

The Tcard Implementation Failure

The Need to Reconfigure Pre-existing Structures

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Declaration

This work is substantially my own, and where any part of this work is not my own, I have indicated this by acknowledging the source of that part or those parts of the work.

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Abstract

The Tcard was first promised in time for the 2000 Sydney Olympics, but serious implementation plans only started in 2003 when the company ERG was contracted to deliver the Tcard. An amendment bill was passed to establish an organisation to overlook the technical rollout of the Tcard and massive financial investment followed. However, the Tcard was never implemented and the contract with ERG was cancelled in 2008. Meanwhile other global cities – Tokyo, Hong Kong, Seoul, London as well as other Australian cities have successfully implemented smartcard systems over the last two decades. This study uses two theoretical frameworks to find out what caused the failure of Tcard implementation. Both frameworks reveal that the key actors' decisions to leave pre-existing legacy fares and bureaucratic structures led to the failure. The study also uncovers beyond the direct findings of the two frameworks, exposing that key actors failed to reform pre-existing structures due to their confinement in electoral interests, causing policy myopia and a major misunderstanding of public demands on transportation.

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List of Abbreviations

APT	Action for Public Transport
BCA	Bus and Coach Association
EOI	Expression of Interest
HKSAR	Hong Kong Special Administration Region
IPART	Independent Pricing and Regulatory Tribunal
ITSL	Integrated Transit Solutions Ltd (subsidiary of ERG)
KCRC	Kowloon-Canton Railway Corporation
MOT	Ministry of Transport
MTRC	Mass Transit Railway Corporation
PTTC	Public Transport Ticketing Corporation
RTBU	Rail, Tram and Bus Union
SOC	State-Owned Corporation
STA	State Transit Authority (Sydney Buses)
TAC	Transport Administration Corporation
UITP	International Association of Public Transport

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Selah

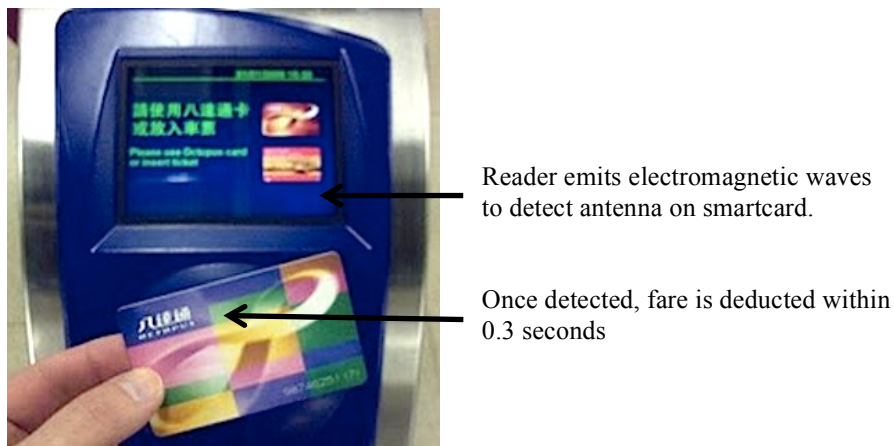
Chapter One

Introduction

1.1 The Tcard Story in Brief

The smartcard is a plastic card with a microprocessor chip connected to an antenna. A reading device then deducts the cash stored in the smartcard within ten centimetres of placement. The card is ‘waved’ as passengers board and alight from transport services and a transaction takes place within 0.3 seconds (Lomax 2005, p.10). Smartcards are used as a replacement for conventional paper tickets and are considered global best practice, saving passengers’ time and resources (Global Smart 2008).

Figure 1.1 Hong Kong’s Octopus Card



Source: (Visiting Asia, 2011).

The idea of implementing a smartcard first came on the agenda for Sydney in the mid 1990s, with increasing population density and demand for better public transport

(Glazebrook 2009, p.8; Smith 2003, p.17-24). There were also concerns over air quality and congestion, (Smith 1998) and with the 2000 Olympic Games approaching, a simple integrated ticketing system was an attractive policy (NSW Legislative Council 1997, p.54).

The then NSW Public Transport Authority (which will be referred to as ‘the Department’) only addressed the smartcard agenda seriously in 2000 and finally contracted a subsidiary of ERG, Integrated Transit Solutions Limited (ITSL), (which will be referred to as ERG) in 2003 to deliver the smartcard system (Ministry of Transport 2004, p.83). The smartcard was labeled ‘Tcard’ and the Department’s policy arm, the Transport Administration Corporation (TAC) headed the project (Ibid).

The first signs of implementation came about in July 2004 when a trial of the Tcard commenced with 7,000 school students on three private bus operators. This was called the School Student Transport Scheme (SSTS) (Ministry of Transport 2005, p.72). In March 2006, the *Transport Administration Amendment (PTTC) 2006* (NSW) Bill (which will be referred to as ‘the Amendment Bill’) was passed to create the Public Transport Ticketing Corporation (PTTC). The PTTC’s role was to ensure the technical rollout of the Tcard (PTTC 2007, p.3). Assuming that the Tcard would be successfully implemented, the Department planned to commercialise the PTTC and become its main shareholder (*Transport Administration Amendment (PTTC) 2006* (NSW), Part 3B).

However, by 2007 there were some major complications between the PTTC and ERG with significant delays in the Tcard project (Besser and Sexton, 2007). By 2008, PTTC dissolved the contract with ERG, which led to a court case (Besser 2007). PTTC accused ERG of failing to meet critical milestones and providing an assurance plan that guaranteed confidence for delivery within a reasonable timeframe and budget (*PTTC v ITSL and Anor (2009) NSWSC S54*). ERG in response, accused the PTTC of failing to reform fares despite its necessity for ticketing reform, failing to provide adequate information, communication, and adding tasks beyond the contracted agreement (Ibid). The case still remains in court and the Department has signed a new contract with Cubic Transportation Systems (Aston, 2010). The next attempted implementation of the Tcard is scheduled to start in 2014 (Besser, 2008).

1.2 So What? Why Should We Care?

The Tcard has been a policy that has been highly demanded by many public transport users. A series of public discussions called ‘City Talks’ concerning the future of Sydney was held in the early 2000s. Hosted by city sponsors in partnership with the Sydney Morning Herald, the discussions revealed that Sydneysiders were frustrated with their archaic, inefficient and disconnected public transport system (NSW Legislative Assembly 2006, p.20808). Member of Parliament (MP) Clover Moore summed up public demands by asking:

“Why are we waiting for an efficient, environmentally and passenger-friendly public transport system? Why are we putting our country's number one

economic driver, the city of Sydney, at risk with a transport system that is failing?" (Ibid)

She made clear that the system for collecting fares and changing transport modes was primitive and made public transport journeys frustrating and slow. Moore stated that the introduction of the Tcard would be central to building an efficient system, aimed to take cars off the road (Ibid). The Tcard policy was a logical solution, enhancing the opportunity to address climate change, rising oil prices and a growing population density.

Despite this, the Department had invested heavily in motorways over the last two decades; the Harbour Tunnel, the M2, M4, M5, M7, the Eastern Distributor, Cross City Tunnel, and the Lane Cove Tunnel just to name a few (Glazebrook 2009, p.8). During that time only six new stations were opened and two busways were completed in Sydney (Ibid). As a result, Sydneysiders have a heavy reliance on private vehicles. Kilometres travelled per capita have been increasing since 1991, and in 2002, 70 per cent of trips were made by car (National Institute for Labour studies et. al. 2010, p.224; Smith 2004, p.17). This is unfortunate as cars cost around 86c per passenger kilometre, compared to 47c for trains and 57c for buses (Glazebrook 2009, p.8).

The good news though, is that Sydneysiders care. They are concerned enough to contribute to the debate on improving public transport. Residents take Sydney's transport problems seriously, labelling congestion as the most critical problem and want to see stronger long-term planning and investment (Smith 2004, p.40). While there is a long to-

do list for the NSW State government, a clever place to start is by boosting public transport patronage by introducing smartcards. Smartcards are designed to benefit travellers by cutting queues for buying and swiping tickets, and save time and money (Carter, 2005). Carbon emissions will decrease as cities with strong public transport systems, especially based on rail-use, significantly lower the Gigajoules (GJ) of fuel consumed per person (Newman 2006, p.3). For instance American and Australian cities use 30-80 GJs per person compared to 5-15 in Asian cities like Hong Kong, Singapore and Tokyo (Ibid). Many global cities such as New York, Paris, Hong Kong, Singapore, Tokyo and Seoul have already adopted the smartcard and have much more advanced transport systems when compared to Sydney (Edwards and Smith 2008, p.1-3). The Tcard was an attractive policy solution for environmental and population sustainability which were the main problems that needed to be addressed.

1.3 Puzzle and Methodology

The key question this paper seeks to address is: what led to the failure of the Tcard implementation? On the surface, the Tcard seemed to have all the necessary elements in order for policy implementation to occur smoothly. There were no anti-Tcard actors present, a new Amendment Bill enacting the policy was passed and a new organisation overlooking the implementation was established. What was missing and what went wrong?

Two different theoretical frameworks have been used to answer this question. Eric Patashnik's model essentially argues that in order for policy to be successfully implemented, former political structures such as iron triangles, opposing parties and pre-existing markets must be destroyed (Patashnik, 2008). The reasoning behind the need to eliminate pre-existing structures is that newer structures can be created on a clean slate so that interruptions caused by old *modus operandi* are diminished, and a 'whole new game' is established (Ibid, p.32). While Patashnik's framework analyses the necessary construction of the cumulative 'implementation machine' he extends his attention to the need for *disassembly* (Ibid, p.5). I refer to this model as Patashnik's Disassembly Framework (PDF). This framework helps with the development of my argument that the presence of complex legacy pre-reform fare structures and segregated transport operators played an integral role, leading to the Tcard failure. However, this framework is not inclusive of an international comparative perspective and leaves open the question of how smartcards have been adopted elsewhere but not in Sydney. What have other global cities done for their smartcard policies to work? More importantly, Patashnik's model does not provide answers for the follow up question of *why* fares were not reformed and transport operators not streamlined.

In order to fill the gaps that Patashnik leaves exposed, David Dolowitz and David Marsh's Policy Transfer Framework (PTF) has been used as a complementary framework. Dolowitz and Marsh's main argument is that policy transfer between countries is common practice but this exercise may contribute to the failure of a policy if done in an incomplete, inappropriate or uninformed manner (Dolowitz and Marsh 2000,

p.17-20). PTF assesses this through analysing how one policy from one place had been transferred to another; the different actors involved; different degrees of transfer, their motivations, what is transferred and what has restricted or facilitated the transfer (Ibid, p.5-6). I have selected Hong Kong (HK) to use as the parallel case study as Sydney positioned itself as the transferee city of HK's Octopus smartcard. HK's Octopus smartcard has been the benchmark model to copy as explicitly referred to by key decision makers in the Tcard case; in addition, the same company, ERG, was contracted (Li 2008, p.7). The use of PTF reveals that the failure to reform fares is inextricably linked to the failure to establish a single transport operator. Like Patashnik, though, Dolowitz and Marsh's model also does not directly uncover why a single unified transport operator was not established and hence, why fares could not be addressed. I discuss this question of why fare reform and a streamlined transport operator was not established later on in the thesis.

Both frameworks use similar research methods and techniques, taking a historical narrative approach, comprised of the critical analysis of government documents, newspaper articles, websites, reports, press releases, minutes and other theses. While interviews are a common methodology in the above approaches, they have not been conducted in this study, as the Tcard issue has had substantial coverage by the media and useful evidence was available via court cases and public inquiries. Interviews were also not feasible for the Hong Kong case study due to lack of resources, accessibility to relevant authorities, and language barriers.

In sum, through applying the two policy analysis frameworks, I pose the argument that the decision to keep pre-existing legacy fare structures and segregated bureaucratic structures led to the Tcard implementation failure. In this sense, this paper is set upon foundational and positivist grounds, and the greater purpose of this study is to promote success and prevent failures in future implementation of transport policy. Underlying this goal is my advocacy for a better public transport system aligned to international best practice, that allows for the development of a society better-suited to reduce ecological footprint.

1.4 Literature Review: Filling the Gap

A bi-level analysis of the Tcard implementation failure using Patashnik's Disassembly Framework (PDF) and Policy Transfer Framework (PTF) is certainly a novel approach. In order to illustrate this, I will firstly overview the present policy implementation literature and why it cannot adequately explain what led to the failure of the Tcard. Secondly, I will outline the relevance of the two frameworks to this study by outlining the key policy implementation theorists and their traditional propositions. I pose the argument that the bulk of implementation theory concentrates on what is needed in the cumulative creation of an 'implementation machine' and the prime emphasis remains on the slippage between politicians and bureaucratic actors as a possible cause of failure (Patashnik 2008, p.5). I will then illustrate how these gaps can be filled with PDF by focusing on the need for *disassembly* and the slippage between the politicians and *citizenry*. I will also highlight the wisdom PTF can provide in confirming and building insights on the causes of Tcard implementation failure, considering smartcards have been

an international phenomenon delivered successfully to a number of other cities by ERG. Lastly, I will highlight the lack of policy implementation analyses paired with smartcard technology. Smartcard literature has largely been confined to the Information and Communication Technology (ICT) discipline. I will shed light on the absence of policy implementation literature being applied on smartcard transit technology despite its increasing international dominance and trend, attracting major capital investment and transforming lifestyles.

