee for the use of credit card transactions on the Internet."

Table 2 shows the monthly usage for the application for the first calendar year of implementation. For the first three months, usage doubled each month. However, with the introduction of the $4 fee, the department experienced a sudden drop in usage where it remained for the year. The month preceding the introduction of the convenience fee and the month after the introduction are highlighted in the table.

Table 2. Number of VRIR transactions 2000

	VRIR transactions
April 2000	5,332
May 2000	11,059
June 2000	***21,724***
July 2000	***16,985***
August 2000	16,774
September 2000	14,282
October 2000	16,873
November 2000	16,648
December 2000	17,473

In July 2004 – three years after introduction of the $4 convenience fee – the department eliminated the fee to encourage greater use of the application and applied for a budget augmentation from the Legislature to cover the cost, for which they were successful. The removal of the convenience fee immediately caused an increase in internet usage. Figure 2 below shows the monthly vehicle registration renewal volumes from the time the program was debuted. As can be seen, since the introduction of the $4 convenience fee, participation in the VRIR program has been at a fairly low level, although gradually increasing at a modest rate. Regression analysis for the period between July 2000 and June 2004 shows an approximate growth of 2,234 transactions/month. This growth rate changed dramatically once the convenience fee was eliminated. Regression analysis for the period beyond July 2004 shows a post-convenience fee elimination growth rate of 42,693 transactions/month; over a twenty-fold increase.

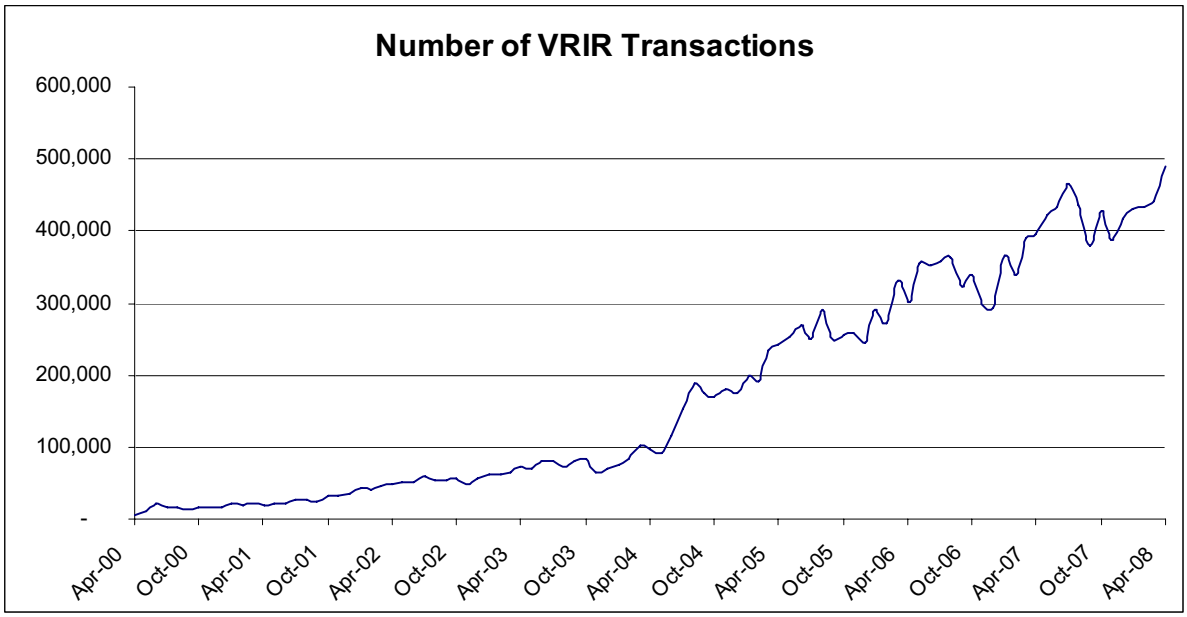

Figure 2. Monthly VRIR transactions

Overall data for the vehicle registration renewal processes show a shift of transactions from the different delivery channels. Since introducing the VRIR program in 2000, the department has made available other channels to conduct this transaction, such as self-service terminals (kiosks). In 2004, the department shifted all telephone renewal transactions from being handled by a human to being handled by an automated speech processing system. Table 3 shows the annual data of vehicle registration renewals in each delivery channel while Figure 3 shows the data graphically. From Figure 3, it can be seen that the internet delivery channel displays a growing trend while the field office volumes decreased to roughly half of the levels seen in 1990. At the same time the mail volumes

