



“Why did Travel Card Work and Met Ticket Fail?” Lessons in the Integration and Implementation of Transport Systems

David Wilson

Royal Melbourne Institute of Technology, Victoria

Abstract

In 1993 the Victorian Government went to tender for an automated public transport ticket system for Melbourne. The Government awarded the contract on the expectation that the system would be substantially implemented within one year. The outcome was a ticket system that was delivered finally in 1998 after much public debate and criticism by the Auditor General of Victoria. This paper discusses what went wrong from a purchasing theory perspective and also compares the Met ticket system with a prior large scale implementation of a ticket system known as Travelcard that was successful.

Contact Author

David Wilson
Faculty of Business
Royal Melbourne Institute of Technology
Level 14
239 Bourke Street
Melbourne Vic 3000

Phone: +61 3 9925 5530
e-mail: dave.wilson@rmit.edu.au

Fax: +61 3 9654 7483

Introduction

Melbourne is a city blessed with an abundance of public transport. Its three million residents have a comprehensive system of commuter train lines, tramlines, bus routes and taxi's. The city's tram network is one of the largest in the world. The people of Melbourne view their public transport system as an important part of their city and this is reflected in successive state government's attention to, and improvement of the system. Two aspects of the public transport system that have seen considerable change over the past ten years are the fare structure and ticket systems of public transport. This paper first discusses the development of the fare structure and ticketing systems between 1981 and 1999 in Melbourne. It then discusses why recent innovations have come at a high price in terms of public and ministerial confidence in the planners and operators of the trains and trams of the public transport system. Finally the paper draws some lessons and conclusions about the introduction of new systems to transport operations in general.

Background.

Prior to 1981 Melbourne had separate fare systems for its trains, trams and buses. The fares were largely distance or stage based, however, rail had some time based systems (annual, monthly and weekly tickets) and the tram system had a short journey multi-ride ticket. Each system was operated independently, and effectively, competitively with each other public provider. A new fare was required for a change of mode for each trip. The Melbourne Metropolitan Tramways Board (MMTB), the tram operator, carried the most passengers on an extensive set of inner tramlines running down the middle of main roads. The MMTB also operated a significant bus network in Melbourne's eastern suburbs in competition with many smaller private bus operators. Vicrail operated the suburban train system, which also was responsible for country passenger trains and rail freight. Although the Ministry of Transport was responsible for the coordination of metropolitan transport in theory, this was difficult to achieve because each transport operator was a separate statutory operator with its own Act of Parliament (Vicrail and MMTB) or a private company (about 80 private bus operators).

By 1980, public transport in Melbourne, as in other large cities, was in trouble with falling patronage and rising government subsidies. Although the citizens wanted their public transport system, they also wanted and used the increased mobility offered by their private cars on newly built expressways. The government of the day responded by commissioning an extensive review of all transport systems in the State known as the "Victorian Transport Study" under the direction of W.M. Lonie. Lonie recommended among other things in his "Report on Metropolitan Public Transport" to the Minister of Transport:

"A comprehensive plan for the introduction of a common ticket system for travel on trains, trams and buses", Lonie(1980,page 92)

In late 1980, at the direction of the Minister, the Victorian Ministry of Transport created a small team of transport planners from each of the public transport modes to redesign

Melbourne's fare structure. The Director of Ministry of Transport, who reported to the Minister of Transport, coordinated the planning team. The objective of the fares planning team was to create a simple integrated multi-modal ticket system for Melbourne.

Within a short period of time (weeks) the fares team negotiated a three zone, multi-modal ticket concept between the train and tram authorities. This was achieved because of the pressure applied to the heads of the train and tram systems that reported to parliament through the Minister of Transport. Initially there was substantial resistance to the integrated proposal by the heads of the rail and tramways, and technical and financial explanations were provided against an integrated fare system. Both the train and tram authorities were concerned about loss of control of revenue, loss of control of ticket systems and the issue of revenue sharing. However, the Minister prevailed and also demanded that the private bus operators be included in the new system. State cabinet evaluated the new system and approval was given to proceed.