Implementation theorists have long lamented the fact that there are simply too many variables that contribute to policy success or failure and realise that it is impossible to map a blueprint model for either (Matland, 1995). In the past, over 300 variables were identified in over 100 implementation studies (Heinrich and Lynn 2000, p.114; O'Toole 1986, p.184). But amongst these discoveries, two large groups within the literature have emerged, advocating the most important factors that determine policy success and failure. The first are Top-Down theorists (TDs) (Matland 1995, p.146-7). TDs include Sabatier, Mazmanian, Van Meter and Van Horn who believe that central actors make decisions that must reach the bottom clearly and effectively (Ibid). TDs prescribe clear, detailed policy goals, better communication throughout the hierarchy, limited change and optimal utilisation of bureaucracies (Matland 1995, p.148). TDs mostly blame the incompetence or intentional resistance of bureaucracies or technical issues as causes of policy failure, and award principal decision makers as the key agents who are able to control the system and direct it towards success (Winter 1990, p.28-9). The main flaw with TDs is that there

is a huge bias and dependence on these key agents as those who can guarantee successful policy implementation (Ibid).

On the other hand, Bottom-Up theorists (BUs) such as Berman, Hjern, Hull and Lipsky focus on the people who are most immediate to the policy's impacts and argue that if the local-level implementers of policy are dissatisfied or not given enough discretion to adapt the policy, implementation will fail (Matland 1995, p.148). Thus they advise that decisions be made at the local level and embraced also by those at the top of the decision-making ladder. The division between TDs and BUs can be quite extreme. Kaufman states that if we just change the handful of high-officials, then the actions of their hundreds or thousands of employees will change (Elmore 1979, p.609), whereas Lipsky and Weathers claim that street-level bureaucrats have the final power to make or break implementation (Matland 1995, p.149). What is common to both groups, though, is the emphasis on the relationship between the decision makers and the bureaucracies, and the necessary creation of an 'implementation machine' (Bardach 1977, p.57). Both have an underlying cumulative approach naming a variety of factors such as the need for establishing clear goals, strong coalitions, new enforcement agencies and technologies (Matland 1995, p.149-154).

Implementation theory is continually evolving and making efforts to synthesize the two groups and have generated overarching key factors that determine the fate of policy implementation. Winter stated that key factors include policy design, organisational behaviour, street-level bureaucrats and responses by target groups (Winter

1990). Matland also advocated the ambiguity-conflict model, in which low ambiguity and low conflict is the optimal model for heightening the probability of implementation success (Bardach 1977; May 1991; Matland 1995). However, in the Tcard case, while enactment was successful, real implementation was never achieved, so there is no way of analysing how bureaucratic agencies; Sydney Ferries, RailCorp and State Transit Authority (STA) prevented or allowed Tcard implementation when they never even witnessed Tcard machines being mounted. Furthermore, there was no bureaucratic revolt against the Tcard – How can the Tcard implementation failure be diagnosed with a TD or BU lens when the Tcard never came into physical actualisation? What role did the bureaucrats play, when the Tcard was under the exclusive direction of the Minister of the Department and only he could access the PTTC? Despite successfully enacting the Tcard policy and establishing a new organisation to roll out the Tcard, the fact that it never really came into physical actualisation, suggests that critical elements in the policy were missing *a priori* ‘implementation machine’.

Patashnik’s Disassembly Framework (PDF) provides a more fitting answer for the causes of the Tcard failure. Published in 2008, Patashnik’s work is relatively new in the implementation literature. Patashnik divides the policy process into two phases; he suggests that the first phase of getting policy enacted is like losing weight, which is a difficult challenge, but the second phase of implementing policy is equally as tough, as it was all about keeping the weight *off* (Patashnik 2008, p.3). While traditional implementation theory has added significant wisdom on what type of policy or implementation machine heightens the chance of implementation success, it does not

address the need for *disassembly* which is the need for an overhauling or reconstituting of the older, *pre-existing* policy machine or system – which Patashnik focuses on (Ibid, p.5). Furthermore, Patashnik applies cases specifically on General Interest Reform (GIR), which refers to policy reforms intended to distribute benefits for the general public (Patashnik 2008, p.11-2) rather than a certain target group. Thus rather than emphasizing the gap between politicians and their bureaucratic agents, there is more focus on the commitment gap between politicians and citizenry (Ibid). The Tcard was a GIR as it intended to improve the efficient use and service of transport for the general public. The strength of Patashnik's theory is that it does not dismantle the wealth of 'implementation machine' prescriptions built up by former scholars but simply extends *beyond* that.

Patashnik's main argument is that for reform to stick, there must be a complete reconfiguration of political dynamics. This involves the reconfiguration of long-standing patterns, institutions and monopolies in order for new structures to be established effectively (Patashnik 2008). Patashnik provides three criteria that must be addressed in order for successful policy implementation. These include the transformation of political structures, creative destruction of existing markets and positive policy feedback (Ibid, p.3-4, 26-9). He then categorises different policy reforms into degrees of stickiness: reversal, erosion, dug-in and reconfiguration (in ascending order of stickiness) (Ibid, p.32). Patashnik has combined the fruits of former implementation scholars and his own to effectively address the question of what leads to implementation success or failure.

By understanding the international nature of smartcards and the regular comparison of transportation practices in different countries, the policy transfer framework is a necessary place to look for help in understanding what went wrong in the Tcard policy. Dolowitz and Marsh, the key thinkers behind PTF, argue that policy transfer is an increasingly relevant trend that deserves explicit and differentiated theoretical attention (Dolowitz and Marsh 2000, p.6-7). The causes for this include the super-globalisation of economic forces, communications and technology encouraging a more abundant exchange of ideas and values, and the presence of international organisations advocating knowledge-sharing (Evans and Davies 1999; Dolowitz and Marsh 2000). Their framework for analyses addresses seven questions: Why do actors engage in policy transfer? Who are the key actors involved? What is transferred? From where are lessons drawn? What are the different degrees of transfer? What restricts or facilitates the policy transfer process? And how is the process of policy transfer related to policy success or failure? (Dolowitz and Marsh 2000, p.7). Dolowitz and Marsh's definition of 'success' means, "...the extent to which policy transfer achieves the aims set by a government when they engaged in transfer, or is perceived as a success by the key actors involved in the policy area" which I apply to the Tcard case (Ibid, p.17). These questions are useful in investigating what Hong Kong did, that Sydney did not do, which may have led to the Tcard failure.

Dolowitz and Marsh argue that policy transfer can be directly linked to the success or failure of a policy (Ibid). The three criteria assessing policy failure are uninformed transfer, incomplete transfer and inappropriate transfer (Ibid). Uninformed

transfer means that the transferee government had insufficient information about the policy; the goals, content, institutions, instruments, ideologies and programs involved (Ibid). Incomplete transfer happens when some parts of the policy have been transferred but other crucial elements were not. Inappropriate transfer is where the transferee country has not paid due attention to the major economic, social, political and ideological differences which may have allowed success in the transferor country, with its extraordinary circumstances (Ibid). However, the major weakness of Dolowitz and Marsh's work is that the analytical framework can be ambiguous. Such weaknesses have been heavily criticized by James and Lodge who argue that the breadth and ambiguity of policy transfer literature is not distinguishable from other policy literature and that it is an "unpalatable cocktail of different types of beverage... 'policy transfer' is less than the sum of its parts" (James and Lodge 2003, p.190). However I believe it holds firm ground in distinguishing itself by recognising that international transfer of policy is common practice that needs separate attention, as flawed transfer can change the fate of policies. Furthermore, idiosyncratic domestic factors are not independently responsible for success or failure (Ibid). Thus, this literature cannot be dismissed in the case of Sydney's evident referral towards international best practice models on smartcards.

Lastly, in the case at hand, there are no policy implementation studies regarding smartcards. The main journal relevant to smartcards is Card Technology Today but it only provides technical information on card technology and their socioeconomic impact. The main facts provided by these sources highlight the economic revenue of smartcards and potential security issues. London's Oyster card, Warsaw's City card, Hong Kong's

Octopus card, Seoul's T-Money card and Japan's Suica card are all investigated in terms of their expanding utility beyond public transport to include restaurants, parking lots and retail stores (Lomax 2005; Najman 2009). Smartcards are seen to benefit users significantly as they offer faster transactions, shorter queues, fewer customer dropouts, less cash handling and reduced maintenance costs (Carter 2005). While these technology-based journals provide the factual grounds in which the Tcard can be put into context, there is no academic coverage on the actual policy or political issues revolving around the implementation of such smartcards. These facts will be useful when comparing ERG's delivery to Hong Kong and to Sydney in order to reveal whether Hong Kong had a pre-packaged simpler, integrated fare system for successful ticketing reform, and if it had a streamlined transport operator to implement the smartcard project.

The thesis I have proposed is an entirely novel one in the sense that I am experimenting with the marriage of two contemporary policy implementation frameworks that have not formerly been combined. In addition, the case study concerns the underexplored issue of smartcards. In doing so I attempt to advance and contribute to the current post-TD and BU debate amongst policy implementation scholars, by testing how effective Patashnik's and, Dolowitz and Marsh's work is in explaining failure. PDF and PTF stand as the most relevant policy frameworks on which I rely on seeking to explain the failure of the Tcard in Sydney despite the birth of a new organisation, enactment of law, millions of dollars worth of investment and the contracting of a vendor that has successfully delivered smartcards worldwide.

Chapter Two

The Need to Disassemble: New Wine in Old Wineskins will Burst

2.1 Basic Anatomy of Patashnik's Model

Patashnik's Disassembly Framework (PDF) is guided by three time periods of the policy process. The first is the pre-reform situation, which questions how the policy was formed and why it came upon the agenda. It encompasses the socioeconomic and political climate, key actors involved, tactics to neutralize opposition and the expectations at the time (Patashnik 2008, p.13). This is important to the Tcard case because it illustrates the obstacles that were present, whether they were addressed and the motivations of the pro-reform coalition.

The second time period examines the actual content of the reform in order to decipher what the legislation included or excluded, and whether the reform supported the goals of the Tcard policy (Ibid). This is key, as it seeks to reveal any flaws of the legislation itself that may have prevented the Tcard from being implemented smoothly; which actors had decision-making powers? Was power distributed to the right actors? Who was included and excluded?

The third time period refers to the post-reform situation and is most crucial in helping diagnose what caused the failure of the Tcard policy as it includes a checklist of

three categories that may lead to policy implementation failure. The first is the existence of legacy political structures (Ibid, p.26). This criterion directly addresses questions of whether there was any change in the institutions in charge of the Tcard project; was there a streamlining of different operators? Was a new bureaucratic organisation born in place of old ones? Was the fare system reformed so that a Tcard could be introduced? The second criterion asks whether pre-existing market rivals (Ibid, p.28) such as paper tickets were destroyed, which may be useful in analysing whether there was any market space for a Tcard. The third highlights negative policy feedback (Ibid, p.29); whether public transport users and other stakeholders involved in the policy process were satisfied with the Tcard or not.

This framework essentially allows for close examination of the Tcard from conception to implementation. This model strongly facilitates the investigation of old structures that were incompatible with what was necessary for the new policy. It clearly suits the question of whether the legacy fare system and old bureaucratic structures stood in the way of implementing the Tcard.

2.2 Pre-reform Situation: How did Tcard get on the Agenda?

2.2A Sociopolitical and Economic Climate

Politicians, public transport experts, lobby groups, transport operators and public transport users alike knew that Sydney, as a global city, was in dire need of a better public transport system. It was recognised post-2000 Olympics that congestion was an increasingly costly and environmentally unfriendly burden set to burgeon if public

transport was not upgraded (NSW Legislative Assembly 2006, p.20808). In 1992, there was a *Metropolitan Air Quality Study* commissioned to help identify the sources and problems of air pollution in Sydney (Smith 1998, p.2). Concurrently, the NSW Health Department began a three year *Health and Air Research Program* which then led to the 1995 and 1998 parliamentary research papers proposing better public transport initiatives (Ibid). There was also a *Clean Air 2000* campaign run by the NRMA, focusing on identifying and mobilising deliverable transport solutions to the Sydney community. Other major papers such as the *Action for Transport 2010*, the NSW government's cornerstone on transport policy was produced at the time (NSW Legislative Assembly 1998, p.10712). This paper had broad goals of reducing environmental impacts and promoting integrated transport, including the need to integrate ticketing (Transport NSW 2002, p.8). Public opinion surveys at the time also revealed that people thought better public transport was the best response to Sydney's growing congestion problem. The NRMA and Nielsen poll of November 2002 found that one of the public's leading priorities focused on the need to improve public transport (APT 2003, p.2).

