

By Benoît Gailly, 17 January 2018

# Foster organizational learning: beyond ideation



**Organizational learning** is about growing the intellectual capital of the firm across its people and teams, mobilizing problem-driven, opportunistic and systematic search behaviors.



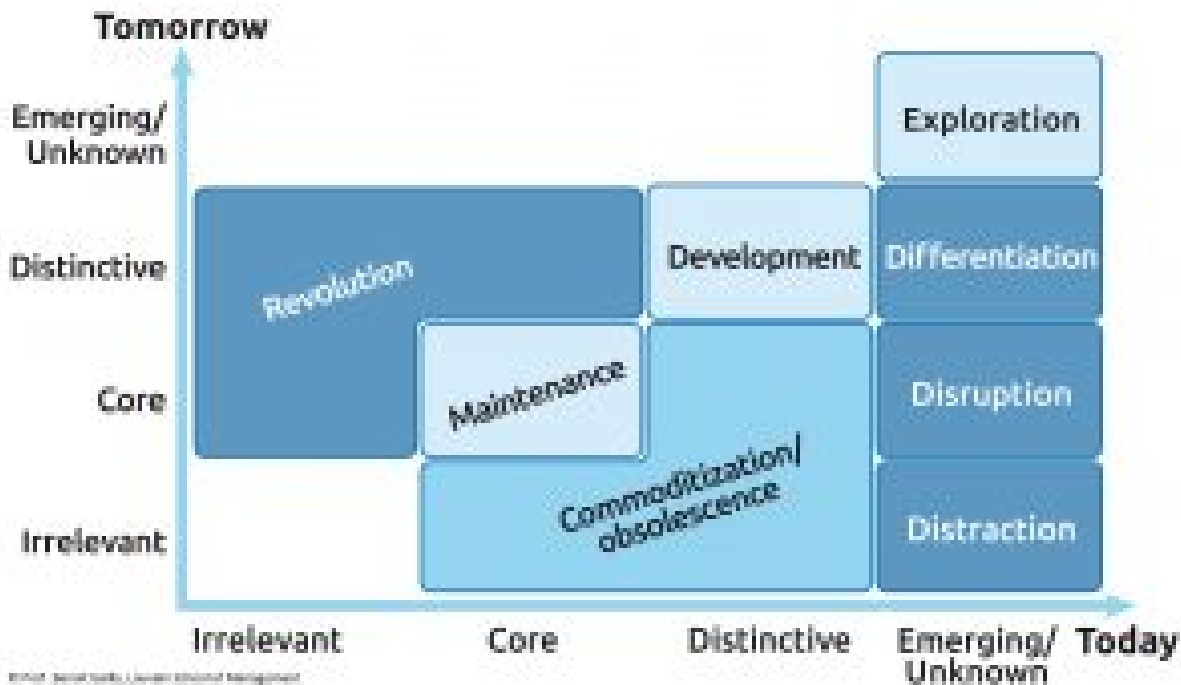
To uncover potential innovation opportunities, organizations and employees need to learn how to

generate ideas by **thinking in new boxes**, challenging their prevailing mental models and “reinventing new wheels”.



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**Employees** can be a rich source of learning and innovation provided that goals and expectations as well as coaching, selection, follow-up and feedback processes are carefully managed. Even in the best organizations most ideas end up being rejected. What matters most is what actually does happen the day after the “ideation” events.



Organizations must continuously develop their technology base - manage R&D operations - but also know when to build **new technology platforms** - deploy an R&D strategy - as formerly irrelevant or emerging knowledge and skills become core or even distinctive.

