ARTICLE

SECOND TRACK PROCESSES: A RESEARCH AGENDA

Dr Peter Massingham

Knowledge management expert Dr Peter Massingham proposes a fresh direction for Second Track research in terms of being a unique type of complex adaptive social system tackling complex problem solving. This approach will open new ways to explore and test their operation and demonstrate their practical utility.

INTRODUCTION

This paper proposes a research agenda for second track processes. Second track processes are a unique type of complex adaptive social system that applies second track thinking to solve wickedly complex problems. Second track thinking is a special type of social cognition. It involves principles of international diplomacy and conflict resolution which have been widely practiced as a diplomacy aid by the United Nations, departments of foreign affairs, and international legal firms for peace building, sustainable development, and conciliation. Second track processes creates the ability to negotiate politically, under conditions of uncertainty, and to work effectively in networks and at the boundaries between academia, industry, and policy.[1]

Second track is interested in problems that are too difficult for the rational-scientific approach. Wicked problems are 'social justice and social change problems'[2] that are inherently different from those associated with the industrial age.[3] The difference

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1. K. Crowley and B. Head, The enduring challenge of 'wicked problems': revisiting Rittel and Webber, *Policy Sciences*, no. 50, 2017, p. 540
2. R. Yawson, The 'wicked problem construct' for organisational leadership and development, *International Journal of Business and Systems Research*, vol. 9, no. 1, 2015, p. 68
3. H. Rittel and M. Webber, Dilemmas in general theory of planning, *Policy Sciences*, vol. 4. no. 2, 1973, pp.155-169

is that wicked problems have 'consequences for inequity', and are the result of growing societal awareness of 'pluralism', 'differentiation of values', and 'sensitivity to the waves of repercussions that ripple through' 'interacting open systems'.[4] Wicked problems were originally proposed as a new professional capability.[5] The goal was to 'replace the classical paradigm of science and engineering as a basis for framing social science and modern professionalism'.[6] The research agenda for second track processes is similarly ambitious. Our goal is to transform economic thinking by challenging the prevailing concept of human rationality within the context of solving wickedly complex problems.

There is no existing theory which explains second track processes. There have been only a few studies of second track processes and they focus on diplomacy;[7] international conflict resolution,[8] and peace building.[9] A research agenda is a broad proposal describing a significant research problem and its importance, giving a detailed account of methods that may be used and why they are appropriate.[10] Our research agenda focuses on problem-solving groups as economic agents. Therefore, the research agenda is to develop a new general theory which explains how second track processes work, the knowledge produced, and how this knowledge can generate economic and social value. This paper outlines a research platform to theorise about second track. It adopts a transdisciplinary approach. The author welcomes collaboration from academics, practitioners, and consultants to explore the issues outlined and may be contacted by email.

Why This Research Agenda Matters

Today's business environment is complex. Society has developed a range of processes, methods and tools to deal with complicated tasks. People deal with these tasks according to expectations set by formal organisational structure, culture, job design, and performance appraisal. This has developed consensus about how senior management behave in their formal roles. We know what works for everyday complicated tasks. This is *First Track Processes*. However, the problems faced by today's business leaders are beyond complicated. Major tasks must be tackled in an increasingly uncertain environment, subject to uncontrollable external influences and constant change, against ill-defined and often mutually incompatible stakeholder requirements.[11] Challenges such as national security, the decline of the manufacturing sector, offshoring jobs, the housing affordability crisis, education and training to provide employment for future generations, health care for the aged, improved infrastructure, the national innovation agenda, and community services for the disadvantaged create a wicked range of problems. When business transcends complicated and becomes truly complex, existing processes are not enough. Doing things the way they have always been done will produce the same outcomes: projects that run over time, over budget, and fail to deliver expected results.[12]

The research agenda will have important implications for policy and practice. At a policy level, the Australian Government's National Innovation and Science Agenda (NISA) identified innovation as critical to Australia's future. Australia, like many

4. Rittel and Webber, p. 156
5. Rittel and Webber
6. K. Crowley and B. Head, The enduring challenge, 2017, p. 541
7. E. Çuhadar and B. Dayton, Oslo and Its Aftermath: Lessons Learned from Track Two Diplomacy, *Negotiation Journal*, vol. 28, no. 2, 2012, pp 155-179
8. M. Weissmann, The South China Sea Conflict and Sino-Asean Relations: A study in conflict resolution and peace building, *Asian Perspective*, vol. 34, no. 3, 2010, pp 35-69
9. T. Fort and C. Schipani, An Action Plan for the Role of Business in Fostering Peace, *American Business Law Journal*, vol. 44, no. 2, 2007, pp 359-377
10. W. Neuman, Social Research Methods – Qualitative and Quantitative Approaches, 6th Edition, Boston MA., Pearson, 2006, p. 502
11. www.iccpm.com, Complex Project Management: Global Perspectives and the Strategic Agenda to 2025, *International Centre for Complex Project Management*, 2016, p. 3.
12. www.iccpm.com

countries, has seen a recent slump in productivity growth. If productivity growth is not revitalised, Australia risks a prolonged period of stagnation. The Australian Innovation, Science and Research System requires six categories of enablers that facilitate innovation activities: policy, money, infrastructure, skills, networks, and culture.[13] The 2016 Innovation and Science Australia (ISA) report identified that of the three innovation activities – knowledge creation, knowledge transfer, and knowledge application – knowledge transfer is the least funded and researched area.[14]