It was also becoming more apparent that Sydney was falling behind internationally. Pre-2000 was a time of global technological advancement and many cities were adopting the new smartcard technology; Hong Kong's Octopus card, Japan's Suica Cards, and Singapore's EZ-Link were all designed and tested in the 1990s and rolled out in 1997, 2001 and 2002 respectively (Ang 2011; Ueno 2010). The idea of a smartcard was on the agenda for Sydneysiders since the mid 1990s corresponding to the international smartcard adoption trend, and the 2000 Sydney Olympics (NSW Legislative

Assembly 2006, p.20808). For Sydney, the active planning for the project started in 1997 with an official endorsement of the Integrated Transport Plan, headed by the NSW Public Transport Authority, attempting to upgrade Integrated Ticketing and Integrated Transport Information Systems (Transport NSW 2002, p.8).

The Tcard was seen as a simple and logical solution to advance and promote public transport. It was easy to use, fast, secure and would guarantee steps towards improving air quality and reducing congestion (NSW Department of Transport 2000, p.12). There was an expectation that all that was needed for the Tcard was a competent contractor to deliver the technology and an agency that overlooked the fairly simple implementation process (NSW Legislative Assembly 2006, p. 20808). Overall, the external climate was pro-public transport and pro-Tcard.

In February 2003, the Department awarded ERG the contract to build the infrastructure necessary for the smartcard system (Ministry of Transport 2006, p.84). The smartcard was labeled 'Tcard', and the key body in charge of the project was the Transport Administration Corporation (TAC), which was the policy arm of the Department (Ministry of Transport 2004, p.34).

The Tcard system was continuously developed and tested throughout 2005-06 but with a number of delays, a revised project schedule was negotiated (*PTTC v ITSL and Anor (2009) NSWSC 54 sec.9b*). It was expected that the Tcard would be implemented for the broader public on buses and rail in 2007 (Ministry of Transport 2006, p.6). In

2006, the Minister proposed an amendment to the *Transport Administration Act 1988 NSW* to create a new agency, the Public Transport Ticketing Corporation (PTTC) to oversee the physical rollout of the Tcard, which was perceived to launch without difficulty (NSW Legislative Assembly 2006, p.20808). The PTTC was seen as a necessary body to overlook the technical rollout of the Tcard, following the policy design already completed by TAC (*PTTC v ITSL and Anor (2010) NSWSC 607 sec.24*). Fare reform or changes in former transport operators were not introduced (Ibid).

2.2B Key Actors: Yay or Nay

Both Liberal and Labor parties were in favour of the Tcard as it had been a policy of both major parties over many years. Both also recognised the major potential for the Tcard to generate high economic revenue (NSW Legislative Assembly 2006, p.20808).

“The Opposition welcomes the introduction of the bill, if for no other reason than it finally starts to demonstrate some progress...this has been a longstanding promise by every transport Minister under the Carr and Iemma governments...The Opposition has no concerns with the concept of the Tcard, but we have many concerns with the Government's failure over 11 years to advance it significantly” (Ibid).

However, it was made clear that “in conclusion, the Opposition does not oppose the bill. We look forward to, we hope, a significantly better performance on the part of the Government” (Ibid). The Christian Democratic Party also supported the legislation and the Australian Democratic Party highlighted that they too had advocated for such a bill

since 1996 (Ibid). The Greens also welcomed the bill, but criticised the lack of commitment the Labor party had towards the public.

“We all want improved public transport and in no way do I wish to disparage the hard-working public servants who strive to make these things happen. But the Carr-Iemma Government has no credibility with this type of project. It has a sorry track record of disappointment. It is the political leadership of the State that is lacking” (Ibid)

It is clear up to this point that while the concept of Tcard had no opposition, there was considerable opposition to the politicians running the project and a major sense of distrust. This echoes Patashnik’s underlying hypothesis that the responsibility for GIR implementation failure rests on the actions of elected officials and their relationship with citizenry rather than the bureaucracy. This is an important feature in the Tcard case as it illustrates that the politicians were the main decision makers and policy designers in the policy process and thus, were responsible for failure (Patashnik 2008, p.5).

RailCorp, STA and Sydney Ferries were also supportive of the Tcard policy as they were part of the board that constructed the tender and contract for ERG. From 20 February 2003 until 6 February 2007, TAC administered the contract with ERG through people seconded by RailCorp, STA and Sydney Ferries, Treasury and the Department (*PTTC v ITSL and Anor (2010) NSWSC 607 sec.24*). There was no evidence of bureaucratic feuds, but rather cooperation. However, it is unknown whether forming a singular transport operator was on the agenda at all in order for the Tcard to be better administered amongst the different transport operators rather than form the PTTC. It is

also unknown as to whether fares were mentioned and if they were, if operators agreed to leave legacy fares as they were.

While it was assumed that the Rail, Tram and Bus Union (RTBU) in particular would be the key group reluctant to invite the Tcard with potential job cuts, this was not the case (Baker 2007). There were reports that bus drivers in the Kingsgrove depot denied further testing of the Tcard machines as the Automated Vehicle Location system (AVL) wasn't working. There was also frustration towards STA as no end-date of trials was given (Ibid). However, RTBU publicly supported and cooperated with the Tcard trials as bus drivers continued to participate with AVL temporarily suspended (RTBU 2007, p.7). Furthermore, RTBU explicitly stated in 2007 "...the RTBU has no problem with the T Card. We can clarify any confusion, for anyone who cares to hear" as they refuted media accusations for their opposition (Ibid). The executive director of the Bus and Coach Association (BCA), Darryl Mellish, also stated that with growing demand on public transport, there was a need for an integrated ticketing and fares system; "It's an excellent opportunity for the Government to make public transport a more attractive choice" (Baker 2006).

Lobby groups such as Action for Public Transport (APT) also welcomed the Tcard, but were concerned with the necessary pre-implementation step of fare reform. APT were furious that real public consultations never took place particularly on fare prices. Issues included elimination of discounts such as TravelPass and not knowing how much was being charged per journey (Miles 2004). APT also remained skeptical over the

vast number of tickets and fares scattered amongst the different transport operators. The Department's list for private bus operators had 840 separate single fares, STA had 63 bus fares and additional to these were ferry fares, CityRail, monorail, light rail and other private ferries "...the total is truly frightening, and unnecessary" (APT 2003). The Tcard was perceived to be a great opportunity to simplify and reform fares and the APT was the only body that pointed this out. On the contrary, the politicians, PTTC and the Minister insisted on an efficient, revenue-raising smartcard technology to be delivered *without* changing legacy fares (Ibid).

This raises questions of why the politicians didn't mention or identify fare reform while it was such an important element of the Tcard project and why lobby groups such as APT were so alarmed by the absence of such discussion. Why were the politicians insisting on a legacy fare system and bureaucratic organisations, when the Tcard was essentially a completely newly integrated ticketing system in need of simplified fares? These questions will be addressed later in the thesis.

2.2C Expectations of Key Actors

The general expectations of the political parties, the general public and lobby groups such as APT highlighted that public transport users wanted an integrated, tech-savvy ticketing system as soon as possible. Minor concerns over individual privacy of information and ERG's financial stability did exist, however there was an overwhelming sense of urgency and support for the reform to take place (NSW Legislative Assembly

2006, p.20808). The Labor government itself was also eager to see the actualisation of the Tcard as reflected in its ambitions for making PTTC a commercial company with the government as its main shareholder. The government hoped that the Tcard would become an appealing multi-modal, multi-purpose card to flourish beyond transport services (Ibid).

The APT raised the most important point that fare reform was a prerequisite to creating an integrated ticketing system. However, there was an absence of discussion regarding this issue by the Minister, Department and PTTC. This was also true amongst politicians, even with the passing of the Amendment Bill. The demand to streamline transport operators and de-clutter the legacy fare system was a major issue to be dealt with, and plenty of recommendations regarding fare reform had been given in the past. Warnings have been common throughout major public reports such as the *Action for Public Transport 2010* (1998) as well as the *Parry report* (2003), which strongly advised for fare reform (Besser, 2007).

It is clear that pre-existing legacy structures had not been cleaned up for the entry of the Tcard. Old and complex fare systems were not reformed and the different transportation operators; STA, RailCorp and Sydney Ferries; had the same structure, powers and functions as beforehand. It was simply the case that the Amendment Bill to introduce the PTTC was tacked onto the already messy transportation system. This became a major structural and institutional malfunction which prevented the Tcard from being implemented. It limited the functions and decision-making powers of the PTTC as

powers were already distributed elsewhere, as will be demonstrated in the following section.

2.3 Content of Reform Itself

On 1 July 2006, the *Transport Administration Amendment (PTTC)* was passed, which established the PTTC to carry out the technical rollout of the Tcard (PTTC 2007, p.5). Its legislated objectives were to provide ticketing and fare payment services to public transport operators in NSW, promote and facilitate the integration of ticketing products and fare payment systems and be a successful business (PTTC 2007, p.3; NSW Legislative Assembly 2006, p.20808).

The PTTC was wholly subject to the control of the Minister's directions and had no powers to make decisions on fare reform or take the roles of the existing transport operators (*PTTC v ITSL and Anor (2010) NSWSC 607 sec.24*). The Minister had the sole power to refer matters regarding fares over to the PTTC under section 35ZJ of the *Transport Administration Amendment (PTTC) Bill*:

“The portfolio Minister may, by order in writing, direct that the assets, rights and liabilities of a transport authority, that relate to or are connected with the operation of a ticketing and fare payment system and that are specified or referred to in the order, be transferred to the PTTC.” (*Transport Administration Amendment (PTTC) 2006*).

But it was not established as a policy body, but simply an organisation putting the nuts and bolts of the Tcard project together. TAC completed the policy design earlier

with the construction of the contract with ERG (*PTTC v ITSLS and Anor (2010) NSWSC 607 sec.24*). Following on from the somewhat illusory expectation that the Tcard would roll out smoothly and rapidly, the PTTC was to be constituted later as a State-Owned Corporation (SOC) meaning that its ultimate goal was to become a revenue-raising business for the Department (*Transport Administration Amendment (PTTC) 2006*). The Minister for roads, Eric Roozendaal, explicitly stated that PTTC was essentially a commercial cash-management business and that since the Tcard was expected to be fully operational within three to five years, it was not appropriate for the Ministry – a policy and regulatory agency, to take control (NSW Legislative Assembly 2006, p.20808). With the number of transport operators participating, it was also deemed best that the establishment of PTTC would prevent any conflicts of interest (Ibid).

The PTTC only consisted of eight members including the Chief Executive Officer (CEO) (Ibid). Following its inception, it boasted of its achievements in the 2006-07 financial year which included the installation of Tcard equipment and software at STA's Kingsgrove Depot, conducting an initial staff bus trial with Punchbowl Bus Company in Sydney's Inner West and apparently, the completion of the software design, development and testing necessary to replicate the *existing functionality of STA and RailCorp's legacy ticketing system* (PTTC 2007, p.4). It was expected that the Tcard rollout would be successful in the short term, and that PTTC would soon pursue commercial activities beyond public transport such as use of the Tcard at convenience stores or newsagents (NSW Legislative Assembly 2006, p.20808).

By this point, the evidence illustrates that there was no significant opposition to the Tcard; the general public, all major political parties, other commercial stakeholders as well as lobby groups and transport unions were supportive. Overall, there was a hopeful atmosphere for its successful rollout and the Amendment Bill was passed easily. The Labor government in power at the time of reform was so optimistic that the design of PTTC had long-term goals of becoming a commercial business for revenue and expansion to retail outlets following international best practice. However, frustration grew with the slow pace of implementation and there was a lack of explanation as to why there were so many delays when the right ‘implementation machine’ seemed to be in place. The point was that the foundational groundwork in which the Tcard reform was set upon was incompatible with the new system. Old rules, legacy fare structures and the still-segregated transport operators with the same functions severely limited the powers of the PTTC. Its attempt at implementing the Tcard was an impossible task due to the pre-existing structural and institutional arrangements.

2.4 Post-reform Situation: Devolution of Reform

2.4A Prelude: Devolution Timeline

By 2007, the transport call centre 131 500 was trained to manage queries about the Tcard Punchbowl Bus Field Trial, and basic installation of poles and mounting brackets for Tcard readers were provided in 160 stations (PTTC 2007, p.4). However, PTTC had very little information on when exactly the Tcard would come to life and 86 per cent of the PTTC’s annual reports were wholly devoted to financial statements and appendices.

The 2008 report was an embarrassment for PTTC and a major disappointment for the public who had already waited almost a decade for what was seemingly a make-believe Tcard. PTTC terminated its contract with ERG due to its failure to meet milestones and the two parties are now in the NSW Supreme Court attempting to gain compensation for the losses incurred by the termination of the contract (*PTTC v ITSLS and Anor (2010) NSWSC 607*). However, even when the contract was terminated on 23 January 2008, the NSW Government remained committed to introducing a smartcard. It established an interagency Steering Group comprised of officers from PTTC, Department of Premier and Cabinet, Treasury and an independent advisor to direct future steps (PTTC 2008, p.2).

Another Expression Of Interest (EOI) to contract a new company to deliver the next smartcard. The Department mentioned Tcard just once in its annual report in 2008, hidden in the appendices and finally recognised the need for fare integration and review (Ministry of Transport 2008, p.35). On 7 May 2010, the PTTC signed a new contract with Pearl Consortium, a subsidiary of Cubic Transportation Systems. Sydneysiders were promised a system comparable to London's Oyster card (PTTC 2010, p.2). The PTTC Board was dissolved on 1 July 2010, and its activities were put back under the Department's Transport Coordination Division, which actually had decision-making powers (Ibid). Today we face a Tcard *déjà vu*, reminiscent of 2003 when TAC was responsible for the Tcard policy design.