## Bibliography

### Organizational learning: growing intellectual capital

- (Book) Choo, Chun Wei, and Nick Bontis, eds. [The strategic management of intellectual capital and organizational knowledge](#). Oxford University Press, 2002.
- (Book) Davenport, T. H., Prusak, L. (1998) [Working knowledge: How organizations manage what they know](#). Harvard Business School Press, Boston
- (Book) Greve HR (2003) [Organizational Learning from performance feedback: A behavioral perspective on innovation and change](#); Cambridge University Press, England
- (Book) Stewart, T. (1997). [Intellectual Capital: The New Wealth of Organizations](#). Doubleday/Currency: New York.
- (Video) [How do you define a learning organization?](#) by Peter Senge, Author of The Fifth Discipline
- (Video) [The Importance of Learning in Organizations](#). Harvard Business Review
- (Article) Aloini, D., & Martini, A. (2013). Exploring the exploratory search for innovation: a structural equation modelling test for practices and performance. *International Journal of Technology Management* 11, 61(1), 23-46.
- (Article) Anand, N., Gardner, H. K., & Morris, T. (2007). Knowledge-based innovation: Emergence and embedding of new practice areas in management consulting firms. *Academy of Management Journal*, 50(2), 406-428.
- (Article) Argote, L., & Miron-Spektor, E. (2011). Organizational learning: From experience

- to knowledge. *Organization Science*, 22(5), 1123-1137.
- (Article) Bontis, N. (2001) « Assessing knowledge assets: a review of the models used to measure intellectual capital » *International Journal of Management Reviews*, 3, 1, pp. 41-60
  - (Article) Bradley, S. W., Patel, P. C., McMullen, J. S., & Parida, V. (2011). Searching wide or deep? Absorptive capacity, slack resources and the role of external search in small firm growth. *Frontiers of Entrepreneurship Research*, 31(15), 1.
  - (Article) Bueno, E., Aragón, J. A., Paz Salmador, M., & García, V. J. (2010). Tangible slack versus intangible resources: the influence of technology slack and tacit knowledge on the capability of organisational learning to generate innovation and performance. *International Journal of Technology Management*, 49(4), 314-337.
  - (Article) Coleman, J. (1988). 'Social capital in the creation of human capital'. *American Journal of Sociology*, 94, s95-s120.
  - (Article) Cross, R., Parker, A., Prusak, L., & Borgatti, S. P. (2001). Knowing what we know:- supporting knowledge creation and sharing in social networks. *Organizational Dynamics*, 30(2), 100-120.
  - (Article) Dost, M., Badir, Y. F., Ali, Z., & Tariq, A. (2016). The impact of intellectual capital on innovation generation and adoption. *Journal of Intellectual Capital*, 17(4), 675-695.
  - (Article) Dunne, D. D., & Dougherty, D. (2016). Abductive reasoning: How innovators navigate in the labyrinth of complex product innovation. *Organization Studies*, 37(2), 131-159.
  - (Article) Edmondson, A.C. (2007). The competitive imperative of learning. *Harvard Business Review*, 86(7-8), 60-7.
  - (Article) Garvin, D. A., Edmondson, A. C., & Gino, F. (2008). Is yours a learning organization?. *Harvard Business Review*, 86(3), 109.
  - (Article) Greve, H.R. (2003). A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. *Academy of Management Journal*, 46(6), 685-702.
  - (Article) Greve, H. R. (2018). Where to Search?. In *Behavioral Strategy in Perspective* (pp. 91-100). Emerald Publishing Limited.
  - (Article) Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44(1), 82-111.
  - (Article) Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organization Science*, 13(3), 232-248.
  - (Article) Hansen, M. T., Mors, M. L., & Løvås, B. (2005). Knowledge sharing in organizations: Multiple networks, multiple phases. *Academy of Management Journal*, 48(5), 776-793.
  - (Article) Hitt, M., Bierman, L., Shimizu, K., & Kochhar, 2. (2001). 'Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective'. *Academy of Management Journal*, 44, 13-28.
  - (Article) Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183-1194.
  - (Article) Leoncini, R. (2016). Learning-by failing. An empirical exercise on CIS data. *Research Policy*, 45, 376-386.
  - (Article) Levitt, B., & March, J. G. (1988). Organizational learning. *Annual Review of Sociology*, 14(1), 319-338.

