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1996

## Social and intercultural dynamics in industry's commercialisation of technology from publicly-funded research laboratories

Ronald W. Murnain  
*University of Wollongong*

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SOCIAL AND INTERCULTURAL DYNAMICS  
IN INDUSTRY'S COMMERCIALISATION OF TECHNOLOGY  
FROM PUBLICLY-FUNDED RESEARCH LABORATORIES

A thesis submitted in fulfilment of  
the requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

RONALD W. MURNAIN, B.Sc.(hons)




CENTRE FOR RESEARCH POLICY

1996

### CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is the result of my own research and that it contains no material, in whole or in part, that has been submitted for an award including a higher degree, to any other university or institution.

I also declare that this thesis contains no material previously written or published by another person, except where due reference is made in the text of the work.



Ronald W. Murnain

Donald Horne (Why Our Luck Changed, Sydney Morning Herald,  
13 January 1996) has described a task for  
his hypothetical "Royal Commission into the Business Culture":

*Even when [industrial] successes come ..., has  
it been from hard economics or from cultural  
change in the wider views of the world (and of  
what Australia can do in it)? ... The Com-  
mission conducts a nationwide search for at  
least one writer in Australia who reports,  
comprehensively, regularly and widely on busi-  
ness as an activity that involves people as  
well as balance sheets, that involves imagin-  
ation as well as interest rates.*

# CONTENTS

ABSTRACT	(i)
ACKNOWLEDGMENTS	(iii)
PREAMBLE	(iv)

## VOLUME 1

### CHAPTERS:

CHAPTER 1: SOCIAL/INTERCULTURAL DYNAMICS IN THE COMMERCIALISATION INTERFACE	1
A. Introduction	1
B. Human Factors in the Study of Commercialisation and Innovation	4
C. Human Factors in Commercialisation Policies and Priorities	13
D. Insights Available Through Studying the Social/Intercultural Basis of Commercialisation	15
E. Key Social/Intercultural Issues in Commercialisation Arrangements	17
F. The Commercialisation Interface	25
G. The Social Effectiveness of the Commercialisation Interface	28
H. The Substance of the Thesis	34
J. The Structure of the Thesis	40
CHAPTER 2: FORMATION AND DEVELOPMENT OF THE INTERFACE AS A SMALL GROUP	46
A. Introduction	46
B. Theory Likely To Contribute to Understanding Interface Cohesion and Solidarity	50
C. Intergroup Contact Theory	54
D. Trust between Groups Coming Together in Commercialisation Interfaces	62
E. Conflict in Commercialisation Interfaces	69
F. Power in Commercialisation Interfaces	86
G. Summary: The Key Theoretical Perspectives, and the Dimensions of Social Behaviour Identified Through Them	95
CHAPTER 3: DEVELOPMENT OF THE INTERFACE'S CULTURAL SYSTEM	100
A. Introduction	100
B. Acculturation Themes from Ethnic Studies	106
C. Acculturation Themes from Organisational Studies, and Related Areas	116
D. Symbolic Representations of Important Interface Processes and Concepts	123
E. Values, Norms, Attitudes and Preferences of Participants: Cultural Theory	128

[Contents of chapter 3, continued]