At a practical level, the research agenda can directly improve the networks enabler within a national innovation system. This will require improved knowledge transfer, particularly between academia, practitioners, and consulting. The performance scorecard for Australia's innovation system reported that only 1.22% of publications have industry affiliated co-authors, which ranked at 27 out of 38 OECD[15] countries.[16] The ISA report explains why Australia's networks enabler is performing unsatisfactorily:

> Networks: There is substantial evidence that Australia is poor at translating and commercialising its strong research base. International data suggests that collaboration between the research and business community is weak, and mobility of people between academic and business careers is low. Changes are underway, with governments, research organisations and businesses increasingly looking to more formalised models and roles to facilitate relationships and collaboration.[17]

The accelerating pace of technological change is causing structural shifts in key industry sectors and employment patterns. Long-term trends, such as the ageing of the population and changes in the climate, present complex challenges that communities will have to solve together.[18] The complexity of tasks facing today's leaders is a game changer. It requires management of risk and uncertainty to deliver outcomes which address real-world need, within the context of abrupt and irreversible emergent effects that can escalate rapidly.[19] The consequences for Australia in failing to respond will be increasing failure in policy and program implementation. This level of complexity requires social networks capable of managing complexity work.[20] This research agenda presents an opportunity to deliver a blueprint for Australia and other countries to improve economic performance across multiple industry sectors and policy areas by working together, using second track processes.

TOWARDS A GENERAL THEORY

The research agenda is to develop a general theory of second track processes. This will require theorising from multiple disciplines, including knowledge management, behavioural economics, applied psychology, complexity theory, network analysis, and corporate governance. This theoretical diversity illustrates how no single discipline can explain second track processes. Figure 1 presents a conceptual framework, design, methods and analyses. The research method might begin with an exploratory study using a grounded-theory building approach,[21] which allows the researcher to build on and broaden existing findings and to generate new

13. Innovation and Science Australia (ISA), Performance Review of the Australian Innovation, Science and Research System, Commonwealth of Australia. Canberra, 2016, p. ix
14. ISA, p. ix
15. Organisation for Economic Co-operation and Development
16. ISA, p. xi
17. ISA, p. xiii
18. ISA, p. vi
19. www.iccpm.com, Complex Project, p. 14
20. www.iccpm.com, p. 14
21. A. Strauss and J. Corbin, *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage, 1990

FIGURE 1: General Study Framework

	Managing Complexity	Organisation Theory	Knowledge Sharing	Social Capital	Cognitive Structures	Risk Management	Integrated Reporting	Evidence
THEORY								
RESEARCH QUESTIONS	RQ1: What are the underlying attitudes and assumptions about first track processes? Are they broken? If so, why?	RQ2: What are the structural dimensions of second track processes? How are second track processes coordinated?	RQ3: What are the behavioural processes of second track processes? How is second track managed in terms of cooperation?	RQ4: What are the interaction processes associated with second track processes? Why are these effective?	RQ5: What are the cognitive processes associated with second track processes? Why are these effective?	RQ6: What are the decision-making processes associated with second track processes? Why are these effective?	RQ7: How can we measure the value of second track processes?	RQ8: How can we demonstrate the value of second track processes?
JUSTIFICATION	Constraints posed by formal leadership roles	Integrating mechanisms for loosely coupled social systems	Difficulty in sharing tacit knowledge	Creating social capital in loosely coupled systems	Need for cognition-based perspective	Weaknesses of traditional risk management, i.e. decision tree models	Difficulty in measuring hybrid economic and social value	Difficulty in measuring the problem solving capacity of a general theory
CONTRIBUTION	How second track processes may provide decision makers with complementary knowledge resources	Advance the knowledge-based view of the firm (KBV) by addressing the coordination problem of loosely coupled complex social systems	Advance the knowledge-based view of the firm (KBV) by addressing the cooperation problem of loosely coupled complex social systems	Examine how structural holes, i.e., loose ties, create social capital and what this is	Examine how social identity may motivate an individual to use their interpersonal cognitive complexity to help the group coordination or not	Examine how second track processes enable objectivity and cognitive clarity in risk management associated with managing complex tasks	Measure the value of second track process knowledge in the six capital areas of the IR framework	Develop a methodology for evaluating the outcomes of complex task problem solving
METHOD	Delphi Survey	Delphi Survey	Focus Groups	Focus Groups	Face-to-face Depth Interviews	Delphi Survey	Delphi Survey	Content Analysis

theoretical insights in under-researched fields, such as those covered by second track processes. The grounded theory approach will allow the theory to emerge from the research activities surrounding each of the research questions.