increased to a peak in the mid 1990s and have gradually decreased since. A fundamental question arises as to the relationship between the volume fluctuations. Figure 4 depicts five delivery channels (the self service terminals were omitted because of the relatively low volumes) and their respective volume percentages.

Table 3. Annual vehicle registration renewals processed

Fiscal Year	Field Offices	Mail	Internet (VRIR)	Business Partners	Auto Clubs	Advanced Speech Processing	Self Service Terminals	Total
FY 88/89	10,404,685	11,228,388						21,633,073
FY 89/90	11,262,844	11,048,073						22,310,917
FY 90/91	10,201,643	12,457,788						22,659,431
FY 91/92	10,351,898	12,761,467						23,113,365
FY 92/93	8,005,004	15,224,071						23,229,075
FY 93/94	7,078,836	15,802,940						22,881,776
FY 94/95	7,120,311	15,790,943						22,911,254
FY 95/96	7,362,999	16,054,766						23,417,765
FY 96/97	7,879,699	15,645,627		20,594				23,545,920
FY 97/98	9,196,583	14,352,571		54,691				23,603,845
FY 98/99	9,356,775	14,753,278		85,181				24,195,234
FY 99/00	9,685,571	15,046,401	38,115	110,337				24,880,424
FY 00/01	9,908,071	15,711,197	227,253	132,749				25,979,270
FY 01/02	10,253,330	15,284,850	458,644	159,989				26,156,813
FY 02/03	10,219,226	15,137,258	739,464	156,668				26,252,616
FY 03/04	6,913,496	14,578,568	1,018,378	195,261	3,026,452	6,941		25,739,096
FY 04/05	6,815,737	13,718,840	2,429,323	239,640	2,881,113	218,227	955	26,303,835
FY 05/06	7,069,134	13,441,952	3,454,819	295,915	3,025,312	237,706	1,009	27,525,847
FY 06/07	7,417,047	12,883,667	4,316,079	371,997	3,256,801	261,921	22,218	28,529,730