F.	Manifestation of Cultural Theory in Commercialisation Interfaces	137
G.	Consolidation of the Dimensions of Social Behaviour, and the Culturally-Acquired Values, Norms, Attitudes and Preferences, Identified Through the Theoretical Perspectives	143
CHAPTER 4: ESTABLISHING, INTERROGATING AND ARTICULATING THE CASE STUDIES		153
A.	Introduction	153
B.	Accessing and Collecting the Data for the Study	154
C.	Preliminary Analysis of the Influence on Interface Effectiveness of Dimensions of Social Behaviour: An Interface's Cultural 'Shape'	161
D.	The Detailed Analyses in Chapters 6 to 10: 'Looking Backwards' and 'Looking Sideways' from the Interfaces	167
CHAPTER 5: THE CASE STUDIES AND THEIR CHARACTERISTICS		177
A.	Each Case Study and Its Main Directions of Development	177
B.	Elaboration of Data from the Case Studies	186
C.	The Final Form of the Analytical Framework	197
CHAPTER 6: ANALYSIS: DEVELOPMENT OF THE COMMERCIALISATION INTERFACE AS A SOCIAL GROUP: INFLUENCE OF HOW PARTICIPANTS APPROACH KEY INTERFACE RELATIONSHIPS		200
A.	Introduction	200
B.	Emphasising Intercultural Similarities, and Playing Down Intercultural Differences	204
C.	Preserving Partners' Most Valued and Cherished Differences	220
D.	Adaptive, Flexible Thinking, To Cope with the New Situation Being Encountered	229
E.	Demonstration of Goodwill Trust Between Interface Participants	237
F.	Conclusions from Analyses in Chapter 6	251
CHAPTER 7: ANALYSIS: DEVELOPMENT OF THE COMMERCIALISATION INTERFACE AS A SOCIAL GROUP: INFLUENCE OF INTERGROUP STRUCTURAL RELATIONSHIPS		257
A.	Identification and Pursuit of Shared Over-Riding Goals and a Shared Sense of Purpose	258
B.	Intimacy of Contact	271
C.	Approximate Status Balance between the Parties' Representatives	283
D.	Assumption of Category-Independent Roles	290
E.	Conclusions from Analyses in Chapter 7	299
CHAPTER 8: ANALYSIS: INFLUENCE OF POTENTIALLY DIVISIVE FORCES ON GROUP DEVELOPMENT: CONFLICT		306
A.	Introduction	306



[Contents of chapter 8, continued]

B.	Development of Excessive Conflict in the Case Studies	311
C.	Control of Excessive Levels of Conflict	318
D.	Maintenance of Conflict at an Unhealthily Low Level	329
E.	Focus of Conflict on Goals/Values/Interests That Question the Founding Assumptions of the Relationship	332
F.	Ways in Which Groups in Conflict Appeal to Their Members' Personalities	338
G.	Conflict Kept Focused on a Definite Object of Contention	342
H.	Transfer of Conflict-Learned Behaviour to New, Non-Conflict Situations	347
J.	Conclusions from Analyses in Chapter 8	349
CHAPTER 9: ANALYSIS: INFLUENCE OF POTENTIALLY DIVISIVE FORCES ON GROUP DEVELOPMENT: POWER		356
A.	Introduction	356
B.	Strategic Use of Power to Pre-Emptive Ends	360
C.	Coping with Uncertainty in Critical Organisational Areas	371
D.	Use of Meta-Power/Relational Control	376
E.	Conclusions from Analyses in Chapter 9	383
CHAPTER 10: ANALYSIS: INFLUENCE OF DEVELOPMENT OF THE INTERFACE'S CULTURAL SYSTEM		387
A.	Basis of Incorporation of Parties' Values, Norms, Attitudes and Preferences into the Interface	388
B.	Opportunities for Maintaining Links with the 'Old' Culture	397
C.	Attention to Preparing for, and Consolidating, Cultural Change	404
D.	Willingness/Keenness To Perform in the 'Public' Domain of the Interface	413
E.	Mode of Using Symbolic Representation	421
F.	Conclusions from Analyses in Chapter 10	437
CHAPTER 11: CONCLUSIONS: ESTABLISHING AND DEVELOPING SOCIALLY EFFECTIVE COMMERCIALISATION INTERFACES		443
A.	Results of the Analysis: Dimensions of Social Behaviour That Influence Interface Effectiveness in Their Own Right	443
B.	Results of the Analysis: Encouragement or Reinforcement Provided for These Dimensions of Social Behaviour	449
C.	The Theoretical Model for Illuminating Contributors to Interface Effectiveness, and for Guiding the Planning, Establishment and Management of Effective Commercialisation Ventures	453
D.	Use of the Model, and Its Implications	460
E.	What the Thesis Has Accomplished	463