Figure 1 explains the overarching organising frame of the proposed research agenda, and how each part of the new general theory of second track processes may emerge from evidence. The theory may emerge from the research activities outlined below in the discussion of the research questions. These might include Delphi surveys, focus groups, face-to-face interviews, and analysis of the work produced by second track processes. Construct validity, internal validity, external validity and reliability may be addressed according to Yin's (2014) criteria.[22] Construct validity may be achieved by triangulating data using multiple research sources,[23] e.g., surveys, focus groups, and face-to-face interviews, as well as content analysis of considerable secondary data (reports). Internal validity may be achieved through the process of theory building; by explaining why the research question is significant, i.e., crucial for organisations and/or theory, and why there is no existing theory that offers a feasible answer.[24] The internal validity may also be provided by working with those who practice second track processes, such as Global Access Partners, to build rapport and develop trust, prolonged engagement and peer debriefing[25]. For reliability, the research might use theoretical pluralism to create a more nuanced and complete perspective of second track processes

in practice. Further evidence of reliability may be found by demonstrating how second track processes have made a significant impact on Australia's social, economic, and political environment. Next the development of the conceptual framework is shown, as well as how it is integrated, and appropriate to the aims of the research agenda.

Managing Complexity

As business and society becomes more complex, it is debatable whether management scholarship has kept pace with this new reality[26]. This leads to the first research question: **RQ1: What are the underlying attitudes and assumptions about first track processes? Are they broken? If so, why?** The justification for exploring this question inductively is the constraints posed by formal leadership roles. Research in this area has focused on strategic leadership,[27] crisis management,[28] and risk management.[29] This previous research looks mainly at cognitive capabilities including anticipation, decision making, flexibility, and issue framing, as well as the ability to work with others. However, there are constraints. Behavioural economics theory explains that complexity has created a number of biases associated with managerial decision-making in the private sector including overconfidence bias and disjunctive bias[30] which tend to underestimate the probability of failure and create 'a conspiracy of optimism' illustrated by reluctance to share bad news. In the public sector, policy makers must consider how all affected parties might respond. Multiple stakeholders, with often conflicting

22. R.K. Yin, *Case Study Research: Design and Methods*, SAGE, Los Angeles, 2014

23. Yin, Case Study Research, pp. 120-122.

24. K. Eisenhardt and M. Graebner, Theory building from cases: opportunities and challenges, *Academy of Management Journal*, vol. 50, no. 1, 2007, pp. 25-32.

25. Yin, Case Study Research, pp. 110-1.

26. J. James, L. Wooten and K. Dushek, Crisis Management: Informing a New Leadership Research Agenda, *The Academy of Management Annals*, vol. 5, no. 1, 2011, pp. 455-493

27. R. Ireland and M. Hitt, Achieving and maintaining strategic competitiveness in the 21st century: The role of strategic leadership, *Academy of Management Executive*, vol. 19, no. 4, 2005, pp. 63-77

28. J. James, L. Wooten and K. Dushek, Crisis Management, 2011

29. P. Massingham, Knowledge risk management: a framework, Journal of Knowledge Management, vol. 14, no. 3, 2010, pp. 464-485; S. Maguire, and C. Hardy, Organising processes and the construction of risk: a discursive approach, *Academy of Management Journal*, vol. 58, no. 1, 2013, pp. 231-255

30. M. Bazerman and D. Moore, *Judgment in Managerial Decision Making*, 8th ed. John Wiley & Sons, 2013

interests, lead to excessive risk aversion.[31] Decision makers tend to over-compensate for adverse events with low probability but significant consequences,[32] for example, by building too much costly redundancy into project plans. The research agendas' contribution to theory in this area is to identify the constraints associated with formal leadership roles and why they exist. I propose that decision makers faced with complex tasks are constrained by a range of factors that exist due to the nature of their roles. These factors may include policy making which is reactive and ineffective; stakeholder communication limited by the conspiracy of optimism; and behaviours set by formal roles, self-interest, and inadequate key performance indicators. Research might explore these issues and use the results to measure the impact of second track processes, i.e., whether it provides a complementary approach which may help first track decision makers overcome these constraints.