The following three elements are crucial in diagnosing what went wrong in the post-reform situation. According to Patashnik, if this checklist is addressed, reforms will last. I will test these three criteria; pre-existing political structures, market rivals and policy feedback to tease out what led to the failure of the Tcard policy, and if the existence of the former fare structures and segregated bureaucratic structures were a significant causal factor leading to failure.

2.4B Political Structures

Patashnik argues that in tandem with an introduction of a new policy and enactment, reform has better chances of ‘sticking’ if the structural environment also changes (Patashnik 2008, p.26). The different shifts that are recommended include firstly, the strengthening of governing authorities. This uncovers whether the pro-Tcard coalition were provided with an optimal environment in which they could exercise authority easily and effectively, if new staff were hired for their advantage and whether ‘red tape’ was eliminated to increase their administrative discretion. The second shift required is the destruction or extracting of power from former ‘cozy policy systems’ or ‘iron triangles’ to prevent inefficient modes of governance and empower post-reform systems of governance. Third, raising or lowering political transaction costs to increase stickiness and confidence for key actors, convincing actors that there is positive headway along the reform route and deterring anyone from doing anything in contradiction of the reform route (Ibid, 27).

2.4B(i) Have the Governing Authorities been Strengthened?

As mentioned beforehand, PTTC was designed to be a commercial business, not of policy or regulatory nature. The Minister created this agency intentionally to separate it from being accessed easily by transport operators “deemed best that the ticketing agency had no conflicts of interest in its dealings” (NSW Legislative Assembly 2006, p.21050). The PTTC was strengthened in the sense that a very narrow board of eight high level staff were hired to submit directly and solely to the Minister’s orders (Ibid). This was an important tactic that prevented opposition from intervening in the Tcard project. The public, the contractor, other political parties had no avenue to access the PTTC nor was it the right place to go for dialogue. The individual Minister, the key decision maker in the Tcard project whom PTTC submitted to, was very difficult to access.

The major flaw of the PTTC was that although it was an isolated arena where policy-related changes could not be made and was at the private access of the Minister, in practice it was not a governing authority. The PTTC only submitted to the Minister’s orders and was not able to make its own. It was beyond the jurisdiction of the PTTC to reform fares or discuss the project with any other actors in general. The Minister possessed supreme power to change directions but chose not to as referred to beforehand in Section 35ZJ of the Amendment Bill. It is clear that the bureaucrats did not have the ability to revolt against the policy and there was no conflict between the Minister’s orders and street-level bureaucrats failing to perform. Rather, there was a gap between the politicians and the citizenry as the Minister himself was not delivering his promise to the public and had insisted on a legacy fare structure which was overtly complex for

smartcard technology to embrace (Independent Public Inquiry, p.273). At this point, the analysis using PDF allows for the identification of *who* was responsible for the failure of the Tcard and further directs the need to investigate *what* exactly, they did wrong.

2.4B(ii) Has there been a Demolition of Iron Triangles?

Traditionally, an iron triangle was defined as a closed and stable relationship between interest groups, a government agency and US congressional committee (Jordan and Schubert 1992, p.21). However, in its application here, the broad idea of the iron triangle is applied – referring to a limited number of privileged groups who are likeminded in their goals and participate in mutually supportive activities, thus engaging in active partnership to steer the policy-making process (Ibid). The pre-existing structure constituted matters regarding ticketing to be in the autonomous jurisdictions of the separate transport operators. STA, RailCorp and Sydney Ferries and various other private transport operators all made decisions of pricing their own fares, whether it be distance-based, zone-based or a mix of the two (*Transport Administration 1988 NSW, Sec. 85*).

There was no *anti*-Tcard iron triangle in place as the politicians in power and the different transport operators were all in favour of a Tcard. However, it is clear that a new iron triangle had been formed between the Minister with or without his pro-Tcard heads of the different transport operators, the PTTC and ERG. The public, lobby groups, other politicians, consultancies, transport policy researchers and experts were excluded from the conversation about the construction, design and rollout of the Tcard (Miles 2006).

According to PDF though, this exclusivity is supposed to be a good thing, assisting in the ‘stickiness’ of reforms as pro-reform groups are given special privileges, enjoy limited access to decision-making venues and administrative process are fast-tracked (Patashnik 2008, p.26-8). However, in the Tcard case the intentions and actions of the actors in the new iron triangle can be perceived as wholly flawed as crucial elements required for the physical implementation of the Tcard were missing. This brings about considerable damage to the legitimacy of this iron triangle and also accounts for the near loss of hope for the Tcard project due to the failure to reform fares and bureaucratic structures. The new iron triangle was simply dysfunctional as the PTTC was not given policy-altering powers, there was no integrative cooperation amongst transport operators and the Minister had decided not to reform the fares.

2.4B(iii) Did High Political Transaction Costs Deter Actors from Contesting the Reform Path?

The Amendment Bill gave supreme power to the Minister, thus made it impossible for anyone to do the ‘wrong thing’– that is, to oppose or disrupt the Tcard project. The PTTC’s board of directors were appointed by the Minister himself; submitted solely to the Minister; were sheltered from extra staff, other politicians, bureaus, media or the general public. This type of exclusive political venue was optimal for fast, uninterrupted implementation of the Tcard. The majority of the eight directors were former transport chief executives or directors. Members’ profiles included Vince Graham, the former CEO of RailCorp, Helen Willoughby former manager of communications at RailCorp, John Lee former CEO of STA NSW and managing director

of Westbus, Jim Glasson Director-General of the Department who resigned, John Stott former CEO of STA who also resigned and Kim McGrath, lawyer and financier who also resigned from appointment at the PTTC (PTTC 2008, p.4-5).

Three of seven board members resigned from appointment at the PTTC before its first annual report was published in 2007 (PTTC 2007, p.4-5). News articles on directors leaving a weak project became increasingly noticeable. An insider commented on John Stott's resignation as *'leaving a sinking ship'* and stakeholders were skeptical over his replacement, Elizabeth Zealand, who had no transport experience with former experience at the Department of Commerce (Baker 2007). This high rate of resignation within the PTTC undermines the strength of the governing authorities. This reflects a loss of faith in the feasibility of the Tcard project by the newly formed triangle and signifies just one aspect of the breakdown of the new institutional structure being built on top of an already old, dysfunctional structure of segregated transport operators with complex autonomous fare systems. Although the reform coalitions enjoyed privileged access to the PTTC, there was little value in this as the foundations of the project were defective and members of the pro-reform coalition itself were losing confidence in the Tcard project. These signs accrue to show that something was not quite right with the Tcard. Faith weakened because it was simply not working.

2.4C Creative Destruction: Breaking the Existing Order

So far, PDF has helped diagnose problems associated with the pre-existing political structures. This second section continues this emphasis on the need to disassemble old structures but focuses on the market structures that need to be addressed. This involves looking at whether any other competing marketing rivals to the Tcard were present and if consumer choices affected the rollout of the Tcard.

2.4C(i) Investment in the Development of New Policy Ideas and Destruction of Alternative or Opposing Policies

The Minister and his Department generated the impression that Tcard would soon be the new and only way of ticketing and soon, there would be no other way of travelling (NSW Legislative Assembly 2006, p.20808). However, STA had archaic ticketing machines, designed by ERG in 1993 that often broke down (Besser 2008). STA were ordered to wait for the ‘coming soon’-Tcard before wasting money on buying new paper magnetic ticket machines. Waiting patiently for the Tcard rollout and abiding by its rules was the ‘right thing to do’ and the STA invested in that idea by making the decision to not invest in alternative infrastructure. However, because the Tcard never came about, the old ticket machines were in such dire condition that the NSW Department had to negotiate with the Queensland government (who have recently adopted their own Translink smartcard) to buy 300 of Brisbane's equivalently archaic 15 year-old ticketing machinery to lessen the breakdowns Sydney’s public transport users had to face (Ibid).

Although the market was ready for the Tcard, the legacy transportation system it was layered on top of was brittle, with 18,328 ticket machine faults and breakdowns between January 2008 and October 2009 (Ibid), and poor transport infrastructure planning in general.

APT also expressed its loss of trust and confidence in the Tcard project and shifted towards an attitude of giving up. APT became increasingly pessimistic and criticised tag-on and tag-off and the concept of distance-based fares as a major burden on travelers (APT 2007). There was also concerns over having insufficient travel funds without knowing and forgetting to tag-off on journeys which would result in wasting commuters' money.

The Sydney Morning Herald accused the Minister of not reforming the fares because of the fear that reforming fare prices would negatively affect voting (Sexton 2011). ERG went further to claim that the nature of the project was directly intertwined with politicians getting elected so much so, that the contract was terminated “to enhance the prospects of re-election of Labor government at the 2011 NSW general election, rather than for any reason connected with the performance of the contract” (Ibid). APT stated that the project was a mess, with the legacy fare structure as a:

“Serious headache for which no-one had a remedy... a simplified fare system would mean winners and losers amongst passengers, and no politician wanted losers in his or her electorate. And Treasury wanted none of it, because it would have implications for revenue...the basic concept of a smartcard is good...however, Sydney's Tcard had no high level supremo or champion to

fight for it, to knock heads together, or to clear a path through the jungle.”(APT 2009)

While PDF does not intentionally analyse the motivations of key actors adopting GIR, the analysis of other actors offers evidence that fares and bureaucratic structures had not been reformed due to politicians’ preoccupations on sustaining votes in the next election.

In the past, the Department had been told repeatedly to reform its complex, inefficient and confusing fare system. A 2007 report by Ernst & Young recommended instituting a distance-based fare that would be charged for every leg of a commuter's journey (Besser 2007). This echoed the 2003 Parry report by the Government's top pricing adviser, Professor Tom Parry, who also strongly urged for fare reform (Parry 2003, p.59-62). However, neither the Minister at the time (John Watkins), PTTC CEO Elizabeth Zealand nor ERG's executive director Steve Gallagher commented on reforming legacy fares (Besser 2007).

APT concluded that with a simpler fare structure, we might be using the Tcard by now (APT 2009). According to the EOI paper released by the Department, the objectives of the electronic ticketing system were:

- a) Providing a system that is convenient, easy to use and reliable
- b) Supporting the NSW Government’s preferred fare structure and cost recovery policy
- c) Improving coordination, both within and across modes of public transport.

Objective b) should set alarm bells ringing (Ibid). The Tcard policy was a new one, yet the legacy fare structure was an old foundation. A non-integrated fare system and an integrated ticketing system were completely incompatible, which was both a technical and political problem. Technical in terms of the amount of different fare products and the absence of software to cater to it, but inherently political as the Minister and his policy designing team decided not to reform the fares.

PDF has helped bring to surface the problems with the older structures and identifying politicians as the key actors responsible for the success or failure of the Tcard implementation. However, what Patashnik does not address is the deeper motivations of the key decision makers. Why did the politicians insist on the pre-existing fare system? Why didn't they want to reform the fares? The framework has indirectly provided some evidence on the reasons through the arguments put forward by various other actors. APT Chairman Allan Miles as well as ERG accused politicians of ignoring the fare problem due to their fear of losing votes. While the question of why politicians are so centered on elections and underperform in governance is beyond the original scope of this thesis, this issue of excluding fares and bureaucratic reform will be further discussed towards the end of this paper.

2.4C(ii) Market Forces: Post-reform Market Share and Consumer Choices

The only other existing form of tickets was the magnetic strip paper ticket, also provided by ERG since the 1980s (then called AES Prodatam) (Australian Transport

Discussion Board 2008). Because the company is the same, there was no rival provider of tickets, thus this aspect of market forces being a factor that points to the success or failure of the Tcard is not applicable; more so because the Tcard machine was never formally rolled out. Hence, the choices of ‘millions of consumers’ cannot be tested here (Patashnik 2008, p.28).

However, due to the continually extended delays of the Tcard, an ad hoc creation of MyZone tickets was rolled out on 18 April 2010 which in actual fact, was a misleading brand name because it was not a fare system based on zones (Independent Public Inquiry 2010, p.261). Fare penalties associated with interchanging between services actually worsened (Ibid). While there was a change in reducing long-distance rail fares and increasing shorter distance bus fares and ferry fares, there was no fundamental change to the fare structure, thus it was not ‘integrated’ in terms of either ticketing or fares (Ibid, p.262). This system would cost the government AU\$33 million a year in lost revenue, and it was expected that increased patronage would hopefully substitute for those losses (Cranston 2010). This was no rival to the Tcard, but rather an emergency quick fix.

2.4D Policy Feedback

This final section on Tcard post-reform assesses whether new policies had indeed created new politics – that is, has the policy reshaped identities, interests and goals of individuals and groups? Have political resources been allocated efficiently? Has the political dynamic transformed to a point where reversing course on this reform became

extremely unattractive or almost impossible? These questions help reveal whether enough had been done to sustain the Tcard reform and highlight what had been missing.

2.4D(i) Has the Policy Retained its Supporters – Allocating Political Resources and Discouraging Political Mobilisation?