The new system known as "Travelcard" was launched in October 1981. It involved the complete redesign of the existing ticket system from over 100 different tickets down to a smaller subset of tickets that were based on three large concentric zones centred on the Melbourne CBD. Each mode still had its own tickets but a new daily multi-modal ticket was introduced known as "Travelcard". This ticket allowed unlimited travel on trams, trains and buses on the day of issue in the zones denoted on the ticket. It was attractively priced at the level of a return journey involving a single change of mode. According to a market survey by Ove Arup (1982) it captured approximately 27% of riders within six months of introduction. There were few public complaints about the introduction of Travelcard and the new zone fare system. Given that it contained a 14% average increase in fares the lack of negative publicity was probably due to the perceived benefit of multi-modal multi-trip travel on a single daily ticket.

During the 1980's patronage and revenues continued to decline and the subsidy level increased. Government and management sought ways to reduce or contain costs. Since reduction of services was politically unacceptable, efficiency and system productivity improvements were targeted. The Travelcard ticket system was still manual and labour intensive in that it required train station staff and tram and bus conductors. An automated ticket system was seen as a viable method for reducing operating costs. The automated ticket system was not new and indeed was almost introduced in the late 70's but was abandoned due to industrial disputation associated with the previous government. As an intermediary measure in 1990, the Minister of Transport decided to introduce a "Scratch Ticket" which could be purchased off vehicles at news agency's and milk bars. The concept was that passengers would scratch off the time and date upon boarding a vehicle to validate the ticket. The travelling public and train and tram unions resisted this new concept and it was eventually withdrawn. The travelling public perceived the self-validation ticket to be difficult to use, especially for the young, elderly and disabled passengers that made up a substantial portion of passengers. The unions objected because they were worried about loss of conductors and they felt that service levels would decline. It led to a tram driver walk out and a blockade of the trams in the CBD.

By 1992 with a new government, both government and public transport management again re-introduced the concept of automatic ticketing in an effort to improve productivity and efficiency. Since the new government was elected on a platform to improve public finance and cut debt, public transport was just one of many departments that dramatically cut expenditure. Automatic ticketing was seen as a way of improving service levels whilst at the same time reducing operating expenditure on staff associated with ticketing and revenue collection. In 1993 the government issued tenders and decided on awarding a “build own and operate” contract for automatic fare collection to a private consortium based in Western Australia, OneLink. Although the unions opposed the idea of losing conductors and station staff they resigned themselves to what they believed was a “fait accompli”. The government and their senior managers expected that an integrated multi-modal automated fare system would be operational within two years. It was indeed to take until 1999 before the new system was commissioned. Market research conducted by the Auditor General (1998) confirmed numerous continual reports in the media that the new system known as “Met Ticket” was regarded as a failure by most of the Melbourne public. The Met Ticket system was grossly overtime and substantially over budget. It caused the Minister of Transport and the Public Transport Corporation considerable embarrassment. How did this happen when similar cities have had automated fare systems up and running for many years?

The Auditor General’s Analysis of Met Ticket

The Auditor General of Victoria (1998) provided a detailed analysis of what he thought went wrong in a special report to Parliament “Automating Fare Collection; A major initiative in public transport”. Table 1 lists the different elements identified that caused the ticket system problems.

The report was a comprehensive analysis and included commissioned market research of 1400 public transport users. The research showed, among other things, that 54% of respondents believed that the system was worse than before Met Tickets introduction. Just less than one fifth of users said it was better.

Table 1: Causes of problems with Met Ticket

Fast tracking of the project leading to (a) insufficient time to do a comprehensive feasibility study and (b) No detailed system specifications by the customer, the Public Transport Corporation (PTC).
A deteriorating relationship between the vendor Onelink and the PTC due to continual delays in meeting project milestones.
Financial provisions in the contract which caused delays in payments to Onelink and the possibility of excessive compensation costs payable by the PTC to Onelink.
Operational failure of ticket and validating machines during the initial implementation that caused a failure of public confidence in the system.
Substantial fare evasion across the system estimated at 15% of travelers.