Organisation Theory

Organisation theory has not kept up with the changing nature of developments in organisations[33] caused by the knowledge economy.[34] This leads to the second research question: **RQ2: What are the structural dimensions of second track processes? How are second track processes coordinated?** The justification for exploring this question inductively is the need for integrating mechanisms for loosely tied complex social systems.

The increasing complexity of business, society and new technologies has led to numerous new forms of organisation and ways of creating value. These mechanisms of organisation and technology have leveraged combinatorial innovations[35] by creating new spaces for value creation, new ways of serving customers, and entirely new products, e.g., Uber's disruption of the taxi industry.[36] Such disruptions radically alter the way value is created in any given industry.[37] The knowledge-based view (KBV) of the firm was proposed to have a long-lasting effect on organisational theory,[38] particularly in the knowledge economy. The KBV identified two types of problems for organisational theory: cooperation (RQ3) and coordination (RQ2). Grant (1997) predicted that the knowledge economy would require new organisational forms to address these problems.[39] The research agendas' contribution to theory in this area is to advance the KBV and design business models which address the coordination problem of loosely coupled complex social systems. Loosely coupled systems 'are "anythings" that may be tied together either weakly or infrequently or slowly or with minimal interdependence'.[40] In problem solving groups, the means may be described 'as "loosely coupled to the end" in the sense that there are alternative pathways to achieve that same end things'.[41] The coordination problem is how to integrate the separate efforts of multiple individuals who may have varying levels of motivation and capacity to interact.[42] The KBV argues that the

31. I. McAuley, Behavioural economics and public policy: some insights, *International Journal of Behavioural Accounting and Finance*, vol. 4, no.1, 2013, pp.18-31

32. P. Massingham, Knowledge risk management

33. R. Grant, Reflections on knowledge-based approaches to the organization of production, *Journal of Management & Governance*, vol. 17, no. 3, 2013, pp. 541-558

34. P. Drucker ,The Coming of the New Organization, Chapter 1 in (1998) Harvard Business Review on Knowledge Management, Harvard Business School Press, Boston, MA, 1988, pp. 1-19; P. Drucker, Knowledge-worker productivity: the biggest challenge, *California Management Review*, vol. 41, no. 2, 1999, pp. 79-94

35. H. Varian, Computer mediated transactions, *The American Economic Review*, vol. 100, no. 2, 2010, pp. 1-10

36. C. Nielsen, M. Lund and P. Thomsen, Killing the balanced scorecard to improve internal disclosure, *Journal of Intellectual Capital*, vol. 18, no. 1, 2017, pp. 45-62

37. C. Christensen and M. Raynor, *The Innovator's Solution: Creating and Sustaining Successful Growth*, Harvard Business Review Press, Boston, MA, 2013

38. R. Grant, The Knowledge-based View of the Firm, Chapter 8 in Choo, Chun Wei; and Bontis, Nick (Editors), *The Strategic Management of Intellectual Capital and Organizational Knowledge*, Oxford University Press, New York, 2002, p. 135.

39. R. Grant, The Knowledge-based View of the Firm: Implications for Management Practice, *Long Range Planning*, vol. 30, no. 3, 1997, pp. 450-454

40. K. Weick,, Educational Organizations as Loosely Coupled Systems, *Administrative Science Quarterly*, vol. 21, no. 1, 1976, p. 5

41. Weick, p. 4

42. R. Grant, 2002, Chapter 8, p. 136

challenges for management are to 'establish the mechanisms by which cooperating individuals can coordinate their activities in order to integrate their knowledge into productive activity'[43] It is a challenge because it requires integrating mechanisms while preserving the efficiencies of specialisation. This means that the scale economies of being an expert must be traded off against the time it takes to engage with others. Research might examine how second track processes provide integrating mechanisms which resolve this trade-off decision. The outcome may be a business model which coordinates loosely coupled complex social systems.

Knowledge Sharing

The management of complex tasks involves tacit knowledge which is difficult to share because it cannot be separated from the knower.[44] This leads to the third research question: **RQ3: What are the behavioural processes of second track processes? How is second track managed in terms of cooperation?** The justification for exploring this question inductively is disagreement about whether tacit knowledge may be separated from the knower. Research in this area may be divided into three themes. The 'conduit' model defines knowledge sharing as the movement of knowledge between entities, which includes individuals, organisational units, or organisations.[45] This perspective on knowledge sharing assumes that knowledge can be separated from the knower. It sees knowledge as an object and that knowledge can also be objective. The conduit model privileges codified knowledge. The 'process' model defines knowledge sharing