Because the rollout of the Tcard was so delayed, the politicians, coalition members themselves and the public lost trust in the promise. The opposing (Liberal) party was in favour of the Tcard at the start but doubted the feasibility of the project towards its later stages. In November 2007 when the Tcard contract with ERG was terminated, the Legislative Assembly did not take the issue lightly as Liberal MP Barry O'Farrell sharply questioned the Minister,

“How does he justify his dumb decision to allow the Tcard project to drag on at a cost of least \$65 million to taxpayers when four years ago his Treasurer warned it was a "dumb process"? Why can he not deliver what has been achieved in Melbourne, Brisbane and Perth?” (NSW Legislative Assembly 2007, p. 3919)

Opposition transport spokeswoman Ms. Gladys Berejiklian further argued, "Commuters and taxpayers shouldn't have to take John Watkins' 'trust me' statements when he's personally promised to deliver Tcard for three years and has failed" (ABC 2007). Meanwhile, the public was concerned that with the contract terminated, it would take another decade before the next smartcard. Transport operators were also left in the dark throughout the entire implementation process, without being told how much the deposit for the Tcard infrastructure would be, or how fares would be calculated (Baker 2007).

On 29 November 2007, the Opposition proposed a motion in parliament that all documents from 2003 onwards relating to the Tcard project be made available for parliament, including “any variations of the contracts, all notes, briefs ... any disputes in the possession or control of the Department, Office of the Minister, RailCorp, State Transit Authority, Sydney Ferries and the Public Transport Ticketing Corporation” (NSW Legislative Assembly 2007, p.3919). This illustrates the inability of the key decision makers of the pro-reform coalition to win over and reshape identities and interests to concur with theirs. This was also true in the early stages of the reform as other MPs stated their support for the concept of the Tcard, but not of the party in charge of delivering it. The Minister failed to neutralise opposition to the policy in the later stages. The honesty, accountability and entire function of the Minister, his Department and the PTTC were put under internal scrutiny (Ibid).

Overall, faith was lost from the public due to continued delays and it was perceived as just another broken promise. Confidence also waned within the PTTC as milestones were not being achieved, to the frustration of both board directors and ERG staff, as illustrated by the string of PTTC board member resignations (PTTC 2007, p.4-5). Finally, there was the crucial fallout between the contractor ERG and the PTTC and Department on 13 February 2009 as the two parties pursued litigation in the Supreme Court regarding lost finances caused by the failed project (*PTTC v ITSL and Anor (2009) NSWSC 554*).

2.4D(ii) Has the Policy Created Expectations among Individuals and Groups that make it Difficult or Unattractive for Leaders to Reverse Course?

What is interesting about this Tcard policy is that even after a waiting period of more than a decade and having had to witness taxpayers' money being wasted as well as the PTTC and ERG battle in court, people still want a smartcard. The politicians, lobby groups and public were angry with the promisors of the Tcard and their failure to deliver, but not the concept of a smartcard itself. A 550-page zealous independent public inquiry devoting a major chapter on fare reform and repeatedly demanding the need for an integrated fare and ticketing system indicates such attitudes (Sydney Morning Herald Independent Public Inquiry 2010, p.59). Here, the Tcard policy splits into two dimensions. On one hand, the public is dissatisfied with the politicians responsible for the design and delivery of the Tcard and other key actors are keen to reverse and undo this aspect of the Tcard project. Hence a new appointment of actors to deliver the Tcard is seen as necessary. On the other hand, the concept of smartcard technology is still desired on all fronts and it is highly unlikely that this option would be withdrawn entirely.

In this sense, the promises and expectations that the policy had generated have really 'stuck' over time. It was also clear for Sydneysiders that they were not asking for the impossible as all witnessed Melbourne, Brisbane and Perth (NSW Legislative Assembly 2007, p.3919) adopting smartcard technology, let alone what has already become the international norm for OECD countries in the last two decades (Edwards and Smith 2008, p.2-4). Thus it was extremely unattractive for any politician from any party to scrap the idea of a smartcard.

Table 2.1 has been devised by Patashnik to illustrate the different categories of post-reform policy outcomes. From the analysis I have conducted on the Tcard, it is ironic to conclude that the Tcard policy inclusive of the Amendment Bill and establishment of the PTTC is in the *'Entrenchment of Reform'* box. The policy had come too far, was too publicised, and as highlighted beforehand, had been the desirable policy of multiple parties over time. As mentioned in the start of the paper, the nature of the Tcard reform was a General Interest Reform, which was desired by the vast majority of people. Despite the PTTC board being dissolved and thus the Amendment Bill becoming void with its activities handed back under the Transport Coordination Division (TCD) in June 2009 (PTTC 2010, p.2), the policy for a smartcard was *'dug in'*. There was extensive investment in terms of time, money and political energy into the Tcard and the idea of having a smartcard policy reversal is highly unlikely. This is evident with the announcement of the new contractor Cubic to deliver another new smartcard system (Aston 2011).

Table 2.1 Policy Feedback and Post-Reform Dynamics

Group Investments	Group Identities and Affiliations	
	Stable Identities and group affiliations remain stable, many clienteles have common policy preferences	Fluid New groups emerge, coalitional alignments undergo rapid change, interest group cohesion is low
Modest Social actors fail to make large scale investments; organisational adaptations to the reform are minimal	REVERSAL OF REFORM “The Empire Strikes Back” “Never Mind”	EROSION OF REFORM “Death By A Thousand Cuts” “Smothering”
Extensive Groups make large scale, often highly specific investments based on the expectation that the reform will continue	ENTRENCHMENT OF REFORM “Dug In”	RECONFIGURATION “Whole New Ball Game”

(Source: Patashnik 2008, p. 32)

So how has the Tcard survived all this time? Why don't the key actors and public transport users in general just give up on the policy altogether? By using Table 2.1, it can be understood that due to large-scale, highly specific investments based on the expectation that the Tcard reform will continue, the idea of the Tcard has stuck over time. The last 13 years, millions of dollars worth of taxpayers' money, the Amendment Bill in 2006 and the establishment of the PTTC did make a mark. The Tcard is dug in but completely static as identities and group affiliations; of the former STA, RailCorp and

Sydney Ferries all remain the same as well as their segregated fare structures. The reform is now an issue actors must deal with and will haunt politicians for some time.

Additionally I point to the value and expectation built on the Tcard via the media that has contributed to labelling the Tcard as an unforgettable failure, and without closure. The long but negative history of the Tcard project has been an infamous one that has displayed high transparency (although unwanted and unintended) to the public eye by a range of newspapers, especially the Sydney Morning Herald. Hopes were raised, and when it failed, made the disappointment all the more heavy. The public, since the government failed to deliver the promise of the Tcard, now feel as though they *deserve* it, as it is rightfully entitled to them. As the opposition party highlighted, the Minister and his Department *owed* the taxpayers millions of dollars in the failure. Again, this highlights the commitment gap between the politicians and the citizenry that Patashnik emphasized with the nature of GIRs, reminding citizens of the core purposes of politicians – the people who are supposed to be representing the opinions and values of the general public and making sound decisions on citizens' behalf.

Conclusion: What PDF has Uncovered

Patashnik's model has helped illustrate the major causes of the Tcard failure; the remaining legacy bureaucratic structures and their non-integrated, complex fare systems. Through mapping out the pre-reform situation, the details of the old structures were laid out. The framework helped identify who the responsible key actors were, and in the

examination of the content of reform, also highlighted that pre-existing power distributions remained unchanged and the PTTC was essentially stripped of any authoritative powers. The post-reform section assessed whether that old structure underwent sufficient reconfiguration to embrace a new system. It was clear that even with high investment, little opposition, and no market rival, the old structures and the allocations of power simply were not compatible with the new structures that were necessary for the Tcard implementation.

However, Patashnik is limited to a domestic case analysis and it is still a puzzle as to how so many other cities successfully adopted the smartcard. Did they have simple fares and streamlined bureaucracies? What allowed smartcards to be successful elsewhere? Was there something else Sydney was missing? Dolowitz and Marsh's Policy Transfer Framework (PTF) allows for a comprehensive analysis of what Sydney didn't do, and what Hong Kong did, to have a smooth, successful implementation of a smartcard. HK's Octopus smartcard was the benchmark model Sydney set itself to copy and both cities contracted the same company, ERG to deliver it. PTF confirms that the failure to reform fares is inextricably linked to the failure to establish a single transport operator which both lead to the Tcard implementation failure. PTF also delves deeper into the motivational aspect of key actors and how this could affect the outcome of a policy.

Chapter Three

Policy Transfer: Why Sydney Couldn't Clone Hong Kong's Octopus Card

3.1 Dolowitz and Marsh's Policy Transfer Framework

PTF addresses the international nature of smartcard policies and helps demonstrate how Sydney had explicitly attempted policy transfer from HK's success case but failed. It answers the question of how it worked elsewhere but not here and allows for further investigation on what exactly HK did, that Sydney missed to ensure the successful implementation of the Tcard. On the surface, Sydney seemed to have transferred the main ingredients necessary for successful policy transfer, by contracting the same company ERG as well as establishing a separate new organisation, the PTTC, to deliver it. PTF confirms that the main factors that led to the Tcard failure were the absence of a streamlined transport authority and its possession of actual powers to make decisions over fares. The PTF is composed of a sequence of seven questions which will be explored in this chapter¹.

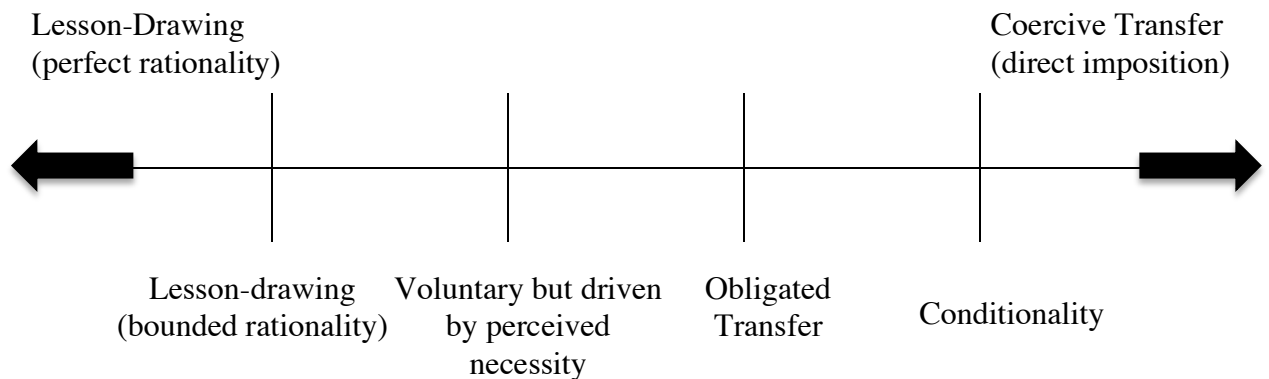
¹ NB: The original sequence of questions is: 3.2, 3.4, 3.5, 3.3, 3.6, 3.7 and 3.8 (Dolowitz and Marsh 2000, p.9). The sequence has been altered to better suit this case study.

3.2 Why do Actors Engage in Policy Transfer?

This question addresses the motivations of the key actors initiating reform by analysing whether reform was adopted due to coercive and/or voluntary factors. This is important as it examines whether different motives result in different policy designs, and their implications.

Actors engage in policy transfer when a problem arises and there is dissatisfaction with the internal solutions available; whether it's because they haven't worked before, or because the same problem was addressed better elsewhere (Dolowitz and Marsh 1996, p.346-9). Supporters of the dissatisfaction model presume that when governmental policies are functioning properly there is no need to search for lessons, but when these established routines stop providing 'solutions' it is necessary to start searching (Ibid). Dolowitz and Marsh state that policy actors engage in policy transfer because they volunteer, are coerced to do so, or it is a mixture of both (Dolowitz and Marsh 2000, p.9). For the Tcard, it was mainly voluntary, but driven by perceived necessity.

Figure 3.1 From Lesson-drawing to Coercive Transfer



(Source: Dolowitz and Marsh 2000, p.13)

3.2A Voluntary, but Driven by Perceived Necessity

3.2A(i) Local Socioeconomic and Political Demands

This section is covered in detail in the previous chapter's section on pre-reform. To recap, there was high support for the Tcard policy. The status quo of having cars carry around 78 per cent of the weekday passengers in Sydney was unsustainable with congestion and greenhouse gas emissions (Glazebrook 2009, p.7). At the same time, with increasing population density the demand for public transport had been growing by 12.4 per cent per year from 1996-2006 (Australian Bureau of Statistics 2008). Furthermore, the Tcard was perceived as a good financial investment as the PTTC was seen as a potential revenue-raising business in future (NSW Legislative Assembly 2006, p.20808). As outlined in the previous chapter, for reasons of economic revenue and convenience, the idea of a multi-purpose contactless card expanding to retail outlets was an appealing one (Ibid). The Tcard was seen as a perceived necessity to upgrade public transport and make it more attractive (Ibid).

