

CONTENTS

PLENARY PAPERS

Systems Science - Addressing Global Issues	1
David Smith	
Systems Science	7
Peter Checkland	
The Actor as a Perfect Citizen	11
Gerard de Zeeuw	
Information Systems and Systems Science	19
Frank Stowell	
Engineering Systems	25
Malcolm K. Crowe	
Giving Requisite Variety to Strategy and Information Systems	33
Raul Espejo	
United Kingdom Higher Education - A Systems Failure?	41
Geoff Peters and Joyce Fortune	
Systems Practitioners: Facilitators of the Bringing - Forth of Social Systems	47
Michael C. Jackson	
A Theoretical Framework for an Interpretive-Systemic Study of Public Health Services in Venezuela	53
Ramsés Fuenmayor	

BUSINESS SYSTEMS

Introduction	65
Colin van Orton	

Metagame Analysis as a Tool for Longitudinal Analysis of Multi-Actorial Decision Processes	67
Andrea Debernardi	

Cultural Contradictions Impeding Global Competitiveness of American High-Technology Firms	73
David B. Keever	

Systems Methodologies and Enabling Technologies: A Role for Group Support Systems?	79
Judy McKay and Peter Marshall	

The Evaluation of IT Investment	85
Annet Nottingham	

Heuristic Methods as an Instrument to Develop a Manager	91
Kazimierz Perekhuda and Wojciech Cieslinski	

Suprahuman Systems and Management: Steering in Jeopardy?	97
Fenton F. Robb	

Using an Organisation Wide Consultation Approach for the Creation of Information and Information Technology Strategies	103
Alan Warr	

COMPLEX SYSTEMS

Introduction	109
Richard Beeby	

Systems Synthesis	111
Peter Dunderdale	

Mapping Conceptual Models on to the Real World	117
Frank H. Gregory	

Systems Modelling with Natural Language and Fuzzy Logic	123
J. Korn, F. Huss and J. Cumbers	

CRITICAL SYSTEMS

Introduction	129
Frank Stowell	

Practising Freedom	131
Robert L. Flood	

Ecology and Evaluation: The Macro-Quality Perspective	137
Amanda Gregory	

'Non-Traditional' Logistics - A Step Forward?	143
Bridget Mears-Young	

Critical Systems Thinking, Post-Modernism and the Philosophy of Richard Rorty	149
M.W.J. Spaul	

CYBERNETICS

Introduction	155
Richard Beeby	
Nonlinear Dynamics and Fire Risk Assessment	157
Alan Beard, Dougal Drysdale, Paul Holborn and Steven Bishop	
A Cybernetic View of Quality Management	163
Diane Bowling	
Innofusion: Feedback in the Innovation Process	169
James Fleck	
Organizational Cybernetics	175
Arnulf Hauan and Jon Arild Johannessen	
Moving Management Around the Organisation or How to Make Jobs for the Boys	181
Simon Lilley	
Cybernetics & the Social: Conversations with Unspeakable Machines	187
Rolland Munro	
Linking SSM with VSM for Information System Management	193
Graham Paton	
Cybernetics in Management	199
Angus J. Quin	
A Workshop Methodology Based on the "Viable System Model" of Stafford Beer	205
M. Haynes and N.D. Stewart	

EDUCATIONAL SYSTEMS

Introduction	211
A.N. Hutchison	
Reading as a Complex Phenomenon	213
E. Andreevsky, F. Cochu, C. Parisse and D. Orsoni-Maillard	

Design of Vocational Education Systems: A Systems Science Contribution to the "Competences" Debates	217
Sylvia Brown	
Designing an MBA Curriculum for Information Systems Managers: An Analysis of Contextual Factors	223
Sadri Gilani and Paul Northcott	
Theseus - A Model for Global Connectivity	229
Roger J. Harnden and Roy Stringer	
Problem-Solving Skills within the Curriculum: A Case for a "Softer" Approach	235
Brian Hopkins	
Creativity and Science Ecology of Mind: The Future Sight of Science has Begun	241
Paolo Manzelli	
Sport Training as an Open System	245
Kazimierz Perekhuda and Wojciech Cieslinski	
Introducing Systems Thinking into Mathematics Learning	251
Neil Pitcher	
Systems Education: Is There a Mass Delivery Approach?	257
John Robson and Graham Paton	
Computer-Based Methods of Knowledge Acquisition and Elicitation in Terms of the Subjective Representations and Teaching of Complex Domains	263
Mark H. Stansfield	
Developments in the Automation of SSM Tutorials Using Multimedia Technology	269
Frank Stowell, Daune West and Valerie Javelaud	
ENVIRONMENTAL SYSTEMS, SOCIAL SYSTEMS, AND HEALTH SYSTEMS	
Introduction	275
Frank Stowell	
Systems Science and the Alternatives to the Changes of Soil in Areas of Traditional Agriculture	277
A.J. Hernández, C. Jiménez and J. Pastor	
A Systems Approach to Environmental Management	283
Margi Levy and Michael Synnott	
A Systems Approach to Social Innovation	289
Gerard Fairtlough	

