Technology and the Australian state: the changing political discourse on technology in Australia 1975-1985

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1. INTRODUCTION

Preamble: The Changing Political Discourse on Technology

As for all advanced capitalist economies, the period from the mid-1970's to the mid-1980's was a particularly turbulent time for Australia. With the end of the post-war "long boom" in the early 1970's came the onset of economic crisis, which various governments sought to remedy. As they did so, and following international trends, there was a marked shift in the broad economic policy approach, i.e. away from Keynesian interventionism and towards a more neo-liberal non-interventionist stance. In Federal politics, the period began with the demise of the reformist Whitlam Labor Government, traversed the conservative Fraser Administrations, and concluded with the Accord-based consensus of the Hawke Labor Government.

During this period, associated with a large rise in unemployment levels in the late-1970's, there developed a debate on the social implications of technological change. Up to that time, technology had generally been considered to have been of unquestioned social benefit. The following quotes illustrate the competing themes that were advanced in this debate:

"Union intervention in the design of technology opens up many new and difficult areas of struggle. It involves chipping into the big block of the capitalist system. But until workers are able to control the design of technology for socially useful production they will inevitably be on the defensive and technology will always pose a considerable threat." (1)

"...The 'threat' posed by (the new technology) needs to be put in perspective by discounting the element which is attributable to man's fear of the unknown. Current technological advances appear to have outstripped the public's ability to understand their ramifications, and hence the 'threat' of the unknown. There is clearly a need, therefore, for a programme of public education designed to demonstrate the current and future benefits of present and projected technological advance." (2)
At the height of the debate, there were two conflicting perspectives dominating the discourse on technology. Technological change was seen by many groups to be a "threat", especially to employment, which required a greater degree of centralised control to ensure socially desirable outcomes. In contrast, other groups argued that new technology presented economic opportunities which Australia could ill-afford to ignore, and that any attempts at resisting it would be counter-productive. However, over the period studied the discourse was reoriented. The technology as threat perspective was displaced, and the technology as opportunity view came to prevail. By the mid-1980's, what had become the dominant view was expressed as follows:

"We are in a technological race where all the front runners will receive substantial benefits, while those who trail the field will inevitably suffer substantial declines in their relative standards of living. History tells us that in the long term a nation which does not maintain technical competence near the state-of-the-art becomes poor." (3)

This thesis analyses the role played by key state actors in the changing discourse. In so doing it locates the discourse within its changing political-economic context, at both national and international levels. The approach taken uses an analytical framework derived from two broad areas of contemporary social theory, covering the social nature of technology and the nature of the state as an institution of political domination.

Social Analyses of the State and Technology

In the field of science, technology and society, the policy-oriented analyses have largely been divorced from the more theoretically-informed sociological and philosophical studies.4 While many of the latter have sought to relate the practices of science and technology to the existing social order, the former have mostly accepted this order as given. Because of this limitation, Charles Lindblom has accurately observed that most policy analyses to date have been "inherently conservative and superficial": conservative because they have not questioned the social order, and superficial because they have
generally only considered marginal changes within the existing policy framework. This thesis seeks to move beyond uncritical empiricism to provide an interpretation of those state actions which address what Brian Wynne has termed "the problem of legitimate authority for technological commitments."

This thesis is therefore informed by an explicit theoretical framework. All accounts involve some kind of theoretical framework to organise data, and to provide definitions and interpretations of social phenomena. The advantage of using an explicit framework, rather than using an implicit and unconsidered one, is that it opens up the premises and constructs to examination and challenge.

In social analysis, state policies on technology have been covered by two broad literatures. One of these, the science and technology policy literature (informed mainly by economics), has examined the role that states do, and should, play in the promotion of science and technology. The other, more eclectic, has been concerned with the social control of science and technology and hence the role that states should play in directing and regulating these practices. I argue that there have been two major shortcomings of these analyses. Firstly, few (if any) have provided an explicitly theorised account of the nature of state intervention in technological change. Secondly, none have provided an adequate conceptualisation of technology as socially-shaped and socially-shaping. Let us look at each of these criticisms in more detail.

In the literatures on the state and technology, the state (or more usually "the government") is most often implicitly conceptualised as representing the "common good" or acting as the neutral arbiter of conflicting interests. For example, a common implicit model within economics is of the state as "rational subject" which aims to maximise national social welfare through the implementation of appropriate policies. This is inadequate, for not only is rationality socially construed and therefore open to conflicting interpretations, but also the rational model does not accord with the reality of public policy-making as an
“untidy process”. Furthermore, in many policy studies, the explanation of state actions is reduced to behaviourist accounts, i.e. outcomes are explained only in terms of the actions of individual actors. Such individualist explanations deny the significance of overarching social factors and institutions in structuring the behaviour of individuals. This is unacceptable, for the capabilities and preferences of individual actors are the product of prevailing social structures, and the capacity for action is constrained by prior social choices.

But most fundamentally, these literatures have generally taken for granted the contemporary social order within which the state is located and to which the state contributes. This is a serious limitation to an understanding of policy formulation and implementation. The inter-relationship of the state and the social order is important for, firstly, it is this that influences and constrains the actions of state actors (for they do not make history as they please); and, secondly, it is this that creates the need for symbolic political action through which actors seek to resolve social contradictions and to sustain the legitimacy of the prevailing order.