in a series of steps representing dyadic exchanges of knowledge between the knower (sender) and learner (receiver).[46] The constructivist model privileges individual knowledge and sees knowledge as subjective and empiricist. Rather than knowledge being an object that is simply transferred from one person's head to another's,[47] it is reconstructed by the learner (receiver) in dialogue with the knower (sender). The constructivist model involves two or more people – knower (sender) and the learner(s) (receiver) actively interacting and reconstructing meaning. Knowledge sharing has been defined as knowledge recreation constructed as a sequential collective action problem.[48] This means that the learner (receiver) recreates the knowledge shared by the knower (sender) in the cognitive process of learning it. The sharing occurs in the interpretation and meaning found, making sense of it, and in the doing process of using the new knowledge. This brings knowledge sharing to the point of knowing in action. The research agendas' contribution to theory in this area is to advance the KBV and design business models which address the cooperation problem of loosely coupled complex social systems. The cooperation problem results from the fact that different organisational members have different goals.[49] There are two areas of focus. The first is how to overcome the problems of sharing tacit knowledge in a loosely coupled system. How do individuals cooperate when there is no formal requirement to interact or share? How is tacit knowledge surfaced when the group does not actually use the knowledge in the act of doing? The second area of focus is how to capture tacit

43. R. Grant, The Knowledge-based View, 1997, p. 452.

44. H. Tsoukas, Do we really understand tacit knowledge? Chapter 21 in M. Easterby-Smith, & M. Lyles (Editors), *Handbook of Organizational Learning and Knowledge Management*, Blackwell Publishing, Hong Kong, 2003, pp 410-427.

45. J. Boudreau, Strategic Knowledge Measurement and Management. In S. Jackson, M. Hitt, and A. Denisi, (eds) *Managing Knowledge for Sustained Competitive Advantage: Designing strategies for effective human resource management*, San Francisco, CA, Jossey-Bass, 2003, pp. 365.

46. G. Szulanski, Exploring Internal Stickiness: Impediments to the transfer of best practice within the firm, *Strategic Management Journal*, 17 (Winter special issue), 1996, 27-43.

47. M. Easterby-Smith and M. Lyles, Watersheds of Organizational Learning and Knowledge Management. Chapter 1 in M. Easterby-Smith, and M. Lyles, (eds) *Handbook of Organizational Learning and Knowledge Management*, Hong Kong, Blackwell, 2003, pp 1-15.

48. G. Von Krogh, Knowledge Sharing and the Communal Resource. Chapter 19 in Easterby-Smith, M. and Lyles, M.A. (eds) *Handbook of Organizational Learning and Knowledge Management*, Hong Kong, Blackwell, 2003, pp. 372–392.

49. R. Grant, 2002, Chapter 8, p. 136

knowledge in a loosely coupled system. In exploring these questions, the three knowledge sharing themes – conduit, process, and constructivist model – may be examined. Particular attention may be paid to the constructivist model. Research in this area has proposed a socially constructed, context-specific representation of the reality of how tacit knowledge is shared within loosely coupled complex social systems.[50] In this way, useful knowledge spreads and remains embedded within multiple social structures.[51] The research agenda suggests examining how second track processes build social structures that can diffuse and embed tacit knowledge within the network itself. The outcome may be a business model which explains cooperation within loosely coupled complex social systems.

Social Capital

The core of the creative economy is based on individual creativity, skill and talent.[52] However, little is known about how groups of people from different organisations and disciplines can work together to create solutions to complex tasks. This leads to the fourth research question: **RQ4: What are the interaction processes associated with second track processes? Why are these effective?** The justification for exploring this question inductively is the difficulty in identifying how social capital is created by loosely coupled complex systems. Social capital is the value of social contacts at work. This value includes power, leadership, mobility, employment, individual performance, individual creativity, entrepreneurship, and team performance.[53] The importance of social capital has been widely acknowledged and demonstrated empirically.[54] There has been limited empirical research about 'how organisations' social capital develops over time, about the factors and processes enabling and constraining its development, and about possible related performance implications'.[55] This suggests we know what social capital is but less about how it is created. At a macro level, the creative economy describes how people generate value from ideas.[56] The creative economy is part of the knowledge economy and is seen as the output of the creative sector, especially for initiating disruptive innovation which provides sustainable competitive advantage.[57] At the micro level, whereas network research describes what is happening with relationships at work, social network analysis (SNA) explains why, and also the consequences. SNA is evolving to include more predictive power including direction of causality, levels of analysis, explanatory goals, and explanatory mechanisms.[58] The research agendas' contribution to theory in this area is to examine how structural holes, i.e., loose ties, create social capital and what this is. Structural holes are gaps within network structure caused by lack of social capital. Structural holes contradict the logic of network research and SNA. Social capital is typically measured by network structure concepts such as centrality (closeness) and cohesion (structural equivalence), i.e., convergence (similarity between actors).[59] The strength of ties[60] is seen as