3.2A(ii) International Lesson Drawing and Benchmarking

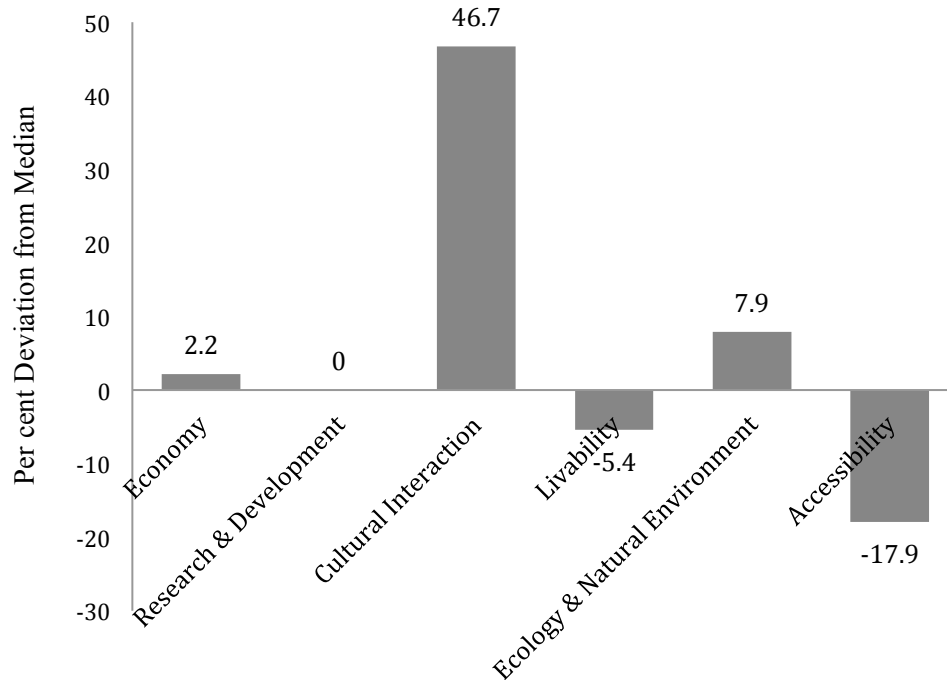
Sydney desires to be a competitive global city, especially in relation to its Asian neighbours. Sydney has compared itself to HK, along with a few other cities as the major benchmarks to follow. Tom Edwards and Stewart Smith's briefing for Parliament titled *Transport Problems Facing Large Cities* emphasized that all major cities were facing congestion problems, rising oil prices and the imperative to reduce carbon emissions but

Sydney had to remain competitive domestically and internationally, to attract business (Edwards and Smith 2008, p.1-2). Hence, an advanced transportation system was necessary. In 2005, the Global and World Cities research group ranked Sydney as an Alpha world city, the third tier below Alpha++ (London, New York) and Alpha+ cities (Hong Kong, Paris, Tokyo, Singapore), in terms of the provision and connectedness of a city's advanced consumer services (NSW Government 2010, p.46). The Global City Power Index issued by Japan's Mori Memorial Foundation also evaluated 35 of the world's major cities with a more comprehensive ranking system, based on economy, research and development, cultural interaction, livability, natural environment and accessibility. Sydney ranked 14th overall, and within the Asia-Pacific region; fifth behind Tokyo, Singapore, Hong Kong and Seoul (Infrastructure Australia 2010, p.13-5). However, it ranked most poorly on the Accessibility score, namely referring to transportation infrastructure (Ibid).

Sydney also fell from fifth to eighth place in the 2004-05 annual Mercer Quality of Life survey (Ibid). Mercer, a global management remuneration expert group evaluated criteria such as political, economic, social and environmental factors, including transport (Ibid). As demonstrated in figure 3.2, Sydney's fall in the various international rankings was essentially due to its poor transport infrastructure. MP Clover Moore stated that Sydney could not leave its archaic transport system as it was, for both domestic and international priorities. If reform did not take place, Sydney would not be able to remain "...globally competitive, which will have detrimental flow-on effects for the national

economy” and would not be able to stand up to its Asian neighbours (NSW Legislative Assembly 2006, p.20808).

Figure 3.2 Function-specific Ranking of Sydney, Deviation from Global Medians



(Source: Infrastructure Australia 2010, p. 14)

3.3 From Where are the Lessons Drawn?

This question identifies where the policy has been transferred from; either within or outside a nation and the reasons why that particular country, city or local area had been chosen. This question further builds on the first, by highlighting why key actors chose Hong Kong as the benchmark example, and whether this was appropriate.

Lessons concerning smartcards have been drawn from many different global cities such as New York, London, Paris, Tokyo, Singapore and Hong Kong, just to name a few (Smith 2008, p.1-4). In this paper, Hong Kong's (HK) Octopus card will be used as a parallel case study as it was the specific model explicitly mentioned by government reports, politicians and media in reference to the development of the Tcard since the late 1990s until the termination of the contract with ERG in 2008.

HK's development of the Octopus card was specifically targeted as an end-product model for the Tcard as it was one of the earliest adoptions of smartcard technology in 1997 (Li, 2008, p. 2). In context of the 2000 Olympics, the issue of integrated transport in Sydney was a major pending question. NSW Legislative Council papers demonstrated that HK's Octopus card was a well-known, prime example for Sydney. Within the Legislative Council MP Elaine B. Nile questioned why such complex ticketing existed in Sydney and why tourists and residents alike could not easily purchase a universal pass. She further demanded that the government "consider implementation of a universal economical cash-free electronic travel pass covering travel on light rail, monorail, train, bus and ferry services in Sydney similar to that used in Hong Kong" (NSW Legislative Council 1997, p.54). The response was that the government had already set up the Public Transport Authority (PTA) in the 1996 transport reforms, calling for an EOI to develop a fully integrated ticketing system for both Government and privately operated public passenger services in the Sydney metropolitan area (Ibid).

As mentioned in the previous chapter, development of the Tcard policy was slow and the contract with ERG was signed in 2003 (Ministry of Transport 2004, p.83). Discourse over HK's Octopus card continued at this time as elected officials and public inquiries alike advocated the benefits of such a smartcard. The International Association of Public Transport (UITP) drove the key message that Australia needed a 'seamless journey' to be attractive and deter private car use (UITP 2003, p.11-2). An inquiry submitted by Professor Peter Newman, Director at the Institute for Sustainability and Technology Policy, suggested prior to the reform that long-term thinking and policy visions concerning transport infrastructure was essential for Sydney to change its character in terms of ecological footprint (Newman, 2006, p.2). Overall, there was a predominant emphasis on the rise of Asian cities and Australia's need to compete. MP Steven Chaytor in his inaugural speech stated:

"I look forward to Sydney taking its place as a world city in the Asia-Pacific region...few issues would assist that better functioning than an integrated smart card for all transport and daily item purchases in Sydney. To become a leading world city, Sydney must adopt world's best practice...the Hong Kong Octopus card is Australian technology by an Australian company. I could not think of a better place to use it than here" (NSW Legislative Assembly 2005, p.18506)

MP Clover Moore further identified in the Legislative Council that Australia was very behind compared to Asian cities and HK provided many lessons to learn:

"...the MTR Corporation achieves better than 99 per cent timetable accuracy and passengers complain about delays of more than 10 seconds. Imagine what Hong Kong commuters would think of our trains!" (NSW Legislative Assembly 2006, p.20808)

From the late 1990s until the enactment of the Amendment Bill in 2006, there was a sense of insistence on catching up to the Asian neighbours and to not fall so far behind.

3.4 Who are the Key Actors Involved in the Policy Transfer Process?

This question identifies the different stakeholders or influences involved in the policy process; politicians, bureaucrats, institutions, ideologies, attitudes and cultural values, consultants, think tanks, transnational corporations and supranational institutions (Dolowitz and Marsh 2000, p.9). This helps recognise who was responsible for the Tcard failure, again their motives and the degree to which transfer occurred.

The authors point out that depending on who the key actors are, their motives differ – thus, the degree to which transfer occurs and to what extent the country can choose to engage in the process, and reasons for failure can be discovered (Ibid, p.8). In the Sydney case, while there were academic institutions, lobby groups and public servants who had an opinion on the Tcard, the design and development of the Tcard as an imitation of HK's Octopus card was profoundly in the hands of the Minister and his pro-reform coalition.

As outlined in the previous chapter, the key decision maker in the Tcard project was the Minister (Michael Costa), who from 2003-2008 was a member of the Labor Party (Parliament of NSW 2009). Much of what the Labor Party and the Minister desired from the Tcard was made clear throughout the statements made in NSW Parliament in the

motion to pass the Amendment Bill. As aforementioned, politicians regarded HK's Octopus card as the world's most successful smart card operation at the time, in which Sydney would "do well to emulate" (NSW Legislative Assembly 2006, p.20808). The Octopus card was infamous since its launch in 1997 and for its massive uptake by three million users in the first three months (Banerjee et al. 2008, p.116). By 2008, about 17 million cards were in circulation (Ibid). The impressive results of the Octopus card certainly contributed to the optimistic and ambitious expectations of emulating such a high revenue-generating product, which would also make public transport more attractive. The Amendment Bill was a necessary step in enabling a successful transfer of HK's Octopus card (NSW Legislative Assembly 2006, p. 20808).

The Department was also entering into a contract with ERG for this delivery – the same company that delivered HK's Octopus. There was firm belief that ERG would provide the same result as it did in HK, allowing Sydney's Tcard to also be used "in parking meters, vending machines, public leisure facilities or at various merchants... to introduce a cashless item for daily purchases" (Ibid). The motivation on the politicians' side reiterates an acknowledgement of the need to upgrade Sydney transport and modernize it under socioeconomic and international pressures, but also for high revenue generation (Ibid).

On the other hand, the actors who demanded a smartcard and advocated it in the first place were mostly lobby groups such as the APT, research institutions and consulting groups. Key papers and researchers include Stewart Smith, Gary Glazebrook,

The Sydney Morning Herald, Allan Smith from APT, Professor Newman and UITP just to name a few. The composition of the PTTC board members were not representative of the public, were very closely affiliated with public transport operators, and were wholly under the direction of the Minister. As mentioned in the previous chapter any other entities beyond the Minister could not access the PTTC, thus there was no chance of going back and re-designing the policy to address fares (APT 2006).

Parallel to what was revealed using Patashnik's framework, evidence used in PTF showed that the elected officials were the main decision-makers and designers of the Tcard. They were responsible for the failure of implementation by leaving legacy fares and transport authorities' structures in place. Additionally, PTF explored further the voluntary nature of the politicians' motives, however it is still not able to explain *why* exactly the Minister had decided not to reform fares and reorganise the transport operators. The possibility that politicians were primarily concerned with electoral voting interests, leading to severe policy myopia, as accused by APT and ERG will be further discussed at the end of the chapter.

3.5 What is Transferred?

This question assesses whether the whole policy package; policy goals, content, instruments, programs and negative lessons were transferred or not. This helps confirm the significance of a single transport authority with power to decide fare structure.

3.5A Policy Goal

HK's purpose, like Sydney's, was to alleviate the population and environmental sustainability problem. It was an urgent, high priority for the Hong Kong Special Administrative Region government (HKSAR) to provide an efficient and attractive public transport service (Yuen 2005, p.6).

As mentioned at the beginning of this chapter and the previous one, the Tcard was designed to upgrade public transport, making it a more attractive mode of transport. This aspect of the policy goal is part of the voluntary adoption of PT, but with perceived necessity. However for Sydney, another major element of the policy goal was to make revenue, and commercialise the Tcard to spread to the retail sector and copy HK in upgrading into a cashless society. MP Steven Chaytor stated:

“An integrated smart card presents the opportunity to increase revenue collections and decrease costs...the Tcard system will have an additional benefit for public transport if the new corporation realises the commercial benefits of the Tcard as a widely used cash-card” (NSW Legislative Assembly 2006, p.20808).

While the revenue aspect of the policy goal is not absent for HK either, it was less of a focus as HK never deliberately intended the Octopus card to spark such an extensive cashless phenomenon. It was only later in 2000 when Octopus Cards Limited applied for a special purpose deposit-taking company authorisation from the HK Monetary authority to extend its commercial outreach beyond the transportation industry (Li 2008, p.2-3). However again, this research presents no evidence that this aspect of desiring high revenues as a part of the driving factor for adopting a Tcard led to its failure.

3.5B Institutions

In 1994, the Mass Transit Railway Corporation (MTRC), the Kowloon-Canton Railway Corporation (KCRC), Kowloon Motor Bus Company, Citybus and New World First Bus established a private company, Creative Star Limited (renamed Octopus Cards Limited in 2002) to develop the Octopus card (Ibid). Both MTRC and KCRC operated under commercial principles and HKSAR was no longer the decision maker (Ibid). The transport operators that made up Creative Star Ltd had the autonomy to *determine fare structures* (Ibid; Yuen 2005, p.24). While they had the obligation to consult the Legislative Council Panel on Transport, the Transport Advisory Committee and finally the District Councils about any fare reforms, it was up to the companies themselves to decide whether or not they should take the advice (Ibid). This is a major differentiating factor between HK and Sydney. The PTTC was supposed to be the parallel organisation to Creative Star Ltd. As highlighted in the previous chapter, findings showed that the PTTC was powerless and layered on top of a pre-existing messy, uncoordinated structure

of transport operators and fare systems. The PTTC's distribution of power was not to overlap and interrupt pre-existing ones. This absence of a single authority that had the power to make decisions on fares is a crucial policy element Sydney missed.