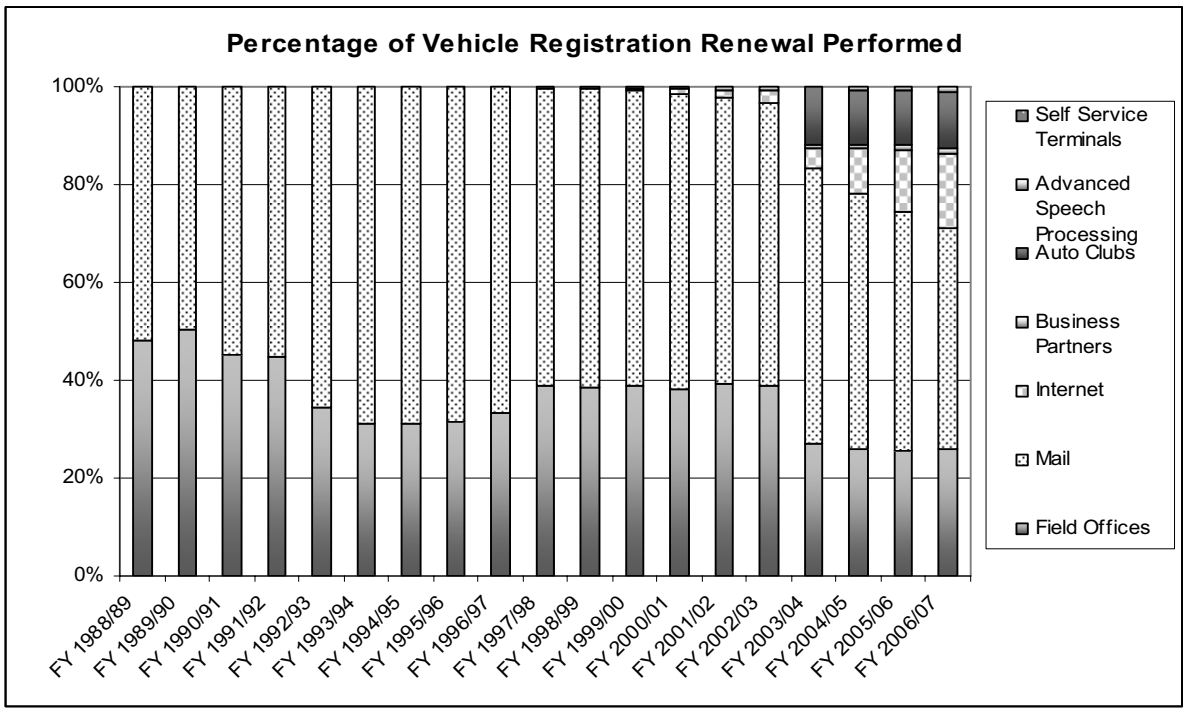

Figure 3. Service delivery channel percentages

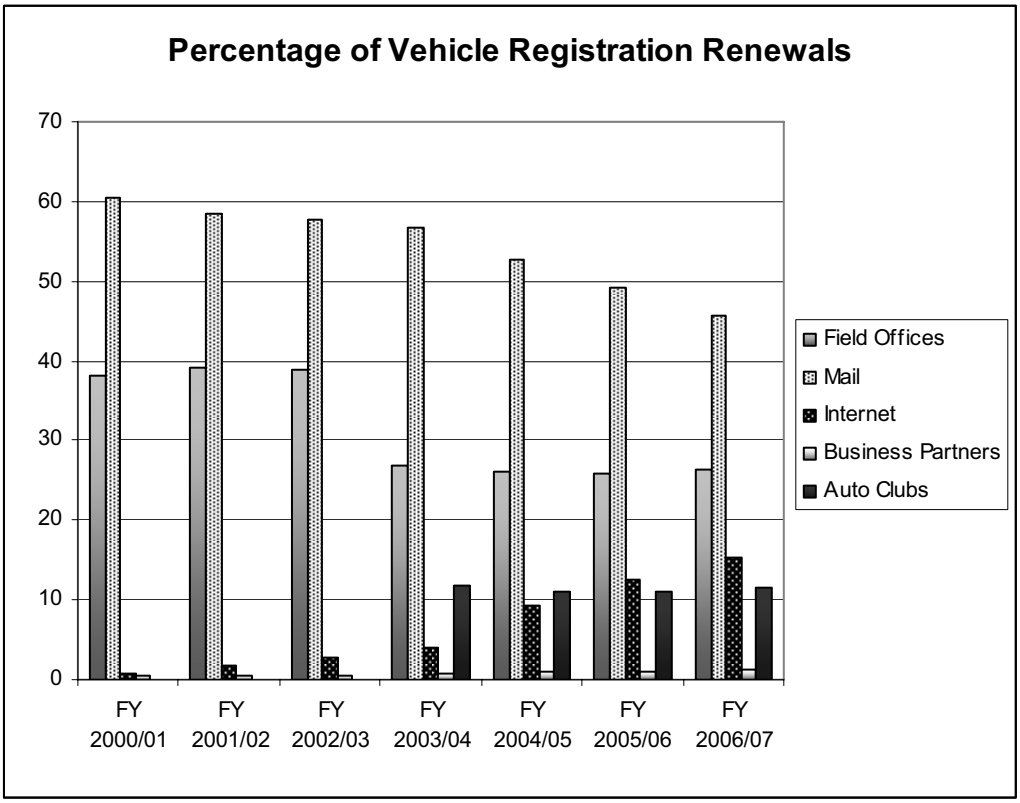

Figure 4. Shift of transactions between service delivery channels

The chart depicts a sudden decrease in field office transactions in FY 2003/04. However, this is due to a change in the DMV's record keeping. Prior to FY 2003/04, the department aggregated the automobile club transactions into the field office transactions. Beginning in FY 2003/04, the DMV began tracking the automobile club transactions separately. Thus, the decline in field office transaction volumes. The vehicle registration renewals through the mail experienced a gradual decrease that seems to mirror a corresponding increase in internet transactions. Thus, the recent data indicate the internet VRIR application may be shifting customers from the mail service delivery channel. However, more data is needed to draw more definitive conclusions.