- (Article) Lin, N. (1999). 'Building a Network Theory of Social Capital'. *Connections*, 22, 28-51.
- (Article) Liu, Y., Lv, D., Ying, Y., Arndt, F., & Wei, J. (2018). Improvisation for innovation: The contingent role of resource and structural factors in explaining innovation capability. *Technovation*. 74-75, 32-41
- (Article) March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.
- (Article) Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital and the organizational advantage. *Academy of Management Review*, 23, 242-266.
- (Article) Naldi, L., & Davidsson, P. (2014). Entrepreneurial growth: The role of international knowledge acquisition as moderated by firm age. *Journal of Business Venturing*, 29(5), 687-703.
- (Article) Petty, R., & Guthrie, J. (2000). Intellectual capital literature review: measurement, reporting and management. *Journal of Intellectual Capital*, 1(2), 155-176.
- (Article) Phelps, C., Heidl, R., & Wadhwa, A. (2012). Knowledge, networks, and knowledge networks: A review and research agenda. *Journal of Management*, 38(4), 1115-1166.
- (Article) Saban et al. (2000) 'Organizational learning: A critical component to new product development', *Journal of Product and Brand Management*, 9(2), p.101
- (Article) Schilling, J., & Kluge, A. (2009). Barriers to organizational learning: An integration of theory and research. *International Journal of Management Reviews*, 11(3), 337-360.
- (Article) Schulz, M. (2001). The uncertain relevance of newness: Organizational learning and knowledge flows. *Academy of Management Journal*, 44(4), 661-681.
- (Article) Subramaniam, M., & Youndt, M.A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48(3), 450-463.
- (Article) Titus Jr, V., Parker, O., & Covin, J. (2019). Organizational Aspirations and External Venturing: The Contingency of Entrepreneurial Orientation. *Entrepreneurship Theory and Practice*, 1042258719838473.
- (Article) Uzzi, B., & Lancaster, R. (2003). Relational embeddedness and learning: The case of bank loan managers and their clients. *Management Science*, 49(4), 383-399.
- (Article) Wei, Z., Yi, Y., & Guo, H. (2014). Organizational Learning Ambidexterity, Strategic Flexibility, and New Product Development. *Journal of Product Innovation Management*, 31(4), 832-847.
- (Article) Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44(4), 682-696.

### Idea generation: Thinking in new boxes

- (Book) Amabile, T., & Kramer, S. (2011). [\*The progress principle: Using small wins to ignite joy, engagement, and creativity at work\*](#). Harvard Business Press.
- (Book) Amabile, T.M. (1983). [\*The social psychology of creativity\*](#). New York: Springer-Verlag;
- (Book) Cabane, O. F., & Pollack, J. (2017). [\*The Net and the Butterfly: The Art and Practice of Breakthrough Thinking\*](#). Penguin.
- (Book) Catmull, E. (2008). [\*How Pixar fosters collective creativity\*](#). Boston, MA: Harvard Business School Publishing
- (Book) Fauconnier, G., & Turner, M. (2008). [\*The way we think: Conceptual blending and the\*](#)

