

**ADVANCING INDUSTRIAL/ ORGANISATIONAL PSYCHOLOGICAL  
SCIENCE BY EMBRACING COMPLEXITY AND MODERNISING METHODS:  
A COMPLEX ADAPTIVE SYSTEMS APPROACH**

Dr Louise Metcalf

Macquarie University and the Australian College of Applied Psychology, Sydney, Australia  
email: [louise.metcalf@acap.edu.au](mailto:louise.metcalf@acap.edu.au)

---

**Abstract**

Many have recognised substantial emerging practice, ethical and structural scientific issues in Industrial and Organisational (I/O) Psychology science, however, few have offered solutions. This paper reviews I/O Psychology alongside the model of physics science to draw out challenges and explore solutions. This develops a new approach to the science, beyond the current over-reliance on simple questionnaire methodology and general systems theory which fails to reflect the dynamic nature of human life. This paper challenges the science to: improve its usefulness, link to social outcomes to improve ethics and explore pressing real world complex problems caused by organisations. In addition, the science is asked to embrace new methodologies including agent-based modelling and complex adaptive systems theory, to both address the structural authenticity of the science and create connections to a wider collection of human behaviour scientists.

**Keywords:** Psychological Science, Complexity, Philosophy of Science, Agent Based Modelling

---

