

Public Management and Complexity Theory

Richer Decision-Making in Public Services

**Mary Lee Rhodes, Joanne Murphy,
Jenny Muir, and John A. Murray**

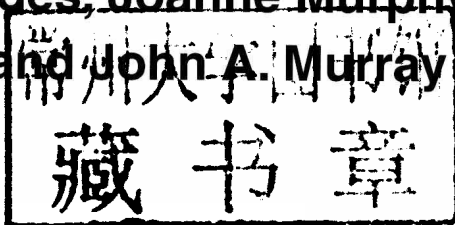


Routledge Critical Studies in Public Management

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Abbreviations and Acronyms

ADM	Area Development Management Ltd
BCH	Belfast City Hospital
BHTF	Ballymun Housing Task Force
BNC	Ballymun Neighbourhood Council
BRL	Ballymun Regeneration Ltd.
CAS	Complex Adaptive System
CCDB	City and County Development Boards [ROI]
CEC	Commission of the European Communities (now known as the European Commission)
CHA	Connswater Housing Association
CNR	Catholic/Nationalist/Republican
CPO	Compulsory Purchase Order
CRA	Clonard Residents' Association
DCC	Dublin City Council
DFP	Department of Finance and Personnel [NI]
DoHC	Department of Health and Children [ROI]
DHSSPS	Department of Health, Social Services and Public Safety [N]
DoCRGA	Department of Community, Rural and Gaeltacht Affairs [RC]
DoEHLG	Department of the Environment, Heritage and Local Government [ROI]
DoELG	Department of Environment and Local Government, now known as DoEHLG [ROI]
DSD	Department for Social Development [NI]
EPES	Electronic Prescribing and Eligibility System
EHR	Electronic Health Record
ERHA	Eastern Regional Health Authority [ROI]
ESRI	Economic and Social Research Institute
EU	European Union
EUSSPPR	European Union Special Support Programme for Peace and Reconciliation (the official name of PEACE I, II programmes)
FDI	Foreign Direct Investment
FGU	Fatima Groups United

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FRB	Fatima Regeneration Board
GDP	Gross Domestic Product
GP	General Practitioner
GPIT	General Practitioner Information Technology (National project to iImprove IT usage amongst GPs [ROI])
GVA	Greater Village Area
GVRT	Greater Village Regeneration Trust
HCIS	Healthcare Information Systems
HeBE	Health Board Executive [ROI]
HIQA	Health Information Quality Authority [ROI]
HL7	Messaging protocol for healthcare information requirements; accredited by the American National Standards Institute (ANSI)
HP	Hewlett Packard
HPSS	Health and Personal Services Structure [NI]
HSE	Health Services Executive [ROI]
ICT	Information & Communications Technology
ILO	International Labour Organization
INTERREG	EU cross-border co-operation funding programme
IT	Information Technology
LA	Local Authority
MARA	Mersey Street Area Residents' Association
MBW	<i>Making Belfast Work</i>
MHC	Mental Health Commission [ROI]
MLA	Member of the Legislative Assembly [NI]
MP	Member of Parliament [UK]
NDP	National Development Plan [ROI]
NGO	Non-Governmental Organization
NHS	National Health Service [NI]
NI	Northern Ireland
NIAO	Northern Ireland Audit Office
NIHE	Northern Ireland Housing Executive
NIO	Northern Ireland Office
NIPAC	Northern Ireland Public Accounts Committee
NISRA	Northern Ireland Statistics and Research Agency
NRS	Neighbourhood Renewal Strategy
OCS	Order Communication System
OECD	Organization for Economic Cooperation and Development
OFMDFM	Office of the First Minister and Deputy First Minister
PEACE I	EU Special Support Programme for Peace and Reconciliation (1995–1999) - See also EUSSPPR
PEACE II	EU Programme for Peace and Reconciliation in Northern Ireland and the Border Region of Ireland (2000–2006) - See also EUSSPPR
PPP	Public—Private Partnership

PRINCE2	PRojects In Controlled Environments, version two
PSA	Project Specific Agent
PUL	Protestant/Unionist/Loyalist
QUANGO	QUasi-Autonomous Non-Governmental Organization
RABIU	Regional Acquired Brain Injury Unit ICT
RAPID	Revitalising Areas through Planning, Investment and Development
ROI	Republic of Ireland
RWS	Remedial Works Scheme
SBP	South Belfast Partnership
SBPB	South Belfast Partnership Board
SDU	Northern Ireland Department of Health, Social Services and Public Safety's Service Delivery Unit
SRO	Senior Responsible Officer
TD	Member of Parliament [ROI]
TMS	Theatre Management System
UK	United Kingdom
UR	Urban Regeneration
URBAN	Instrument within EU Cohesion Policy, dedicated to the regeneration of urban areas and neighbourhoods
URS	Urban Renewal Scheme

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Introduction

The Case for CAS

Jeffrey Weber recently observed that ‘the academic discipline of public administration is drifting and largely ignored, because so often the ideas are stale and impractical for they are based on a faulty understanding of existence’ (Weber 2005: 266). Weber is just one of the many voices calling for a reinvigoration of public administration theory; Jan-Erik Lane highlighted the already long simmering dissatisfaction of theorists in 1993 when he wrote ‘public administration as an academic discipline has more or less crumbled during the recent decades . . . replacing it there is now a proliferation of concepts, frameworks and theories’ (Lane 1993: vii).

