# Modelling the Strategic Adoption of Open Innovation for Improved Decision-Making

Dr. Stuart MacKinven

University of Strathclyde Department of Management Science







# **Point of departure**

Problem area:

- Widespread interest in open innovation (Hsieh and Tidd, 2012; Cheng and Huizingh, 2014)
- How can managers make sense of this new concept and purposefully use it?

Why area is relevant:

- Industry perspective Innovation role in competitive advantage (Teece et al., 1997) and survival (Drucker, 1994)
- Academic perspective Professionalising open innovation (Gassman et al., 2010)







### Background theory:

- 5<sup>th</sup> Generation innovation process (Rothwell, 1992)
- Stage-Gate process (Cooper 1984, 2008; Gronlund *et al.*, 2010)
- Open innovation (Chesbrough, 2006; Laursen and Salter, 2006; Minshall *et al*, 2010; Bianchi *et al*., 2010; Gassmann *et al*., 2010; Dahlander and Gann, 2010; Lee *et al*., 2010; Rohrbeck, 2010; Enkel *et al*., 2011; West *et al*., 2014)

## Focal theory:

Operational Research Societies

- Dynamic capabilities (Teece, et al., 1997; Teece, 2007; )
- Processes (Bititci et al., 2011)

THE OR SOCIETY

• Maturity (Paulk *et al.*, 1993; Enkel *et al.*, 2011; MacKinven *et al.*, 2013, 2014)



Research methodology and design

- To seek evidence of a strategic and managed approach to open innovation
- Open Innovation Maturity workshops
- Context: Slow clock-speed industry (Oil & Gas)

### Findings

 Engaged in OI activity, but not necessarily due to an objective move towards implementing OI as







#### Model of Strategic Open Innovation Adoption



Theoretical implications:

- How open innovation is different to more 'traditional' forms of innovation management
  - Communication and organisational buy-in
  - Awareness for company's position on innovation
  - Emphasis on objectively leveraging external knowledge through defined search processes
  - Open innovation as a mode of operation
  - Open innovation incorporated into strategy

Managerial implications:

Operational Research Societies

• Open innovation fragmented literature

THE OR SOCIETY

Interest in professionalising OI activities – model a basis for discussion



#### Limitations:

- Model largely developed from theory
- Limited evidence of 'best practice' of OI in Oil and Gas Industry
- Not to be regarded as a definitive model

Future research:

- Managerial feedback on model for refinement
- Researchers involved in industrial design for implementing OI
- Longitudinal study awareness of strategic implementation of OI and impact on organisational performance







### Questions?

Stuart.Mackinven@strath.ac.uk

University of Strathclyde





#### References

Bianchi, M., Cavaliere, A., Chiaroni, D., Frattini, F. and Chiesa, V. (2011) Organisational modes for Open Innovation in the bio-pharmaceutical industry: An exploratory analysis. *Technovation*, **31**, 22-33.

Bititci, U., Ackermann, F., Ates, A., Davies, J., Garengo, P., Gibb, S., MacBryde, J., Mackay, D., Maguire, C., van der Meer, R., Shafti, F., Bourne, M. and Sinaye, F. U. (2011) Managerial processes: business processes that sustain performance. *International Journal of Operations and Production Management*, **31**, 851-891.

Cheng, C. C. J. and Huizingh, E. K. R. E. (2014) When Is Open Innovation Beneficial? The Role of Strategic Orientation. *Journal of Product Innovation Management*, **31**.

Chesbrough, H., Vanhaverbeke, W. and West, J., eds. (2006) *Open Innovation: Researching a New Paradigm*. New York: Oxford University Press.

Cooper, R. G. (2008) Perspective: The Stage-Gate Idea-to-Launch Process - Update, What's New, and NexGen Systems. *Journal of Product Innovation Management*, **25**, 213–232.

Dahlander, L. and Gann, D. M. (2010) How open is innovation? Research Policy, 39, 699-709.

Drucker, P. (1994) Innovation & Entrepreneurship. New York: Harper & Row.

Enkel, E., Bell, J. and Hogenkamp, H. (2011) Open innovation maturity framework. *International Journal of Innovation Management*, **15**, 1161-1189.

Gassmann, O., Enkel, E. and Chesbrough, H. (2010) The future of open innovation. *R&D Management*, **40**, 213-221.

Grönlund, J., Rönnberg Sjödin, D. R. and Frishammar, J. (2010) Open Innovation and the Stage-Gate Process: A Revised Model for New Product Development. *California Management Review*, **52**, 106-131 (Spring).

Hsieh, K.-N. and Tidd, J. (2012) Open versus closed new service development: The influences of project novelty. Technovation, 32, 600-608.

Laursen, K. and Salter, A. J. (2006) Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms. *Strategic Management Journal*, **27**, 131-150.

Lee, S., Park, G., Yoon, B. and Park, J. (2010) Open innovation in SMEs – An intermediated network model. *Research Policy*, **39**, 290-300.

Mortara, L. and Minshall, T. (2011) How do large multinational companies implement open innovation? Technovation, 31, 586-597.

Paulk, M. C., Curtis, B., Chrissis, M. B. and Weber, C. V. (1993) Capability Maturity Model, Version 1.1. Software Engineering Institute, 18-27.

Rohrbeck, R. (2010) Harnessing a network of experts for competitive advantage: Technology scouting in the ICT industry. R&D Management, 40, 169-180.

Rothwell, R. (1992) Successful industrial innovation: critical factors for the 1990s. *R&D Management*, **22**, 221-239.

Teece, D. J. (2007) Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, **28**, 1319–1350.

Teece, D. J., Pisano, G. and Shuen, A. (1997) Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, **18**, 509-**52** West, J., Salter, A., Vanhaverbeke, W. and Chesbrough, H. (2014) Open innovation: The next decade. *Research Policy*, **43**, 805–811.



EURO The Association of European Operational Research Societies