ERG was contracted to develop the Octopus system and successfully did so in three years (McDonald 2006, p.6). In the first three months of the Octopus launch, three million cards were sold (Banerjee et al. 2008, p.116). With such a successful uptake, the company then took commercial opportunities beyond public transport and changed company names in 2002 to Octopus Cards Ltd and then Octopus Holdings Limited in 2005 (Li, 2008, p.2-5). All public transport modes (train, tram, subway, bus, taxi, ferry) and over 2000 services including convenience stores, supermarkets, fast-food restaurants, car parks, service stations, vending machines, access cards to buildings now use the Octopus (Ibid, p.9; Smart Card Alliance 2003, p.7). Furthermore, mobile phone covers, wrist watches and key chains embedded with the Octopus chip are available, rechargeable and function exactly like the card (Ang 2011).

The common elements between HK and Sydney were motives, as both cities wanted to upgrade their transport systems and boost patronage. The same company ERG, was also contracted to deliver the smartcard system. However, the factors Sydney failed to transfer were crucial. First, STA, Sydney Ferries and RailCorp did not collaborate to establish a streamlined bureaucratic institution. Second, the new organisation that was created – the PTTC – was an isolated body to the existing transport operators, stripped of any decision-making powers over fares or policy design. The problem was inherently an

institutional matter. While Patashnik's framework helped discover this problem through examining and mapping out pre-existing structures: what needed to be destroyed and what needed to be created anew – by using PTF I arrive at the same finding through comparing what HK did, that Sydney did not transfer.

3.5C Content

HK public transport generally uses two main fare structures. The first is flat fares used by buses. This is very simple and straightforward, designed for metropolitan short routes. The second fare structure is distance-based, meaning that people who travel longer distances would pay higher fares. It consists of two components; the boarding charge and distance charge (Liu 2004, p.13). HK's two railway companies, KCRC and MTRC, use distance-based fares (Yuen 2005, p.81). While the operators within the single transport authority compete for the same customers, according to an Octopus spokesperson, they "have all worked together to ensure a seamless payment system" (Williams 2008). Another important point is that HK's fare structure was simpler than Sydney's and simple *enough* for smartcard technology to be introduced (Baker 2007). Transport expert and former RTA director, Ken Dobinson said staff within the PTTC were frustrated that the Tcard was trying to achieve too much, with too many variations. "If they simplified it, we would have it earlier...It's even more important to rationalise the fare system than it is to introduce the Tcard" (Ibid).

In a submission to the Independent Pricing and Regulatory Tribunal (IPART), freight transport services provider Ian Page stated that the obstacles preventing the Tcard implementation were obvious:

“The difficulties in delivering this technology due to Sydney’s complicated fare structures are well documented. From what I understand, however, the T-Card will achieve little other than removing cash fares from public transport”(Page 2007, p.2)

He further added that when considering the success of HK’s fares worked on a flat-fare system on buses and ferries, “even to achieve this and keep the system cheap will require significant fare reform. Unfortunately neither Government nor opposition parties in this NSW have even raised this. Opportunities lost” (Page 2006, p.2).

Fare structure, again, is the major issue that comes to surface. ERG accused the Department in the Supreme Court that the causes of the delays and ultimate failure of the Tcard implementation was due to the Department’s own shortcomings. ERG accused that the Department failed to:

- initiate or procure the progress and implementation of fare reform, despite knowing that it was required to carry out the Project
- procure sufficient engagement, support and cooperation by RailCorp, the STA and Sydney Ferries;

- provide timely feedback, input and approval to the design of the Project, because it relied on the Operators, the Department Ministry or Mr. Watkins to review the design for permission;
- The PTTC complied with a direction from (the Minister) Mr. Watkins that it must not consider or discuss any proposals from our clients to recover the delays (*Public Transport Ticketing Corporation v Integrated Transit Solutions & Anor [2010] NSWSC 607 Sec.25*)

All of the points listed above highlight the inherent institutional problem of having segregated transport operators indifferent to cooperation, hence reforming fares and having a lack of streamlined administration in general. Like mentioned before, ERG was also frustrated with the powerlessness of the PTTC and its inefficient communication channels with the Minister. It is clear that complex, legacy fare systems cannot prevail with smartcard technology. In a submission to the 2010 Independent Public Inquiry on Sydney public transport, Bob Lutherborrow, retired former Director of Public Transport Integration, Queensland stated:

“Whilst ever the fare system is ‘incredibly complex’, there cannot be and will not be a smartcard system. There is no system software on earth that would accommodate the Sydney system, nor will there ever be, due to its very complexity. To attempt it will be ERG all over again. Massive expense. No outcome.”(Independent Public Inquiry 2010, p.273)

He further explained that smartcard technology would only work exclusively as distance-based or zone-based (Ibid). Neither is it rocket science to realise that non-fare

reform caused this fiasco, as other countries are learning negative lessons from Sydney's experience. The New Zealand transport consultancy, Douglas Economics stated:

“The experience of Sydney's proposed Tcard suggests that complex ticketing products need to be avoided: a fundamental change in technology almost certainly requires a fundamental review of ticketing products...fare structures and products need to be simplified to avoid software and implementation problems.” (Douglas 2009, p.15)

It seems clear to others that fare structure reform is mandatory for it to be simple enough to suit smartcard software systems. Here, New Zealand's process of transferring policy is demonstrated and its adoption of a negative lesson – learning what not to do and understanding the crucial elements required in transferring successful smartcard policy.

Meanwhile, the Octopus card had become a somewhat ubiquitous ‘everyware’ technology, as currently more than 12 million transactions valued at HK \$85 million occur each day on the card (Li, 2008 p.9). “Hong Kong isn't known for being the center of technological innovation but it could very well become the first cashless society in the world, thanks to a little plastic card known as the Octopus” (Li, 2008, 14).

3.6 What are the Different Degrees of Policy Transfer?

This question shows that policy transfer is not an ‘all or nothing’ process. Policy transfer can mean copying, emulating, a mixture of both or a simple inspiration (in descending order of similarity). This again strengthens the findings on what went missing in the transfer and what degree of policy transfer was really necessary.

Dolowitz and Marsh highlight that there are different degrees of policy transfer. First, copying involves direct and complete transfer. Second, emulation involves the transfer of the ideas behind the policy or program. Third, combinations involve mixtures of several different policies and lastly, inspiration involves the mildest stimulus for policy change (Dolowitz and Marsh 2000, p.13).

In Sydney's case, the intention of the key actors involved in the policy transfer process was to *copy* the HK success case. However, what really happened in practice was failed emulation. The idea of upgrading public transport, attracting greater patronage and taking cars off the road was parallel between Sydney and HK. However Sydney failed to match the specific institutional structure of the HK case. Creative Star Ltd had completely different jurisdictions and structures to the PTTC, which had no say on decision-making processes. It is true that a policy of another country or a different city cannot be 'cloned' for simple insertion and use in another (Ibid, p.16). However, in this case the vital elements of the HK case were not drawn upon. Having the Minister as the sole decision-maker and not streamlining and reforming transportation organisations and fares were major structural flaws in the Tcard project, which was also identified in the previous chapter.

3.7 What Restricts or Facilitates the Policy Transfer Process?

Dolowitz and Marsh offer a range of potential constraints on the policy transfer process that help diagnose what obstacles stood in the way of transfer. These include

policy complexity, past policies, structural or institutional feasibility, ideological and cultural proximity, technological, economic, bureaucratic issues and language barriers (Dolowitz and Marsh 2000, p.9).

The purely technological elements of the smartcard policy itself are not difficult to transfer. Sydney's Tcard replicated only what it saw from the surface of HK's success of the Octopus card. The same company, ERG, was contracted and a core administrative organisation, the PTTC, was established. There is very little argument to excuse Sydney for failing to adopt a smartcard system due to ideological, cultural, economic or language-related barriers as ERG had delivered the system internationally to a diverse range of countries. However, what is revealed through this case study is that a smartcard policy cannot be perceived as a purely 'technological end-all' task.

"Policy advisers advocated fare reform as a crucial twin to electronic ticketing...there are always winners and losers in a fare reform package. Cabinet has feared giving the bad news to the losers, and has shied from making important decisions...ERG has continued to wrestle with the inordinately complex task of writing an electronic fare recovery system for 70 different types of tickets" (Besser and Sexton 2007)

Sydney's major constraint in allowing for a healthy policy transfer process was mainly due to structural and institutional feasibility. The Minister's oligopolistic power over the whole case without proper policy design led to major shortcomings. Fares were not simplified in order for an integrated ticketing system to be a viable, technologically conceivable option. Furthermore, PTTC did not have the power to make decisions on fares nor had strong collaboration with STA, Sydney Ferries and RailCorp. The structural

problem behind this was that the transport operators did not collaborate in order to develop a new fare system and behind this also, was the decision from the Minister not to streamline the operators.

3.8 How does Policy Transfer Lead to Policy Success or Failure?

This is the most important question that rounds up the last four questions in particular, concluding whether policy transfer failed due to uninformed, incomplete or inappropriate transfer.

Firstly it is important to clarify the definition of policy success that is used here. Some policy implementation scholars like Bovens and 'tHart have debated the definitions of "success" and "failure" as being dependent on different actors' interpretations (Dolowitz and Marsh 2000, p.17). However, within the confinement of this paper, I refrain to using the definition used by Dolowitz and Marsh; "the extent to which policy transfer achieved the aims set by a government when they engaged in transfer, or is perceived as a success by the key actors involved in the policy area" (Ibid).

Dolowitz and Marsh demonstrate that there are three ways policy transfer can lead to policy failure. The first is uninformed transfer, which means that the transferee government had insufficient information about the policy, the goals, content, institutions, instruments, ideologies and programs involved (Ibid). Second, is incomplete transfer

when some parts of the policy have been transferred but some other crucial elements were not (Ibid). Third, is inappropriate transfer where the transferee country did not pay due attention to the major economic, social, political and ideological differences which may have allowed success in the transferor country, from extraordinary circumstances (Ibid).

In the case of the Tcard ignominy, incomplete transfer was the main cause of failure. Vital elements that led to the success of the HK Octopus card include the strong, singular institutional structure of the different transportation operators who together formed Creative Star Ltd and had the power to design Octopus card policy, and make autonomous decisions on fares. Although the HKSAR government was heavily present in terms of being the largest shareholder, it still gave the operators within Creative Star Ltd powers to determine fares and elected officials were not the key actors in the development of the Octopus card (Li 2008; Yuen 2005). It is also clear that the public, lobby groups, the media, and transportation unions viewed the Tcard as a failure. More importantly the politicians on either side have admitted that the project was a ‘fiasco’ (ABC 2008) and a disappointment that had wasted more than AU\$95 million worth of taxpayers’ money and time as the court case with ERG continues (Ibid).

The warnings regarding the need to fix fares had been raised time and time again. The Bus and Coach Association (BCA) in 2007 submitted a paper titled *A call for clearer, simpler fares – it’s time*. Its Bus Reform Mid-term Review also explicitly stated that the government needed to take a fresh view on the smartcard project:

“It has attempted to fit the old business rules and ticketing products with the new technology and has not taken the opportunity to update its fare policy. This is a missed opportunity and may inhibit the growth of Public Transport” (Bus and Coach Association 2007, p.1)

The APT also stated clearly, that if only the fares were fixed, we’d have a smartcard by now and the 113-page CityRail Passenger Fares and Coaching booklet had to be simplified (Independent Public Inquiry 2010, p.264). The largest public inquiry initiated by the Sydney Morning Herald, which comprised of more than 550 submissions from a number of local councils, the think tanks, academics, consultants and community forums also stated that a streamlined integrated fare was an obvious pre-requisite to the smartcard. The inquiry stated that the difficulty behind the non-integrated fares was that:

“The government has still expressed no intention to integrate fares...seems to think its smartcard program will somehow solve the problems of non-integrated fares, but it cannot and will not” (Ibid, p.271-2)

Conclusion: What PTF has Uncovered

PTF was explicitly concerned with the international nature of smartcards and was able to assess what the successful Octopus case scenario in HK had done, which Sydney failed to transfer in the Tcard case. While PTF did not directly pay attention to ‘former structures’, it did confirm that the problem of fare reform was related to the failure of having a single bureaucratic body in order to decide the fares. It also illustrated the specific errors involved in the establishment of the PTTC, as compared to Creative Star Ltd as an institution that was stripped of power and did not enjoy collaboration amongst relevant transport operators. Both frameworks have complemented one another by

confirming the key actors in the policy implementation process, the flaws in the content of the reform and revealing the differences between HK's Octopus policy package and Sydney's Tcard. Both come to the conclusion that pre-existing institutional and structural composition was critical to ensuring a successful Tcard rollout. While these answer the question of what led to the Tcard implementation failure, a new set of questions have also emerged, concerning why the key decision makers; namely the Minister and his pro-reform Labor coalition insisted on legacy bureaucratic and fare systems.