Automation Technology as a Human Tool for Accomplishing Human Purposes	295
Elohim J.L. and Eduardo Oliva López	
Health for All and Community Participation	301
Gilbert Mansell and Helen Pearson	
 INFORMATION SYSTEMS	
Introduction	305
Frank Stowell	
On the Incommensurability of Hard and Soft Systems Approaches to Information Systems Provision	307
Richard B. Beeby	
Knowledge Elicitation: First Step Towards Managing Floating Information in Financial Sectors	313
A. Behrooz and G. Roushanbakhti	
Information Requirements: A Systems and Knowledge Based Approach	319
Louis C-Y Cheung and Tony Holden	
They Shoot Werewolves, Don't They?	325
Kevin G. Doyle	
Function-Oriented Data Modelling	331
Jun-Kang Feng	
Conceptual Modelling and DBS/KBS Design	337
Jun-Kang Feng	
The Algorithmic Nature of Problem Solving	343
F.J. Garlick and G.L. Leonard	
Syntax and Semantic Analysis of Mission Statements	349
F.J. Garlick and I.R. Lightfoot	
Sublimating Methodologies: The Fallacy of 'The Right Thing Right'?	355
James Gilligan	
Application-Oriented Tools for Software Development	361
Donald Millington, Edwin Gray and Iain M. Tulloch	
How to Deal with Wicked Problems Using a New Type of Information System	367
Severin Isenmann	
Metaphorical Thinking and Information Systems: The Example of the Mechanistic Metaphor	373
Richard Kamm	

Improving the Impact of Systems Thinking on Information Systems Development	379
M.A.R. Kirby	
Towards a Multimedia Based New Information Concept	385
P. Dagarret, A. Gastambide, M. Larrasquet and J. Meyranx	
Towards an Interpretative Form of Data Analysis for the Soft Systems Methodology	391
P.J. Lewis	
Intelligent Assistance in the Information Systems Design Process	397
Michael Lloyd-Williams	
Information Systems Development Systems: What Gives?	403
Yasmin Merali	
A Strategy of Engagement: Knowledge Elicitation For Augmentative Systems Development	409
Ian M. Neale	
Managing is in Global Companies	415
Richard J. Ormerod	
Kaizen: The Japanese Approach to I.T.	421
Peter Linecar and David Preston	
Interpretive Analytics and Critical Information Systems: A Framework for Analysis	427
Stephen K. Probert	
Software Quality - Can We Really Afford It?	433
Neil Richards	
Accessibility & Utilisation of Organisations Newest Asset: Information	439
Richard Rolfe	
Applying Soft and Hard Systems Approaches to a Technical Problem	445
Margaret Ross and Geoff Staples	
Linguistic Categories in Knowledge Based Systems	451
Robert A. Stephens and John G. Gammack	
Enterprise Design - A Total Systems Approach to Information Systems Development?	457
David C. Sutton	
The Role of Active Information Systems in Creating and Sustaining A Learning Organisation	463
A.J. Walkden and J.R.G. Wood	

User Considerations in Communicating Information Technology Security Requirements	469
Adrian R. Warman	
Resource Object Data Manager: Structured Approach to Systems and Network Management	475
Wita Wojtkowski and W. Gregory Wojtkowski	
Information Systems Development Education: Assumptions and Practice	481
Stanislaw Wrycza and Witold Rybinski	
User Satisfaction as a Measure of Information System Effectiveness	487
James Y.L. Thong, Chee-Sing Yap and K.S. Raman	
Application of Information Technology in Small Business in Slovenia	493
Borut Verber and Jože Zupančič	
End-User Computing Environment: A Case Study	499
Jože Zupančič	
 MANUFACTURING SYSTEMS	
Introduction	505
C. Irgens	
Symbolic Manipulation CAD for Parameterized Families of Systems	507
Octavian Păstrăvanu, Mihail Voicu, Laurențiu Isopescu and Radu Călinescu	
Support Systems for Total Quality	513
Barbara M. Savage	
Production and Information in Systems	519
Bernd Schiemenz	
Systems Design and Concurrent Engineering - An Organisational Perspective	525
Carys Siemieniuch and Murray Sinclair	
 STRATEGIC IS AND SYSTEMS METHODOLOGIES	
Introduction	531
James G. Howell	
Some Areas of Economic Theory Viewed Systemically	533
Tony Brauer	
"Am I Using A Systems Approach?" - A Framework for Response	539
Gordon Dyer	
Experience of Teaching the Systems-Based Methodology of Interactive Management	545
F.R. Janes, R.K. Ellis and K. Hammer	

A Contingency Approach for the Selection of a Research Methodology (RM)	553
Louis Jacques Filion	
Vulnerable Systems, Failure and Disaster	559
Tom Horlick-Jones, Joyce Fortune and Geoff Peters	
The Systems Law of Ordinary People	565
Peter Haine	
New Directions in the Use of Structured Tools in Requirements Engineering at Glasgow Polytechnic	569
Alan Hogarth and Gopal Rao	
Towards the Case for More Deliberate Strategic IS	575
J.G. Howell	
Macrame, A Tool to Support the Analyst in Organization	581
Maria Franca Norese	
Business and Academic Collaboration in a Systems Project	587
Keith Sawyer and Colin van Orton	
Integrating Scientific Disciplines: An Evergreen Challenge to Systems Science	593
Olav Solem	
A Surprising Union? - Soft Systems Analysis and Sociometry	599
Roger W. Stewart	
Organisations Without "System": Working with Holons Against Universality?	605
Julie Travis and Duane Truex III	
Hermeneutic Approaches to Learning Methodology	611
Heather Watson and Trevor Wood-Harper	
The Changing Role of System Dynamics	617
Eric F. Wolstenholme	
Information Systems in Support of Resource Management in the Community	623
Carys L.Y. Parker, Prokash Chatterjee and Bob Wood	

THEORY AND CONCEPTS

Introduction	629
John Gammack	
Self-Referential Systems Theory: A Discussion of Some Theoretical Developments	631
Michael C. Charlton	

Desirability and Feasibility of Linking 'Soft' Systems Methodology [SSM] with Structured Methodologies	637
Nimal Jayaratna and Brian D'Arcy	
Systems Science: A New Imperialism?	643
David G. Jenkins	
Metaphors as Seen by a Knowledge Elicitor Ali Behrooz and Garry Marshall	649
Author Index	653
Subject Index	657