

# R&D MANAGEMENT

## INNOVATION & BIODIVERSITY

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N. 8.5 – NPD IN AN UNCERTAIN WORLD: EMERGING  
TOOLS, METHODS AND APPROACHES

### TRACK CHAIRS



**CLIO  
DOSI**

UNIVERSITY OF  
BOLOGNA



**GIACOMO  
MARZI**

IMT SCHOOL FOR  
ADVANCED  
STUDIES LUCCA



**PAUL  
TROTT**

UNIVERSITY OF  
PORTSMOUTH

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# NPD in an Uncertain World: Emerging Tools, Methods, and Approaches

*Clio Dosi, Giacomo Marzi, Paul Trott*

## Abstract

New Product Development (NPD) involves navigating uncertainties in technology, market needs, and competition. This conference track will explore cutting-edge tools, methods, and frameworks to support and study NPD in uncertain environments. This session aligns with broader discussions on adaptability, emphasizing agility, resilience, and flexibility as central capabilities in the NPD process amid dynamic environments. Researchers and practitioners will examine the integration of knowledge from diverse sources, including user involvement and supplier engagement, offering new insights for enhancing the NPD process amid dynamic environments. The track aims to foster a deeper understanding of how firms can transform uncertainty into a catalyst for innovation.

## Themes within this track include:

- **Hybrid NPD Process Models:** Combining structured approaches like Stage-Gate with iterative methodologies such as Agile or Design thinking allows firms to adapt quickly to shifting market conditions or emerging technologies while maintaining strategic oversight (Cocchi et al., 2023).
- **Flexible, Adaptable, and Iterative Tools:** The emphasis on adaptable methodologies—such as Agile and Design Thinking—supports firms in real-time adaptation to unforeseen challenges, converting uncertainty into opportunities (Cocchi et al., 2021).
- **NPD and Relations with Uncertainty, the Unknown, and Ambiguity:** Adaptability helps firms manage the challenges of uncertainty, the unknown, and ambiguity. The field has increasingly recognized adaptability as both a strategic capability and an operational necessity, particularly when dealing with rapidly changing environments (Annosi et al., 2020).
- **The Role of AI in NPD:** Artificial Intelligence (AI) is identified as a powerful enabler for NPD, enhancing data-driven insights, predicting market trends, and optimizing design processes. The adaptability literature echoes the value of digital tools in enabling speed and flexibility across the innovation lifecycle (Nambisan et al., 2017).
- **Over Featuring and Its Role with Uncertainty:** Over Featuring (OVF) occurs when products are developed beyond what is required by users, market demand, or the company's resources. This phenomenon is a significant risk factor that can lead to NPD failures due to unnecessary scope creep, overspecification, and feature creep (Marzi, 2022).

## References

- Annosi, M. C., Foss, N., & Martini, A. (2020). When Agile harms learning and innovation: (And what can be done about it). *California Management Review*, 63(1), 61-80.
- Cocchi, N., Dosi, C., & Vignoli, M. (2021). The hybrid model MatrixEnhancing stage-gate with design thinking, lean Startup, and agile. *Research-technology management*, 64(5), 18-30.
- Cocchi, N., Dosi, C., & Vignoli, M. (2023). Stage-Gate Hybridization Beyond Agile: Conceptual Review, Synthesis, and Research Agenda. *IEEE Transactions on Engineering Management*, 71, 6435-6453.
- Marzi, G. (2022). On the nature, origins and outcomes of Over Featuring in the new product development process. *Journal of engineering and technology management*, 64, 101685.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1), 223-238.