50. J. Swan and H. Scarbrough, The politics of networked innovation, *Human Relations*, vol. 58, no. 7, 2005, pp. 913-943

51. Swan and Scarbrough

52. D. White, A. Gunasekaran and M. Roy, Performance measures and metrics for the creative economy, *Benchmarking: An International Journal*, vol. 21, no. 1, 2014, pp. 46-61

53. S. Borgatti and P. Foster, The Network Paradigm in Organizational Research: A Review and Typology, *Journal of Management*, vol. 29, no 6, 2003, pp. 991-1013

54. I. Maurer and M. Ebers, Dynamics of Social Capital and Their Performance Implications: Lessons from Biotechnology Start-ups, *Administrative Science Quarterly*, 51, 2006, pp. 262-292

55. Maurer and Ebers, p. 262.

56. J. Howkins, *The Creative Economy*, Penguin, London, 2002

57. D. White, A. Gunasekaran and M. Roy, Performance measures

58. Borgatti and Foster, The Network Paradigm

59. J. Galaskiewicz and R. Burt, , Interorganization contagion in corporate philanthropy, *Administrative Science Quarterly*, vol. 36, no. 1, 1991, pp. 88-105

60. M. Granovetter, The strength of weak ties, *American Journal of Sociology*, vol. 78, no. 6,1973, pp. 1360-1380

a positive indicator of social capital based on the motivational processes of social exchange theory and the norm of reciprocity.[61] Weak ties, on the other hand, might be considered as a negative outcome of social relations, i.e., the opposite of strong ties, characterised by mistrust and lack of respect; a problem to be overcome. Second track processes' loosely coupled systems should, therefore, have poor social capital performance. However, I propose that second track processes are very effective both in terms of how they generate social capital and the value of the knowledge this produces. This suggests that second track processes provide participants the opportunity to interact in ways otherwise unavailable and to combine to create new knowledge that is otherwise impossible. This enables the testing of Granovetter's proposition that weak ties may create opportunities for improved network performance through structural holes.[62] Structural holes create need to coordinate with each other to help build ego, i.e., activity or popularity, which is a positive outcome because individuals need to make the effort to build new relationships.[63] This effort increases heterogeneity in the network, i.e., diversity of views, and tolerance of different perspectives, which produces higher levels of creativity. The outcome may be a framework enabling social capital to be generated within loosely coupled complex social systems.

Cognitive Structures

Previous research on inter-organisational cooperation[64] tends to emphasise the relationships between breadth of functional experience and coordination, i.e., synergy.[65] The research agenda adopts the cognition-based perspective provided by personal construct theory and social identity theory.[66] This leads to the fifth research question:

RQ5: What are the cognitive processes associated with second track processes? Why are these effective? The justification for exploring this question inductively is the need for a richer theoretical account of loosely coupled social networks as complex adaptive systems[67] from a cognition-based perspective. Personal construct theory is a proven approach toward understanding individuals' thinking.[68] It explains that individuals utilise cognitive structures, i.e., personal constructs, to make sense of their environment.[69] It is useful for understanding cognition within complex systems such as second track processes because research has shown that new environments may stimulate the development of new cognitive structures.[70] Interpersonal cognitive complexity is an important foundation for individuals' social behaviour.[71] It generates two benefits for individuals: (1) socio-cognitive capacity functions as a cognitive lens through which people interpret social situations and make inferences about others,[72] and (2) it enables an individual to better deal with

61. P. Blau, *Exchange and Power in Social Life, Wiley*, New York, 1964

62. Granovetter, The strength of weak ties

63. J. Coleman, Social capital in the creation of human capital, *American Journal of Sociology*, 94 (supplement): S95-S120, 1988

64. J. Martin and K. Eisenhardt Rewiring: Cross-Business Unit Collaborations in Multibusiness Organizations, *Academy of Management Journal*, vol. 53, no. 2, 2010, pp. 265-301

65. A. Joshi, N. Pandey and G. Han, Bracketing team boundary spanning: An examination of task-based, team-level, and contextual antecedents, *Journal of Organizational Behavior*, 30, 2009, pp. 731-759

66. T. De Vries et al., Antecedents of individuals; inter-team coordination: broad functional experiences as a mixed blessing? *Academy of Management Journal*, vol. 57, no. 5, 2014, pp. 1334-1359

67. 67. K. Eisenhardt and J. Martin, Dynamic capabilities: What are they? *Strategic Management Journal*, no. 21, 2000, pp. 1105-1121

68. B. Walker and D. Winter , The elaboration of personal construct psychology, *Annual Review of Psychology*, no. 58, 2007, 453-477

69. G. Kelly, *The psychology of personal constructs*, New York, NY: W. W. Norton, 1955

70. M. Buckenham, Socialization and personal change: A personal construct psychology approach, *Journal of Advanced Nursing*, no. 28, 1998, pp. 874-881