## TABLES:

1	Actions To Bring About a More Satisfactory Conflict Balance	75 & 76
2	Summary of Theoretical Perspectives, and Important Dimensions of Social Behaviour Identified from Each Theory, Identified in Chapter 2	96 & 97
3	Driving Forces for Behaviour of People from Each Segment of Social Space, Expected To Manifest Themselves in Commercialisation Interfaces	139 & 140
4	Predicted Influence of Participants' Positions in Social Space, on Each Dimension of Social Behaviour	142 & 143
5	The Framework for the Analysis To Be Carried out in Later Chapters	147 & 148
6	Commercialisation Arrangement Characteristics Predicted To Encourage or Reinforce Dimensions of Social Behaviour Constituting the Analytical Framework	172 & 173
7	The Case Studies' Possession of Each Characteristic	188 to 190
8	The Participants' Positions in Social Space	192
9	Correspondence between Prominence in Each Interface of Dimensions of Social Behaviour, and Changes in Interfaces' Cultural 'Shapes'	195 to 197
10	The Final Form of the Framework for the Analyses To Be Carried out in the Following Five Chapters	199
11	Influence on Interface Effectiveness of Each Dimension of Social Behaviour	444 & 445
12	Two Influential Groups of Dimensions of Social Behaviour Selected from Table 11 on the Basis of Their Mode of Influence on Interface Effectiveness	450
13	Encouragement/Reinforcement of the Dimensions of Social Behaviour in Table 12, by Participants' 'Cultural Baggage' and/or by Arrangement Characteristics	452

## BOXES:

### *Chapter 2:*

Summary of Brown's Arguments on How Excessive or Insufficient Levels of Conflict Affect Interface Cohesion and Effectiveness

### *Chapter 3:*

Cultural Theory's Four Social Environments	133
--	-----

### *Chapter 4:*

The Essential Content Characteristics of Commercialisation Arrangements	170
---	-----

The Essential Form Characteristics of Commercialisation Arrangements	171
--	-----

### *Chapter 5:*

Summary of Main Directions of Development of DUNLENA	179
--	-----

Summary of Main Directions of Development of MMP	182
--	-----

Summary of Main Directions of Development of I <sup>2</sup>	184
---	-----

Summary of Main Directions of Development of SIROSCOUR	186
--	-----

### *Chapter 6:*

The Study's Fundamental Research Questions	201
--	-----

### *Chapter 8:*

Separate Conflicts in the MMP Interface	308
---	-----

Separate Conflicts in the SIROSCOUR Interface	308
---	-----

Separate Conflicts in the DUNLENA Interface	309
---	-----

Separate Conflicts in the I <sup>2</sup> Interface	309
--	-----

Founding Principles of the MMP Interface	333
--	-----

Founding Principles of the I <sup>2</sup> Interface	333
---	-----

Founding Principles of the DUNLENA Interface	334
--	-----

Founding Principles of the SIROSCOUR Interface	334
--	-----

### **FIGURES:**

Figure 1: The Indicative Form of the Theoretical Model: Social Influences on Effectiveness of Commercialisation Interfaces	458
--	-----

Figure 2: The General Form of the Theoretical Model: Social Influences on Effectiveness of Commercialisation Interfaces [Figure 2 is reproduced on page 39, in chapter 1]	459
---	-----

# VOLUME 2:

## THE CASE STUDIES, BIBLIOGRAPHY & APPENDICES

### THE CASE STUDIES:

DUNLENA	2
MMP	19
I <sup>2</sup>	41
SIROSCOUR	55

BIBLIOGRAPHY	73
--------------	----

### APPENDICES (showing first substantive reference to each):

1	Behaviour Predicted by Cultural Theory To Be Important in Commercialisation Interfaces	Section F, chapter 3	89
2	Predictions from Cultural Theory, on the Influence of Participants' Culturally-Acquired Values, Norms, Attitudes and Preferences, on Individual Dimensions of Social Behaviour	Section F, chapter 3	104
3	Identifying the Case Studies To Be Investigated	Section B, chapter 4	116
3(A)	The Different Forms of Commercialisation Arrangements Used by CSIRO	Appendix 3	121
4	Methodology for Collecting Data	Section B, chapter 4	124
4(A)	Sample of Letters of Introduction To Senior CSIRO and SIROTECH Managers	Appendix 4	132
4(B)	Comprehensive List of Potential Areas for Interviews To Cover	Appendix 4	135
5	Interfaces' Cultural 'Shapes', and the Patterns of Communication, Understanding, Collaboration and Commitment Associated with Each	Section C, chapter 4	138
6	The Fundamentally Different Ways in Which Commercialisation of Technology Generated Through Publicly-Funded Research Can Come About	Section D, chapter 4	147
7	The Main Characteristics of the Commercialisation Arrangements in the Case Studies	Section B, chapter 5	149