The Auditor General concluded that government needed to “re-assess the risks involved in entering into outsourcing arrangements under which total responsibility for all aspects of major and sophisticated technological projects..... rests with a single contractor” (Auditor General’s Special Report 59, page 7)

The next section discusses the general issues surrounding outsourcing and competitive tender processes

Procurement Theory

In general, today, outsourcing of non-core business functions is seen as a way of introducing competitive advantage in the private sector. That the public sector should also adopt such an approach is not surprising given the imperative of economic efficiency and “value for money” that is demanded of governments today. Current public sector thinking views competition and privatisation as effective vehicles to improve government services such as hospitals and transport in particular. Competitive tendering is seen as an appropriate vehicle for making the outsourcing decision

The outsourcing process of the ticket system in 1993 was a procurement decision. It is well known to purchasing professionals (see basic purchasing texts by Dobler and Burt(1996) or Leenders and Fearon (1993)), that there are certain conditions under which competitive tendering will not work. Dobler and Burt, for example, list four situations when competitive tendering should be avoided:

1. When it is impossible to estimate costs with a high degree of accuracy
2. Price is not the only variable
3. The specifications may change during procurement
4. Special tooling or setups are required

Dobler and Burt, page 251.

Competitive tendering could have been expected to fail in the Met ticket case because the government did not itself know the cost of the proposed system. Given this fundamental lack of knowledge the government and Public Transport Corporation could not judge the validity of the three quotations it received. The consequent failure of the lowest price tender was not surprising since they (Onelink) had never completed an automated ticket system on a public transport system as big as Melbourne’s. It should be noted that one of the other tenders had completed systems in other world cities but they were not selected.

There are also conditions that are necessary for competitive tendering to be successful. Probably the most important is that there are a sufficient number of vendors interested and capable of providing the service. It is easy to see why competition failed to deliver the best result because the final bidding process involved just three organisations. Two appear to have been created just for the purpose of bidding for the job at hand. Competition works when the task is well specified and there are sufficient numbers of companies that need work. For a sophisticated and ill-defined project such as an automated ticketing system, negotiation rather than competitive bidding is the best approach. Any purchasing professional knows this from experience and theory.

Why did Travelcard work?

Travelcard in contrast to Met ticket did not involve the purchase of sophisticated mechanical, electrical and computer systems. It could be said that therefore a comparison is not valid since the Travelcard system was much simpler. However, Travelcard was a complete system change that involved the redesign of the ticket system and the education of the public and the public transport workforce to accept something totally new. It could easily have been a failure like the "Scratch Ticket". The chief executives of the different modes of transport did not initially support the concept and the work force could also have rejected the change. The transport executives were particularly concerned about losing revenue control and patronage information. So why was Travelcard successful?

First, fare systems were well researched and understood by transport planners. There was a substantial theory and body of knowledge about fare structures and ticket systems like the one being considered for Melbourne in 1981. Grey(1976), for example, discussed fare structures and their application to European cities(see also White,1981, Thompson 1974, Stubbs et.al, 1980) The importance of simple fares that were easy for the public to understand was an important idea. The basic concept of pricing public transport involved either time or distance or a combination of both. The existing systems in Melbourne were distance or stage based and were finely graduated. The idea of introducing zones substantially simplified the existing fare system. The idea of the multi-modal daily ticket was time based. The measure of time was a full day from midnight to midnight that was easily understood by the public and did not require a finer unit of measurement such as an hour. The unlimited travel idea of the Travelcard had already been in operation in the United Kingdom since 1972(Grey,1976, page 92).

Second, the executives of the trains, trams and buses were initially openly hostile and skeptical about the multi-modal proposal. They thought it would fail. Their arguments and criticisms of the plan proposed by the Ministry's fare team contributed to the development of a detailed implementation strategy. Intensive and detailed negotiations between the executives and their senior advisers over a period of several weeks resulted in a system evolving that was acceptable to all parties. This would not have been possible without a sound theory of transport pricing upon which to test the ideas. The theory enabled the transport planners to model the financial impact of the new zonal system and fine tune it in such a way that revenue protection was maximised. The skepticism of the transport executives acted as a rigorous quality control system that forced the planners to continually rethink and check their implementation plans.