Some of the blame for the frustration with theory and its apparent irrelevance to practitioners must be laid at the door of those who develop theories of public administration in the first place. Since the demise of the ‘bureaucratic model’ in the mid-twentieth century, the discipline of public administration has split into many different sub-strands, with economists, political scientists, sociologists and management theorists developing alternative theories to explain the workings of the administrative state. Frederickson and Smith (2003) detail eight different theories of public administration that are actively pursued. These are: political control of bureaucracy; bureaucratic politics; (public) institutional theory; public management; postmodern theory; decision theory; rational choice; governance. Pierre and Peters (2000) suggest that ‘governance’ had eight different ‘perspectives’—different to those described by Frederickson and Smith—namely: top-down authority of the state; autopoiesis and network steering; cybernetic processes; potential (policy) instruments for steering; institutional analysis; rational choice; policy networks; neo-Marxism and critical theory. Richard Stillman, in the 7th edition (and 25th year) of his highly regarded textbook, *Public Administration: Concepts and Cases*, opts for a ‘Chinese menu’ approach of 15 different topics and an introduction in which he says that public administration is ‘the eminently practical science’ that is ‘continuously “bubbling up” with multiple new perspectives for understanding, defining and dealing with salient public issues of the here-and-now by means of its own brand of interdisciplinary hands-on conceptual creativity’ (Stillman 2000: 29). In a recent exploration of theories of public governance, Stephen Osborne

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suggests that there are five ‘strands’ or perspectives (socio-political governance; public policy governance; administrative governance; contract governance; network governance) with the ‘potential to assist our understanding of the complexity of the challenges [in public management] and as a reflection of the reality of the working lives of public managers today’ (Osborne 2010: 6). While there are clearly ongoing efforts to bring the theory of public management in line with practice, there is still little in the way of greater coherence emerging from these efforts.

In the same article in which he suggests that public administration theory is drifting and no longer relevant to practitioners, Weber proposes that theories of ‘complexity’ may hold the key for reinvigorating the discipline and helping to increase the coherence of theory across the many perspectives that have been brought to bear on the problem(s) of public administrators. Several others join him in this view, including those from public administration (Boston 2000, Blackman 2001, Chapman 2002, Teisman and Klijn 2008) and organizational complexity (Anderson 1999, Stacey and Griffin 2006, Dennard *et al.* 2008). There are numerous articles and conference papers exploring the potential application of complexity theory (or theories) to public administration and policy. Two recent compilations on the topic (Stacey and Griffin 2006, Dennard *et al.* 2008) provide wide-ranging examples, models and theoretical propositions, and there have been several special issues of journals exploring the same space (c.f. *Public Administration Quarterly* 2005, vol. 29: 3, *Public Management Review* 2008: vol. 10: 3).

In a series of articles that contributed to the research reported here, ML Rhodes and colleagues (Rhodes and MacKechnie 2003, Rhodes and Murray 2007, Rhodes 2008, Muir and Rhodes 2009) develop the case for applying a particular strand of complexity theory, complex adaptive systems (CAS) theory, to public administration and public service systems in particular. The perspective on systems embodied in CAS theory, and its efforts to model and understand such systems seemed to offer an intellectual framework with which to observe and seek to understand, in a fresh manner, the functioning of public management systems. The complexity of such systems is generally accepted. The multiplicity, intensity and non-linearity of interactions seem, intuitively, to accord with CAS characteristics, as do their adaptive characteristics. Since outcomes are seldom fully predictable in public management, yet may nonetheless serve their purpose well, concepts such as self-organization and emergent order seem like reasonable characterizations. The inherent potential in complexity theory for addressing the policy and management challenges facing practitioners, as well as for integrating the various theoretical strands in public administration into a coherent framework, is what inspired the research that informs this book.

However, there are few research programmes that explicitly set out to determine the merits of this relatively new approach for interrogating,

understanding and explaining empirical examples of public administration and management, in order to identify patterns arising from (or specific to) the complex nature of tasks and relationships inherent in these organizational phenomena and to develop hypotheses for theory and practice.