8	Individuals' and Groups' Positions in Social Space	Section B, chapter 5	155
9	Changes in Each Interface's Cultural 'Shape' over Time	Section B, chapter 5	183
10	The Prominence of Each Dimension of Social Behaviour in Each Interface	Section B, chapter 5	197
11	Description of Each Conflict Identified in Each Interface, and Its Significance in the Interface	Section A, chapter 8	233
12	The Various 'Founding Principles' Assessed As Having Been Fundamentally Threatened by the Five 'Founding Principles' Conflicts	Section E, chapter 8	238
13	Degree of Cultural Shock Apparently Experienced in the DUNLENA, MMP and SIROSCOUR Interfaces	Section E, chapter 10	240
14	Benefits for Interface Management, from Widespread Use of the Model	Section D, chapter 11	242

## ABSTRACT

The *commercialisation* process through which industry uses technology from publicly-funded research laboratories, involves a laboratory and one or more companies establishing a *commercialisation interface*. This brings together the sometimes conflicting research and business cultures.

Although commercialisation is ultimately a social process, studies of commercialisation interfaces have often focused more on the contractual, administrative or economic structures set up to manage them, than on the social and intercultural dynamics that create and sustain them. So previous research has largely left unanswered the questions that drive this thesis:

- \* How does the social structure of the laboratory-company interface emerge and endure?
- \* What behaviour contributes to the interface's social effectiveness?

The study draws on theories on intergroup contact, trust, conflict, power, ethnic adaptation, organisational adaptation and symbolic representation, to identify *dimensions of social behaviour* likely to influence the status of the commercialisation interface. These dimensions provide an analytical framework for investigating what makes commercialisation interfaces effective. The framework is applied to analyse commercialisation case studies and to formulate a theoretical model which helps explain the social/intercultural basis of commercialisation.

The analysis reveals that different dimensions of behaviour influence the social effectiveness of interfaces not only to different degrees, but also in fundamentally different ways.

The impact on interface effectiveness of several influential dimensions of social behaviour was encouraged or reinforced by *the contexts* of the interfaces in the case studies: their historical, cultural context and/or their contemporary, structural context. Other influential dimensions were largely unaffected by the interfaces' contexts. Behaviour's *source of influence* on interface effectiveness is therefore important.

The dimensions of social behaviour were found also to have different *modes of influence* on interface effectiveness. Some dimensions affected the way participants approached their forthcoming involvement in the interface (an '*individual*' mode of influence). Other dimensions had a '*collective*' mode of influence; here the behaviour was tightly bound up with the collective activity of both partners and their representatives within the interface itself, as that small group set about its tasks.

The importance of these channels through which behaviour actually gains its influence on interface effectiveness suggests that the interpretation and management of social behaviour in commercialisation must focus on the interplay between behaviour's mode and source of influence. The thesis argues that this interaction is crucial in generating the interface's social/intercultural dynamics. The interface is very much the product of social adaptation: adaptation of individuals to social forces generated in the interface itself and elsewhere, and adaptation of the interface as a small group to cultural and other forces. The thesis shows that these processes of adaptation can readily be understood in terms of the interplay of behaviour's mode and source of influence.

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Working away from the University meant that I relied on library resources in my home town, Canberra: in particular the libraries of the Australian National University. Access to these resources was important.

Of course key inputs were made by the CSIRO, SIROTECH, company and other people I interviewed. These people were free with both their time and their personal thoughts on the various commercialisation ventures: often at some potential inconvenience, embarrassment or risk.

I received particular assistance and encouragement from the contacts on the respective case studies in CSIRO, who arranged use of the ventures, the interviews, and access to written - sometimes sensitive - file material.

Assistance from all these people made identifying, setting up and investigating the case studies simpler than I had expected.

An important part of the knowledge-base upon which the thesis built came from my professional experience over the 1970s, 80s and early 90s: mainly in CSIRO. Over this period, far too many people to name gave me guidance, ideas and stimulation. They are hereby thanked.

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