2.3 Success Factors

Clearly the elimination of the convenience fee was instrumental in increasing the amount of internet transactions. However, that was only one of a number of factors that affected the outcome. Some of the factors were macro-level issues while others were more operational. First, the VRIR internet application was dependent upon electronic availability of insurance information. At the time of introduction, only three insurance companies were in a position to provide their data to the department electronically. In the years since 2000, more companies were able to provide their data electronically, gradually leading to the situation today, where presently all automobile insurance companies operating in the state of California provide their data.

Within each year since the introduction of the VRIR, more insurance companies have made their data available, translating into a larger number of customers eligible to utilize the program. The majority of vehicle owners, approximately 85%, are insured by the major insurance companies (State Farm, AAA, Allstate, etc.) and the effect of those records being made available, the date it was made available, and the subsequent resulting VRIR usage has not been quantified.

Another factor is the timing of the introduction of the VRIR program. While it was introduced at the height of the dot-com frenzy, a few years elapsed before widespread acceptance of the internet as a foundational method of

conducting business. [5] By the year 2005 it was more commonplace for citizens to pay their bills online, conduct banking business online, and shop online. This public acceptance of the internet in all likelihood also contributed to the increased usage of the program, but this effect has also not been quantified.

A third factor is marketing. The department has marketed these new delivery channels as well as other new offerings from the department. This outreach effort has increased public awareness of the department and its services. As with the other factors named above, this probably influenced the increased usage, but the specific effect has not yet been quantified.

3. Conclusions

This work presents a glimpse into the difficulties experienced by government agencies in implementing a seemingly straightforward service delivery solution that is commonplace in the private sector. Customer acceptance and subsequent usage of the transactional internet program for the government service describe is tightly coupled with price. It is very price sensitive and additional transaction or convenience fees have a significant effect on usage.

Recommendations for future studies include examining the effect of the other factors identified above that have not yet been quantified, studying in more detail the causes of the transactional shift to and from delivery channels, and studying the effect of deploying transactional solutions on customer perception of the department.

Acknowledgement

The author would like to thank the California Department of Motor Vehicles for permitting the study and for supplying the data. Special thanks are due to Bill Davidson, Filomena Domondon, Rich Sauer, Jean Shiomoto, Kathleen Rose, and Ken Miyao.

References

[1] California Civil Code, Section 1748.1
[2] California Vehicle Code, Section 14900 (a)
[3] California Department of Finance, *State of California 2000-01 Final Budget Summary,* September 2000, p. 223.
[4] California Legislative Analyst's Office, *Analysis of the 2000-01 Budget Bill, Transportation Chapter,* February 17, 2000, pp. A-97 - A-98.
[5] Hernandez-Murillo, R, Llobet, G, and Fuentes, R., "Strategic Online Banking Adoption", Research Division, Federal Reserve Bank of St. Louis, October 2006, revised January 2008.
[6] Ingene, C.A. and Levy, M., "Cash Discounts to Retail Customers: An Alternative to Credit Card Sales", *Journal of Marketing*, Vol. 46, No. 2 (Spring, 1982), pp. 92-103.
[7] Reeves, K., "Customers Pay For Privilege Via ATM Transaction Fees", *The Houston Business Journal*, July 25, 1997.
[8] Sakar, D., "Is It Over For Transaction Fees?", *Federal Computer Week*, March 4, 2001.
[9] Sullivan, B. "In Denial: ATM Fee For Getting Nothing", *The Red Tape Chronicles*, msnbc.com, October 28, 2005.