The research programme engaged in by a team of researchers from Northern Ireland and the Republic of Ireland set out to do this very thing. The authors apply a CAS framework to a series of case studies in public sector management in Ireland to generate new insights into the issues, processes and participants in public service domains. The case studies were carefully chosen to allow for analysis across similar cases as well as to highlight how varying circumstances and/or specific policy and practice choices might influence participant behaviour and/or system outcomes. Urban regeneration and information systems development in healthcare settings were the two public management challenges chosen for this study because of the broad interest these activities generate, the different organizational levels and range of participants involved, the highly differentiated objectives between the two areas and the existence of multiple cases that could be examined. Furthermore, cases were selected from the two governmental jurisdictions in Ireland, the Republic of Ireland in the south and the UK region of Northern Ireland, which provided data on subtle political and historical differences that proved useful in identifying how different social and political contexts do or do not influence participant behaviour and outcomes. This book is the result of research into these two separate domains of activity undertaken in Ireland between January 2004 and June 2007.

The original objectives of the research were:

To contribute to the understanding of factors that enable more effective public service decision making;

and

To apply a complexity 'lens' to the analysis of public service cases in order to achieve the first objective.

Initially, the researchers left open the question of selecting among the various complexity frameworks to apply to the case data, but as the research progressed it became clear that a CAS framework fit the data and also facilitated analysis and discussion of issues with practitioners, policy-makers and academics. In the following chapter, the section 'Complex Adaptive Systems Framework' sets out the specifics of this framework.

Following this introduction, Chapter 1 sets out the basic research objectives, research framework, context and case data upon which the rest of the book is based. Chapters 2 and 3 apply the CAS framework to the cases to demonstrate how these two policy domains may be perceived as consisting of the basic elements of CAS, namely system, environmental factors,

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environmental rules, agents, processes and outcomes. Chapter 4 brings this analysis together to argue that a CAS perspective is relevant to public administration activity and that theory and practice can benefit from the CAS perspective. Part II of the book (Chapters 5 to 9) develops this argument through a detailed exploration of the CAS dynamics present in the case studies in the context of issues of current relevance to public managers and academics. These include issues of boundary-setting, stakeholder involvement, role of the private sector and tensions between 'core' and 'locale' in public policy and implementation. Part II concludes, in Chapter 9, with the key findings and a reflection of the value of applying a complexity lens to the selected public service domains.

1 Setting the Stage for a CAS Analysis

In this chapter, the research approach and projects studied are described in order to set the stage for the subsequent analyses of Part I and Part II of this book. The first two sections cover the research approach with particular attention on the elements of the research framework, i.e., complex adaptive systems (CAS). Sections 3 and 4 provide an overview of the projects studied and the relevant context(s) in the two jurisdictions of Ireland in which the research took place.

RESEARCH APPROACH

The research approach adopted was a comparative case study of decision-making in a particular policy domain (Eisenhardt 1989, Yin 1993, Yin 2002, Barzelay *et al.* 2003, Carlile and Christensen 2006). Eisenhardt provided an outline of the basic steps to be followed for case-based theory building, while Barzelay *et al.* provided useful conceptual guidance for case studies in public policy—in particular the concept of ‘social mechanisms’ that inform decisions being made. Examples of social mechanisms include the attribution of past success or failure to particular decisions, rules, institutions and/or public perceptions. These considerations informed the interview and survey guidelines and the generation and analysis of case material. Yin’s rich vein of methodological research, classification and examples of case studies was helpful in clarifying the specific details of the research across Eisenhardt’s eight steps (detailed below), and Carlile and Christensen provided the starting point for the general question to be explored and the relevant constructs. Their succinct statement of the central question to be explored in any management research, i.e., ‘what actions by managers [actors] will lead to the results they seek, given the circumstances in which they find themselves?’ (Carlile and Christensen 2006: 4) provided the basic categories to be analyzed in each case over the course of the research project. The four categories were actors, actions, circumstances and outcomes.

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It must be acknowledged that none of the approaches above was designed with a complexity framework in mind and the initial case data collection process did not incorporate a CAS framework into the data collection protocols. The CAS framework ultimately used to interpret the case data was developed by the authors over the course of the research, as the literature on complexity in the social sciences in general and public policy and administration in particular developed and matured. In essence, the development of the CAS framework was a separate, but overlapping, research exercise, which informed the analysis steps of the case research, and which was enhanced by this and other research activities undertaken in parallel. The specific elements of the research process are summarized below—organized as per Eisenhardt's eight steps of theory-building case research.

1. Define the Question

Carlile and Christensen's (2006) statement of the central question in management provided the basic question and constructs of actions, actors, circumstances and outcomes to be described in the case studies. Barzelay *et al.* (2003) contributed the concept of social mechanisms in public administration by which actors attribute success or failure (in terms of outcomes) to particular actions, actors or circumstances.