71. Kelly, *Personal constructs*

72. B. Burleson and S. Caplan, Cognitive complexity. In J. McCroskey, J. Daly, M. Martin & M. Beatty (Eds.), *Communication and personality: Trait perspectives*: 233-286. Cresskill, NJ: Hampton Press, 1998

between-organisation situations, and, thus, influence the potential for coordination.[73] Social identity theory is a well-accepted theoretical perspective on intergroup relations.[74] Social identity theory explains motivational factors which influence social behaviours not explained by personal construct theory's cognitive focus.[75] Therefore, social identity theory may complement personal construct theory. Individuals' self-definition of who they are is influenced by their membership of social groups; and the importance of a group for an individual's identity is reflected in their identification with that group.[76] The more the individual identifies with the group, the more likely they are to work hard to achieve success for the group. Researchers were surprised to find that self-interest promotes, not impedes, collaboration in loosely coupled complex systems.[77] This suggests that individuals with strong interpersonal cognitive complexity skills may seek to build strong social identity with these groups by self-promotion. The research agendas' contribution to theory in this area is to examine how social identity may motivate an individual to use their interpersonal cognitive complexity to help the group coordination or not. Personal construct theory identifies cognitively complex individuals as developing the capacity to use a range of interpersonal constructs to reconcile incompatible goals and expectations between group members with different organisational membership.[78] However, it does not explain whether individuals will use this capability.[79] Research has argued that individuals may choose

to use their interpersonal cognitive complexity for a range of reasons or not at all.[80] Therefore, social behaviours caused by interpersonal cognitive complexity cannot be explained by personal construct theory alone. The outcome may be to determine whether second track processes create new interpersonal cognitive complexity capability and social identity which are used by individuals to help group coordination.

Risk Management

The increasing complexity of tasks is widening the gap between what first track processes can deal with and what is needed. The research agenda may focus on the risks posed by this gap. This leads to the sixth research question: **RQ6: What are the decision-making processes associated with second track processes? Why are these effective?** The justification for exploring this question inductively is the weaknesses of traditional risk management, i.e., decision tree models. Risk is typically defined as 'the potential for realisation of unwanted, adverse consequences to human life, health, property, or the environment'.[81] Risk management is now a well-developed scientific discipline, particularly in the natural sciences, engineering, and medicine.[82] There are well-established systems where risks are conceptualised, measured, and assessed. These systems have focused on risk analysis, from which an established set of practices for assessing, managing, and communicating risks has emerged.[83] This has contributed to risk management by enabling 'better

73. D. O'Keefe and H. Sypher, Cognitive complexity measures and the relationship of cognitive complexity to communication, *Human Communication Research*, no. 8, 1981, pp. 72-92

74. A. Richter et al., Boundary spanners' identification, intergroup contact, and effective intergroup relations, *Academy of Management Journal*, no. 49, 2006, pp. 1252-1269

75. N. Ellemers, D. de Gilder and S. Haslam, Motivating individuals and groups at work: A social identity perspective on leader and group performance, *Academy of Management Review*, no. 29, 2004, pp. 459-478

76. J. Dutton, J. Dukerich and C. Harquail, Organizational images and member identification, *Administrative Science Quarterly*, no. 39, 1994, pp. 239-263

77. Martin and Eisenhardt, Rewiring: Cross-Business Unit Collaborations

78. De Vries et al., Antecedents of individuals

79. B. Burleson and W. Denton, The relationship between communication skill and marital satisfaction: Some moderating effects, *Journal of Marriage and the Family*, no. 59, 1997, pp. 884-902

80. Burleson and Caplan, Cognitive complexity

81. Maguire and Hardy, construction of risk, p. 231

82. Maguire and Hardy

83. Maguire and Hardy

informed, more consistent, and more accountable' risk decisions.[84] Organisational risk management has typically been grounded in classical decision theory, where risk at a macro level is regarded as reflecting variation in the distribution of possible outcomes, their likelihoods, and their subjective values.[85] This approach is based on determining what the risk actually is, predicting the probability and the consequence and outcomes of that risk, deciding what path to take to either avoid or take the risk, and finally, developing and implementing strategies to respond to the risk.[86] However, some researchers argue that the normative approach of decision trees is ineffective due to environmental complexity and individuals' cognitive constraints.[87] The research agendas' contribution to theory in this area is to examine how second track processes enable objectivity and cognitive clarity in risk management associated with managing complex tasks. The conceptualisation of risk management might use two concepts: risk exposure and risk response.[88] This has been proved to address the underlying problems with traditional decision tree models by focusing risk assessment on the knowledge necessary to manage the risk event, rather than the activity.[89] This conceptualisation of risk management identifies the risk event (risk associated with losing knowledge in important activities), the level of exposure (likelihood and consequences of the risk occurring), and the risk response (capacity to fill the gap). The research might examine how second track processes perceive risk and whether this aligns

with the decision tree model or the knowledge risk model. This may assess whether second track processes address the cognitive bias (subjectivity) and complexity (environmental uncertainty) inherent in decision tree models.