But not only is the state inadequately conceptualised. In these literatures, the social processes of technological development are usually reduced to a "black box" and not theorised. For example, technological change is frequently considered as an exogenous variable in economics, and in other social analyses a crude determinism can often be seen whereby technology is portrayed as a force external to society and causing change within it. Historiographies typically present "technological success stories", wherein new technologies are depicted as having evolved in a naturalistic and a seemingly inevitable way. Such approaches do not adequately deal with the complex social processes by which new technologies are developed, neither do they embrace the mechanisms by which this development is socially shaped. Furthermore, while technologies are social products, they are also socially structuring. As Langdon Winner argues, technologies can be considered to have politics in that they shape the conditions of our existence. A more
conceptually useful analysis of technological change, then, would aim to reveal the essentially social nature of technology, both in terms of its development and in terms of its relationship with society.

This thesis represents a preliminary attempt to address these theoretical shortcomings in the analyses of the state and technology. In doing so it brings perspectives from contemporary social theory into policy analysis to provide a framework for the interpretation of the development of the politics of technology, and the associated discourse, in Australia.

Approach Adopted and Methods Used

In addressing the politics of technology in Australia over the period from the mid-1970's to the mid-1980's, this thesis focuses on the "battle of words" that comprised the technological change debate. It demonstrates how, through the use of particular rhetoric and symbolic actions, various state actors sought to sustain the hegemony of the dominant perspective on technology (the ideology of technological progress) and contain the challenges of subordinate groups to that perspective. The approach adopted has five main features.

Firstly, it provides a contextual analysis, i.e. the actions of various actors are related to the changing economic and political context. The discourse on technology developed within a specific social context which was an important determinant both of the nature of that discourse and of the responses of political actors to it. Secondly, the approach of the narrative is historical in that it traces the development of arguments and perspectives as they unfolded in the political arenas. The historical approach reveals how issues develop over time and are brought onto the political agenda. Thirdly, the analysis is state-centred and focuses on the state as an institutional ensemble with its own interests but which is embedded in capitalist society. The concern of the thesis is thus with the development of a
discourse on technology within and around the state, and with the role of state actors in the shaping of that discourse.

A fourth feature of the approach, as indicated above, is that it is explicitly theorised. The framework used to analyze the changing discourse is "middle level" theory. This seeks to link the level of concrete state action and rhetoric, to more abstract theoretical constructs which are used to interpret political action and the perceptions of reality that this fosters. Finally, to facilitate this theoretically-informed analysis, the thesis takes an interdisciplinary approach, drawing on recent developments in sociology, anthropology and political science. The argument advanced is that each of these disciplines offers perspectives which can enrich the interpretation of state action and policy formation.

Empirical data were collected from three main sources. The central focus of analysis was on the rhetoric of state actors, so the primary source of data was published statements in a variety of media, including academic journals, the mass media and government publications. But this was supplemented by other data sources which enabled me to penetrate beneath the surface rhetoric and gain insights into the manoeuvrings and motivations of the political actors studied. Thus, the account also drew on official non-published documents from those state agencies which had become involved in the social implications of technological change in the late-1970's and early-1980's (i.e. the Australian Science and Technology Council, the Department of Science and Technology, and the New South Wales Technology Research Unit). To gain further insights into the bureaucratic machinations, I conducted focused in-depth interviews with selected officials from those agencies, and with others who had been centrally involved with the Myers Inquiry (see below). Together these sources provided a wealth of information on the dynamics of state action. This information was organised and integrated within the conceptual framework to provide an interpretation of the changing discourse on technology in Australia.
Development of the Thesis

The thesis falls into two main parts. The first, comprising of Chapters 2, 3 and 4, provides the theoretical framework which seeks to redress the shortcomings of most existing analyses of the state and technology. Chapter 2 provides an account of the nature of technology and technological change, while Chapter 3 presents a perspective on the state, as an independent institutional ensemble, in contemporary capitalist society. The major theoretical themes from these two chapters are integrated in Chapter 4 to analyze the involvement of the Australian state in technological development. That chapter discusses the strategic importance of science and technology to the Australian state, sketches the historical background to the state's interest, and outlines the current nature of its involvement.

In the second part of the thesis, the framework developed in Chapters 2-4 is used to analyze the development and subsequent displacement of the "technology as threat" perspective in Australia over the period from the mid-1970's to the mid-1980's. Chapter 5 provides an historical overview of the growing recognition in Australia of the social costs, and the inequities in the distribution of these, associated with "advances" in science and technology. It documents how the view that technology is of unquestioned benefit came to be challenged by various groups in the 1960's and 1970's. It then shows how, in the deteriorating economic climate of the late-1970's, this increasingly placed pressures on governments within the state to take action on contentious technology. Chapters 6 to 8 discuss two state responses to these growing pressures. In Chapters 6 and 7, the Myers Inquiry into Technological Change in Australia is analyzed as a political response at the federal level, and in Chapter 8 the New South Wales Technology Research Unit is discussed as a similar response at the State level. In both of these chapters, the symbolic aspects of these responses is emphasised, and they are interpreted as actions which sought to contain subordinate group pressures and to mobilise consent to technological change.
These responses were one aspect of a process by which state actors sought to foster a consensus on the desirability of technological change. Chapter 9 discusses how, against a background of economic crisis, the notion of "technology as opportunity" was promoted by various state actors and, at the same time, the concern with social implications was largely displaced from the political arena. If technology had become politicised during the technological change debate, in the new political climate which emphasised the strategic economic importance of new technology it had become de-politicised. The challenges of subordinate groups to the dominant structures of technology decision making had to a large extent been contained.
NOTES AND REFERENCES


8. For example, Elliott and Elliott (1976), Hawthorne (1978), Johnston and Gummett (1979), and Collingridge (1980); for a review of this area, see Johnston (1984).


11. For a review of the institutional perspective on the sovereignty of state actors, see Krasner (1988).

12. For a collection of studies which explicitly seek to look inside the "black box" of technology, see Bijker et al. (1987).