Chapter Four

Discussion of Results

4.1 Strengths and Weaknesses of the Two Frameworks

The use of Patashnik's framework helped reveal that the failure to reform legacy fares was a major dysfunctional element of the Tcard policy which led to its failure. The assessment of the content of reform and examination of the key actors demonstrated the inherent institutional flaws of the PTTC in its powerlessness to reform fares or collaborate with transport operators. The strength of this analysis concentrated on the post-enactment process and diagnosed the Tcard policy of being 'entrenched' and 'dug in' (Patashnik 2008, p.32). This assessment certainly demonstrated that pre-existing structures effectively hindered the new Tcard policy to be implemented effectively and efficiently as a complete reconfiguration of transport operators, their powers and fares was essential. This chapter helped clarify the puzzle of why, even after successful enactment, support from key actors and stakeholders, massive financial investment and privileged political venues, the Tcard still failed. Although PDF's strengths mainly lay in the post-enactment phases of the policy, it was also used to pay due attention to the whole trajectory of the Tcard policy, by exploring the pre-reform situation and content of reform.

However, PDF focused explicitly and almost exclusively on the political institutions and structures involved in the lone policy as a domestic case analysis. Although the deep focus on the domestic Tcard policy allowed for a macro and micro view of the Tcard policy, it did not allow for an international parallel case analysis and there was yet another puzzle questioning how exactly other cities adopted successful smartcard policies, and what Sydney had to do to copy their success. Thus PDF was limited in being able to fully answer why and how the smartcard worked in other cities such as Hong Kong, in which the same company, ERG was contracted.

PTF on the other hand was complementary to PDF as it explicitly addressed the question of how it worked in Hong Kong. Like PDF, PTF also addressed the whole trajectory of the Tcard policy by questioning the key actors involved, the socioeconomic and political climate and the contents of the policy which were transferred, however is grounded on an international comparative perspective. By using Dolowitz and Marsh's framework, another dimension was added to the Tcard policy analysis by exploring HK's successful Octopus card. This analysis highlighted that HKSAR's imparting of autonomous decision-making powers to Creative Star Ltd, an organisation which was constituted of the different transport operators, led to the Octopus Card's success. Thus PTF double-clarified the vital elements Sydney's Tcard missed. PTF shed further light on the fatality of the Department's non-decision to leave transport operators segregated, and establish the PTTC, stripped of any autonomous decision making powers and voice on fare reform.

However it would have been very difficult to identify and understand the extent to which fare reform led to failure by using Dolowitz and Marsh's PTF alone, due to its strong focus on using an international case study and not focusing on the concept of 'pre-existing structures' in general. Yet, further pending questions also remain. What led to the merging of the transport operators to form Creative Star Ltd? And how can Sydney learn lessons from this merger and Private-Public Partnership (PPP)? It would also be beneficial for further research by using PTF to conduct a larger number of case analyses; for instance, how smartcard policies were pursued and successful in Seoul, London, New York and Paris (Edwards and Smith, p. 2). This multi-case analysis would confirm and map out the typical policy-related and technological elements required to implement a smartcard smoothly. There is also space for cross-state analysis; how were smartcards successfully adopted in domestic case examples like Melbourne, Perth and Brisbane? This may offer greater insightful analysis as there are less cultural, geographic, political and language differences, and could prescribe more specific models that could significantly heighten transport policy success in NSW.

4.2 Surprising Discoveries and Further Pending Questions

By using PDF and PTF, this paper has certainly pointed to important explanations of what led to the Tcard implementation failure. However, while that question has been answered, the evidence that I have explored in this paper has also raised another issue; one that the two frameworks have not been able to fully cover. After discovering the structural problems of non-collaborative and segregated transport operators, and a legacy

fare structure, I further questioned *why* key decision-makers chose not to talk about fare reform or merge the transport operators into one principal organisation.

The public, media and lobby groups in particular have expressed major frustration over the policy-myopic culture amongst politicians due to an overt emphasis on winning votes. This is an important finding (although initially unforeseen), as it reveals a deeper foundational problem behind the causes of the Tcard implementation failure which could be viral to a myriad of other issues as an immense impediment to successful policy implementation in general. Table 4.1 may be suggestive of the consequences that have resulted from such a policy-myopic culture.

Table 4.1 Hall of Shame

All Promised...But “Indefinitely Deferred”, Cancelled or Quietly Dropped

- | | | |
|---|--|--|
| • Epping-Parramatta rail link | • Hurstville-Strathfield rail link | • CBD light rail extension link |
| • Fast rail links to Central Coast/Newcastle and Wollongong | • Integrated ticketing (promised all over again) | • South West rail link (promised all over again) |
| • Redfern-St Leonards CBD heavy rail link (promised all over again), and its new rail Harbour crossing (deferred again for at least 25 years) | • Clearways Projects, including extra tracks on Richmond and Illawarra lines | • St Leonards-Chatswood rail quadruplication (promised all over again) |
| • Major upgrading of Town Hall Station | • North West Metro | • Epping-Top Ryde-CBD Metro |
| • CBD Metro | • West Metro | • North West rail link |

(Source: Independent Public Inquiry 2010, p.7)

APT Chairman Allan Miles stated that there was no Tcard supremo champion who was committed enough to reform the fares because of fear in potentially losing his or

her electorate over fare prices (APT, 2009). As mentioned beforehand, the Sydney Morning Herald article concerning tag-on and off procedures also highlighted that politicians feared that travelers would complain if they forgot to pay or did not understand how much money was deducted (Sexton 2011). Furthermore, the Independent Public Inquiry inclusive of 571 submissions regarding Sydney transport had a mission to ‘unshackle’ the short-term political interests that bound all government parties (Independent Public Inquiry 2000, p.1), echoing Miles and Glazebrook’s statements on the narrow minded and myopic views of politicians.

These politicians have been perceived to have placed paramount interest in winning votes and possess an irrational fear of losing them. They have failed to accept and understand that sacrifices have to be made for the whole community to make gains, and that there would always be individual winners and losers. Ultimately, it was their responsibility to make long-term investment into better public transport for the general population. The Independent Public Inquiry boldly highlighted that its motivations for releasing such an inquiry was due to:

- increasing community frustration on inadequate transport networks,
- lack of public consultation, leadership and direction,
- long-term under-investment in transport systems, a string of broken promises, and ad hoc inconsistent and unbelievable announcements,
- increasing resort of spin and hype rather than substance in these announcements and associated justifications for successive government decisions, and

- absence of transparency in decisions which already affect people's everyday lives and will do so, more and more, for decades to come (Ibid, p.2).

The inquiry voiced an overwhelming demand for long-term commitment “beyond electoral cycles and short-term political expediency, to an improved and expanded public transport system” because people actually wanted public transport to be an attractive and competitive alternative to cars (Ibid, p.4). This certainly exhibits a major public cynicism that reveals the irony that there is a misunderstanding by politicians in presuming that the public want quick results and these achievements would keep them in office. These underlying policy initiatives have not been explored by either of the frameworks I employed in this paper.

“It has been said many times there is no gain without pain...Nobody likes paying extra for things, but...provided the community can see tangible improvements...is willing to pay and there are ways to fund a world-class, integrated system within most people's lifetime.” (Ibid, p.20)

Reforming fare structure was an obvious pre-requisite to introducing a Tcard and it would have been efficiently administered through a single transport operator – but the decisions to do this were not made. The evidence explored in this paper has demonstrated that the answers to the question, ‘What Caused the Tcard Implementation Failure?’ have been multifaceted and also differ in depth. The evidence discovered through the two frameworks have further suggested that the Minister and his pro-reform coalition have failed to address dysfunctional, legacy bureaucratic and fare structures because of the core, deeper problem of policy-myopic cultures resulting from a fixation on winning electorates. This policy-myopia has then caused politicians to possess the mistaken

perception that the public wants quick and noteworthy results; at the cost of backlogging much more valuable long-term plans for Sydney transport as a whole. As outlined beforehand, this core leadership and policy initiative problem could also explain the continuously growing list of broken promises (Table 4.1) of project failures that the public must deal with. This warrants exploration into the larger, deeply embedded structural problem of short-term electoral cycles and policy initiatives of the NSW State government to explain the unhealthy communication and commitment gap with the public.

4.3 Future Directions

On 18 September 2008, the then Premier for NSW Mr. Nathan Rees was recorded stating, “One of the reasons we have not been able to introduce the Tcard, as I understand it, is because we couldn’t get fare harmonisation across the different sectors. Well, we’re going to fix that” (Sexton 2009).

For further research into the Tcard implementation failure, continued observation of the court case between ERG and the Department will confirm and may reveal further information on what other factors contributed to the Tcard failure and whether the findings of this paper were the most significant factors that caused failure.

Secondly, I advocate that both PDF and PTF can be used as prospective, not retrospective frameworks to track and forecast the direction of policies to prevent failure. For instance, the resurrection of the Tcard with Cubic and the new benchmark example, London's Oyster Card, can be analysed before implementation to ensure there are no vital missing elements. I also believe that both Patashnik's and Dolowitz and Marsh's frameworks overlap in some sections of analyses, so a merged, singular framework, which combines complementary aspects, would be more beneficial.

Thirdly, this paper has recognised the need for greater interdisciplinary research. Academic collaboration between the social sciences and information technology scholars, researchers and engineers would be valuable to both disciplines as a whole to work together in understanding policies with such significant technological components. This could allow for policy ideas and goals to be better-suited and match technological feasibility to generate optimal results.

Lastly, an investigation into why the Department's leaders aren't doing what they were originally intended to do is a serious question that is in the interest of all citizens. Elected officials are supposed to represent the views of the people and deliver what the public need. Sydneysiders are demanding better public transport systems, with long-term plans rather than short-term quick-fixes which are simply laid on top of pre-existing, weak transport infrastructure and flawed planning. Study of the history, structure, and motivations of NSW elected officials could reveal the obstacles to having a long-sighted government working for the interest of the general public and effectively implementing

valuable reforms. Organisational, governance, and democratic theories may be relevant and particularly Sarah Babb's Organisational Slippage² may be a useful theoretical application. Further research on this topic would help shed light into why perhaps both major parties – Liberal and Labor – have repetitively failed to deliver successful transport policies and also truly edify and constructively criticise one another in order to establish strong, efficient governance. I believe it is worthwhile to investigate this question to make transparent the motives of our leaders, organisational culture, and their performance so that fruitful policies can be delivered to the public.

² The term 'Organisational Slippage' refers to how organisations can evolve in a way that transforms its initial, core organisational goals to the extent that it may cause organisations to develop in ways that would surprise or even shock the original founders or designers.

Chapter Five

Conclusion and Policy Recommendations

5.1 Conclusion

In conclusion, the Tcard implementation failed due to pre-existing structures that were left unaddressed. Complex, legacy fares remained and the transport operators – STA, Sydney Ferries and RailCorp remained segregated. Furthermore, these two pre-existing elements are not mutually exclusive, as a streamlined, unified transport operator should exist for coherent fare reform to take place. The Amendment Bill, which established the PTTC, remained ineffective as it had no power to affect either fares or the transport operators. It was clearly illustrated through the use of PDF especially, that essentially, the cart was before the horse. An introduction of a smartcard was impossible without fare harmonisation and streamlining of transport operators.

Using PTF, I discovered that the attempt to copy Hong Kong's Octopus card also failed due to an absence of a streamlined, single transport operator. In comparison to the PTTC, Hong Kong's Creative Star Ltd had decision-making powers to reform fares and the transport operators involved cooperated to ensure that the Octopus card could be rolled out efficiently. While the Amendment Bill and the PTTC certainly did allow for efficient and exclusive access of the pro-reform coalition and the Minister, these new policy instruments that were designed to facilitate the implementation of the Tcard were

ultimately void as the pre-existing structure was incompatible with the new ‘implementation machine’.

Additionally, the evidence presented in this paper also posed further exploration into the issue of politicians’ preoccupation with electoral cycles, which may have affected successful policy implementation. While both frameworks complemented one another in arriving at the conclusion that non-streamlined transport operators and legacy fares led to the Tcard implementation failure, they did not delve deeper into questioning why politicians did not reform such pre-existing structures.

5.2 Smartcard Policy Recommendations for the Department

- There must be comprehensive reform of fare structure, with the aim being simplification. The Department should also decide what type of fare system Sydney should adhere to. Options include zonal, distance-based or flat fares. In order for fare reform to take place, each of the transport operators must collaborate and come to a common decision.
- In order for transport operators to communicate and cooperate effectively, there must be streamlining of organisation. I strongly recommend that the bureaucratic structures of STA, RailCorp and Sydney Ferries be merged taking similar shape to Creative Star Ltd, so that coordination is uniform and more efficient. Common ‘umbrella’ policies should be implemented across operators and decisions on fare structures must also be made.

- Closer examination of the new policy transferor city, London, should be conducted. Policy designers and key decision-makers must understand the policy process of the Oyster card from conception to implementation including the key actors involved, institutions, policy instruments, public responses, content of reform – as explored in this paper. Simple guidelines provided by PTF may be utilised in order to assess whether Sydney is engaging in policy transfer in an uninformed, incomplete or inappropriate manner. Such preventative methods should be used to avoid making the same mistake of failing to transfer critical elements from Hong Kong’s Octopus card.

* * *

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