Integrated Reporting

Performance measurement and reporting has traditionally been the domain of accounting and financial reporting. However, there is increasing recognition that a new approach is needed which links value creation and performance measurement to contemporary business models.[90] This leads to the seventh research question: **RQ7: How can we measure the value of second track processes?** The justification for exploring this question inductively is the difficulty in measuring the hybrid mission of economic value and social value.[91] The management of complex problems need to create value for stakeholders (i.e., partners) and society at large, as well as for individual clients.[92] Integrated reporting (IR) is a single report which summarises the essential information from all other reporting. It represents an umbrella approach which pulls together the key elements of all other reports, to produce information on which assurance conclusions may be drawn, and following high quality international assurance standards.[93] IR fits with the management of complex tasks due to its systems-thinking perspective, which includes ecosystems, communities and countries.[94] The research agendas' contribution to theory in this area is to measure the

84. H. Kunreuther and P. Slovic, Science, values and risk, *Annals of the American Academy of Political and Social Science*, no. 545, 1996, pp. 116-125

85. J. March and Z. Shapira, Managerial perspectives on risk and risk taking, *Management Science*, vol. 22, no. 11, 1987, pp. 1404-18

86. S. De Zoysa and A. Russell, 'Knowledge-based risk identification in infrastructure projects, *Canadian Journal of Civil Engineering*, vol. 30, no. 3, 2003, pp. 511-22

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90. Nielsen, Lund and Thomsen, Killing the balanced scorecard

91. R. Layton,, There could be more to marketing than you might have thought!', *Australasian Journal of Marketing*, vol. 24, 2016, pp. 2-7

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93. International Federation of Accountants, January 2017, *Enhanced Organizational Reporting Integrated Reporting Key*, IFAC Policy Position 8, p. 1

94. J. Dumay and T. Garanina, Intellectual capital research: a critical examination of the third stage, *Journal of Intellectual Capital*, vol. 14, no. 1, 2013, pp. 10-25

value of second track process knowledge in the six capital areas of the IR framework. The IR framework presents an opportunity to provide nuanced narrative about the knowledge resources produced by second track processes which is interactive (learning) and forward-focused (growth) and has a systems-thinking perspective (cause and effect). The outcome may be a framework for measuring the value of the knowledge resources produced by second track processes.

Evidence

An important measure of research impact is whether the lessons learned can be internalised by practitioners[95] by improving their problem-solving skills and helping them to recognise the various ways to solve problems. The research agenda may design a method for measuring the codified outcomes of second track processes, i.e., its reports. This leads to the eighth research question: **RQ8: How can we demonstrate the value of second track processes?** The justification for exploring this question inductively is the difficulty in measuring the problem-solving capacity of a general theory. Reports may be analysed using content analysis (CA). CA lets a researcher identify the messages and meanings in a source of communication, for example, reports.[96] This can be extended to consider the source (who), encoding (why), channel (how), message (what), recipient (to whom), and the decoding process (to what effect).[97] To further reconstruct the reality of second track processes, critical discourse analysis (CDA, a form of content analysis) may be used to code the meaning in the messages within the text of the reports. CDA aims to uncover the embedded meanings in everyday rhetorical discourses that

point to beliefs, ideologies, and values of a social community[98] (Brummett 2008). Each report might be analysed in terms of (a) goal, (b) task, (c) complexity, (d) stakeholders, (e) second track processes, (f) knowledge resource produced, (g) outcomes against the six IR capitals emerging from RQ7, and (h) evidence of outcomes from the report. The last category – (h) – may include interviews with key people involved in the project and/or the task itself to obtain an expert perspective on the usefulness of the codified knowledge produced, i.e., the report. This might include questions about whether recommendations were implemented, and whether the report complemented first track processes.

CONCLUSION

This paper outlined a research agenda for second track processes. Second track processes represent an exciting opportunity to transform economic thinking by challenging the prevailing concept of human rationality within the context of solving wickedly complex problems. The framework presented in Figure 1 presents eight opportunities for specific research programs. I invite readers to accept this invitation and conduct research in these areas and submit findings to this journal. Our goal is to build global momentum around this research agenda. As our world becomes increasingly complex, our grand challenges require us to work collaboratively in social networks that build capability to solve wickedly complex problems. Second track process can deliver this capability. The research agenda is to understand what second track is and why it works.

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