2. Select the Cases

The selection of cases was a structured process based on Yin's (2002) advice for undertaking comparative case study research. Cases were chosen to represent a range of public management activity using criteria developed by the project team including: (a) political jurisdiction (Dublin/Belfast); (b) organizational 'level' (intra- versus inter-organizational); (c) stage in the project lifecycle (beginning, middle, end), (d) the range of agents involved; and (e) the size of the projects. The purpose of using these criteria to select projects was to highlight key features of agent behaviour under different conditions and at different points in time.

3. Use Multiple Data Collection Methods and Different Researchers, if Possible

Several different strategies were employed to ensure that different types of data, as well as diverse perspectives, were used in the research. Firstly, practitioners' perspectives were gathered using different approaches: for the inter-organizational (urban regeneration) domain, a research advisory group was created, drawn from practitioners and academics with expertise in one or more of the main organizational sub-sectors (the private sector, the non-profit sector, the public sector, the community sector and the policy sector¹). In the intra-organizational analysis (healthcare

information systems) different perspectives were captured by targeting interviewees from different functional areas. Secondly, a range of social science disciplines was represented in the research team, which included researchers from social policy, economics, strategy, organizational theory and sociology. Finally, in addition to the case study protocol, a mail survey of decision-makers in approximately 400 different organizations was used to gather further information on the factors that influence strategic decisions.

4. Overlap Data Collection and Analysis

Semi-structured interviews were conducted with project participants representing the various constituencies involved in the projects and documents relating to the projects were reviewed. 48 interviews were conducted, with approximately 60 per cent being in urban regeneration and 40 per cent in healthcare/information technology (IT). These interviews spanned 12 cases, six each in the two policy domains.

Interviews and case studies were written up by different researchers and both were sent back to interviewees for their review and commentary. In the cases of interviews, over half of all interviewees provided feedback, including corrections and further explanations. Urban Regeneration data collection and analysis were completed, and findings were presented at conferences and written up in academic journals to generate additional critique and to refine the analysis approach for the healthcare information systems research.

5. Perform Within- and Cross-Case Analyses

The case analyses were undertaken with two goals in mind. The first was to assess whether and to what extent the cases conformed to a CAS model—i.e., could these activities be viewed as complex adaptive systems in a consistent manner across projects and domains. Secondly, the case narratives were interrogated by researchers with different backgrounds to determine if there was evidence of the system dynamics inherent in CAS, i.e., path-dependency, adaptation, emergence and bifurcation.

The within- and cross-case analyses produced by the research team were reviewed with the advisory group in the case of Urban Regeneration and with the other researchers and selected experts in the field in the case of healthcare information systems.

6. Shape Hypotheses through Iterative Analysis, Search for Evidence of the ‘Why’ Behind the ‘What’

The hypothesis that projects in public administration that take the form of projects may be perceived as complex adaptive systems was shaped and tested through the case analyses and the multiple reviews by the research team,

interviewees, members of the advisory group, conference participants and journal referees. Confirmation and critique were both incorporated into the developing theory. Patterns of CAS dynamics identified by different researchers were written up and reviewed by other members of the research team.

7. Compare with Literature—Search for Conflicting Hypotheses/Tests

The emerging hypothesis that public administration activities that take the form of projects may be perceived as complex adaptive systems was developed and challenged through a comparison with literature on complexity and complex systems, as well as to historical literature on and critiques of systems theory and public administration. In addition, the classification of systems elements in the cases were informed by theory from a range of disciplines including housing, healthcare, organizational theory, strategy, information systems management, economics, sociology and political science.

8. Closure Comes When Marginal Improvement from Next Case Becomes Small

Twelve cases were carefully selected to represent a range of public administrative activity and contexts—while at the same time maintain some ability to compare the cases as examples of a distinct phenomenon. Through the process described above, the case for CAS as a viable analytic framework on which to base governance theory for public administration was constructed. This characterization of public administration as CAS has undergone extended and rigorous review by practitioners and academics in numerous forums. Additional research is advised to explore in more detail the dynamic properties of these systems, but this will require a different approach to research.

THE COMPLEX ADAPTIVE SYSTEMS (CAS) FRAMEWORK

The CAS framework presented in this section was developed in parallel with the research described above, although the two theory-building activities merged into an integrated effort over the second half of the project. At the outset, the authors considered several potential frameworks for tackling complexity in public management (Lynn *et al.* 2000, Barzelay *et al.* 2003, Haynes 2003, Koppenjan and Klijn 2004), but in the end, the complex adaptive systems framework was selected as being most promising. The use of complexity theory in the social sciences has been developing over the last decade and there are numerous special issues of journals across the spectrum of social sciences dedicated to this topic (*Organization Science* 1999 vol. 10: 3, *Population and Environment* 2000, vol. 22: 2; *Public Administration*