Third, because the system involved fewer tickets and a much simpler system, both the conductors and public viewed the change as non-threatening. The public saw Travelcard as positive even though it actually contained a substantial fare increase. This was because it allowed potentially unlimited daily travel in the zone(s) for which the ticket was purchased. Because the system was simple, just three zones and a daily multi modal ticket it was straightforward to develop an effective communication program for Melbourne's public. The advertising agency involved actually drove part of the ticket

simplification process in order to improve the effectiveness of the marketing and advertising campaign.

Last, implementation of the new fare structure actually delivered a 14% revenue increase that satisfied the government and public transport executives. There was also little negative publicity regarding the change because of user acceptance of the new system. This was, in part, due to the successful advertising campaign that communicated the changes to the public.

Lessons and Conclusions

Creating and implementing a change in any system, however simple, is always a challenge for managers. In the case of fare systems for cities the challenge for planners and managers is to satisfy three different stakeholder groups simultaneously. The stakeholders are the government (and the chief executives of the public transport system), the drivers, station staff and workers of the systems and finally the customers (public).

In order to achieve this the change to the system has to be very simple to explain to all the stakeholders. The stakeholders must be able to understand how it works, what it will cost and how it will benefit them. The planners or change managers must be able to effectively communicate the change in process to each of the stakeholders. If one of these elements is missing then the chances of a flawless implementation reduce and the risks of failure rise.

In the case of Travelcard the change involved simplification of a complicated existing system. The public and the government viewed the existing ticket system as a drawback to encouraging public transport travel because changing modes required another ticket operation. The executives of the public transport systems initially viewed this change as a threat because they would lose control of part of their revenue. The key lay in the use of fares planners using elasticity models to test different fare structures to show that revenue would be protected. This convinced the public transport executives to support the change process.

In the case of Met Ticket the problem was actually the reverse of Travelcard. The existing manual ticketing process was seen as simple and easy to understand by the users (public) and the public transport workers (drivers, station staff and conductors). The introduction of the Met Ticket automated fare system was also viewed with apprehension by the transport workers who feared loss of employment. However, government and public transport management viewed Met Ticket as a means of reducing the spiraling costs associated with public transport, whilst not diminishing services.

Management of stakeholder expectations in a change process is of paramount importance to the eventual outcome. In the case of Met Ticket, it appears that two of the stakeholders (government and the public) expected the automation process to be

relatively straightforward. They thought that because automated ticket systems worked in other world cities (Hong Kong and Singapore to name just two) there should be no reason why it couldn't work in Melbourne. The successful tenderer (Onelink) also had the same perception. The reality was that the fare systems in each of these systems was actually quite different to the one envisaged by the government and Onelink. When delays became apparent because of technological details needing time to fix, the positive expectations of these stakeholders gradually changed to negative. The result was that after several years about half of the system users perceived the automated fare system to be a retrograde step. It will take some time for these perceptions to become neutral and then positive.

What lessons can be gained from these two implementations on the same system ten years apart?

The first lesson is that transport planners and managers should be cautious in their estimation of change involving movement from simple manual systems to more complex automated systems. The Auditor General's report also made this point. The likely implementation delays and costs need to be made clear to all stakeholders. In order to do this planners should show stakeholders case studies of similar systems. Rather than focussing on just finished systems and resultant benefits, planners should identify the length of time and resources that were required in those case studies to bring them to successful implementation. It is clear from the initial implementation plan that all parties believed that a routine implementation was feasible.

The second lesson is that planners must have a sound grasp of the theory behind the change process. The outsourcing concept is not theoretically correct in the Met Ticket case. Purchasing or procurement theory is clear in when and how the outsourcing decision should be made. The procurement process in Met Ticket was neither competitive in an economic sense nor practical from a purchasing perspective. Simply put, it is of fundamental importance that when any product or service is outsourced the costs of that product or service must be known to the agency or company before outsourcing. Otherwise there is no ability to evaluate the quotes that are submitted by the vendors. Standard texts on purchasing and procurement suggest that outsourcing complicated services is risky. Outsourcing and competitive tendering work with simple easy to specify products or services, typically non-core items. A rule might be developed that if a government minister or public transport executive cannot write a simple, easy to understand specification for what is to be outsourced then that product or service probably will not result in a cost effective outcome for the agency involved. Purchasing theory and purchasing case studies suggests close partnerships and lots of negotiation are better strategies(see the texts of Dobler and Burt and Leenders and Fearon) than arms length competitively tendered processes.

The third lesson is the importance of vigorous dissent and debate to tease out subtle but important issues of project implementation. The organisational environment in which Travelcard evolved was complicated. Each transport mode was quite separate and sovereign with its own Act of Parliament. The chief executives and senior managers

believed that they were relatively independent of the political process even though they reported to a Minister of the government. The evolution of Travelcard was an outcome of a negotiated agreement between different organisations based on simple but sound transport pricing theory. Tension and conflict were apparent between the various transport operators in 1981. The organisational environment under which the development of Met Ticket took place was very different to that of Travelcard. By 1993, the independence and power of the public transport operators was changed by the 1983 Transport Act and the creation of the Public Transport Corporation (PTC). The executives of the different modes were no longer sovereign in the sense of being protected by an Act of Parliament. By 1993 they reported to the Minister of Transport who was for all intents and purposes the Chairman of the PTC. The 1993 Act changed the power structure of transport and made change by government edict much easier. Effectively government had removed one of the independent players. If there is one lesson to be only learnt, it is that dissent and opposition can be effective in helping sort through implementation issues. Especially when computers and technological change are involved, caution and vigorous debate are valuable elements of successful implementations. Alternate perspectives are useful because they can moderate potentially unrealistic enthusiasm for technological "quick fixes".

The last lesson to be drawn out is about managing perceptions. The public transport users and workers in the system believed that the existing ticket system was easy to use. This was because they had daily experience with its nuances and were comfortable in its management. They "perceived" the existing ticket system as effective. In contrast the government and PTC management "perceived" the system to be labour intensive and therefore inefficient. They believed that good financial management objectives required automation. Although many market research surveys were done during and after the implementation of Met Ticket to help finalise design and marketing, customers, it appears were not asked before hand if they desired a change to an automated system. Indeed there appeared to be a significant number of users who expressed a desire for manual systems through the media after the event. Remarkable as it seems, it appears that government and senior management underestimated the customer's desire for manual systems in Melbourne just as they underestimated the time taken to implement the new system.

As modern business and marketing teach, "the customer is always right".

Acknowledgements:

The author was the Director of the Ministry of Transport of Victoria in 1981. Travelcard was the outcome of many transport planners. Peter Don, Kevin Hine, Max Michel, Ray Stock and "the Duke" were just a few of many planners and managers who had the ideas and implementation skills. In particular the author would like to acknowledge the ideas and vigorous debate of Robert Maclellan, Alan Reiher and the late Dudley Snell without whom Travelcard could easily have failed. The cooperation and support of the Bus Proprietors Association of Victoria and John Usher and Ken Grenda were also vital to the final development of the integrated system. The advertisers at USP Needham also helped us simplify our thoughts into their "unique

selling proposition". The analysis of Met Ticket is based largely on the work of the Auditor General of Victoria's Special Report 59. The above people have not commented upon this document nor are their views represented. The paper is the interpretation of events from the author's perspective.

References:

Auditor General of Victoria (1998) "Automating Fare Collection; A major initiative in public transport" Special Report 59, Victorian Auditor Generals Office, Melbourne

Dobler D.W. (1996) "Purchasing and Supply Management", McGraw Hill International Edition.

Grey A (1975) "Urban Fares Policy", Saxon House, Lexington Books.

Leenders M. Fearon H. (1993) "Purchasing and Materials Management", Richard D. Irwin, Homewood Illinois.

Lonie W.M. (1980) "Victorian Transport Study: Report on Metropolitan Public Transport", Government Printer, Melbourne.

Ove Arup and Travers Morgan (1982) "Melbourne Fares Study: Final Report", Consultants report to Ministry of Transport, Victoria.

Stubbs P.C. Tyson W.J. and Dalvi M.Q. (1980) "Transport Economics", George Allen and Unwin, London.

Thompson J.M. (1974) "Modern Transport Economics", Penguin.

White P. (1981) "Travelcard tickets in urban public transport", *Journal of Transport and Economic Policy*, January 1981.