- [mind's hidden complexities](#). Basic Books.
- (Book) Gentner, D., & Stevens, A. L. (Eds.). (2014). [Mental models](#). Psychology Press.
  - (Book) Henry, J. (2001). [Creativity and perception in management](#). Sage.
  - (Book) Johnson-Laird, P. N. (1983). [Mental models: Towards a cognitive science of language, inference, and consciousness](#) (No. 6). Harvard University Press.
  - (Book) Kahneman, D. (2011). [Thinking, Fast and Slow](#). New York: Farrar, Straus and Giroux
  - (Book) Kahneman, D., & Tversky, A. (1982). [Judgment under Uncertainty: Heuristics and Biases](#). Cambridge : Cambridge University Press
  - (Book) Kelley, T. [The art of innovation: Lessons in creativity from IDEO, America's leading design firm](#). Vol. 10. Broadway Business, 2001.
  - (Video) [Creative thinking – how to get out of the box and generate ideas: Giovanni Corazza at TEDxRoma](#)
  - (Video) [Creativity in the Workplace](#) – Full – Rich Sheridan – Michigan Engineering MconneX
  - (Video) [Everything is a Remix Part 3](#) de Kirby Ferguson (on Vimeo)
  - (Video) [Innovation as a Learning Process](#) by Roger Shealy (on Vimeo)
  - (Video) TEDxAtlanta – Teresa Amabile – [The Progress Principle](#)
  - (Video) [Thinking outside the box requires a box](#): Michael Bahr at TEDxSUU
  - (Video) TEDTalk by Luc de Brabandere: [Reinventive creative thinking](#) (2015).
  - (Video) [Creative thinking – how to get out of the box and generate ideas](#): Giovanni Corazza at TEDxRoma
  - (Article) Agogué, M., & Le Masson, P. (2015). Rethinking ideation: a cognitive approach of innovation lock-ins. *Academy of Management Proceedings*, 2015(1), 15303.
  - (Article) Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly*, 50(3), 367-403.
  - (Article) Amabile, T. M., & Pratt, M. G. (2016). The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. *Research in Organizational Behavior*, 36, 157-183.
  - (Article) Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, 73(3), 265-285.
  - (Article) Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs “connect the dots” to identify new business opportunities. *Academy of Management Perspectives*, 20(1), 104-119.
  - (Article) Battilana, J., Leca, B., & Boxenbaum, E. (2009). 2 how actors change institutions: towards a theory of institutional entrepreneurship. *Academy of Management Annals*, 3(1), 65-107.
  - (Article) Berg, J. M. (2014). The primal mark: How the beginning shapes the end in the development of creative ideas. *Organizational Behavior and Human Decision Processes*, 125(1), 1-17.
  - (Article) Björk, J., Boccardelli, P., & Magnusson, M. (2010). Ideation capabilities for continuous innovation. *Creativity and Innovation Management*, 19(4), 385-396.
  - (Article) Bledow, R., Rosing, K., & Frese, M. (2013). A dynamic perspective on affect and creativity. *Academy of Management Journal*, 56(2), 432-450.
  - (Article) Bloom, N., Jones, C. I., Van Reenen, J., & Webb, M. (2017). Are ideas getting harder to find? (No. w23782). *National Bureau of Economic Research*.
  - (Article) Capozzi, M. M., Dye, R., & Howe, A. (2011). Sparking creativity in teams: An

- executive's guide. *McKinsey Quarterly*, 2.
- (Article) Chiu, I., & Shu, L. H. (2006). Biomimetic design through natural language analysis to facilitate cross-domain information retrieval. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, 21, 45-59
  - (Article) Dane, E. (2010). Reconsidering the trade-off between expertise and flexibility: A cognitive entrenchment perspective. *Academy of Management Review*, 35(4), 579-603.
  - (Article) Diehl, M., & Stroebe, W. (1987). Productivity loss in brainstorming groups: Toward the solution of a riddle. *Journal of Personality and Social Psychology*, 53(3), 497-509.
  - (Article) Eppler, M. J., Hoffmann, F., & Bresciani, S. (2011). New business models through collaborative idea generation. *International Journal of Innovation Management*, 15(06), 1323-1341.
  - (Article) Feist, G. J. (1998). A meta-analysis of personality in scientific and artistic creativity. *Personality and Social Psychology Review*, 2(4), 290-309.
  - (Article) Fleming, L., & Sorenson, O. (2001). Technology as a complex adaptive system: evidence from patent data. *Research Policy*, 30(7), 1019-1039.
  - (Article) Fong, C. T. (2006). The effects of emotional ambivalence on creativity. *Academy of Management Journal*, 49(5), 1016-1030.
  - (Article) Gassmann, O., & Zeschky, M. (2008). Opening up the solution space: the role of analogical thinking for breakthrough product innovation. *Creativity and Innovation Management*, 17(2), 97-106.
  - (Article) George, J. M. (2007). 9 Creativity in organizations. *The Academy of Management Annals*, 1(1), 439-477.
  - (Article) Gilbert, C. G. (2006). Change in the presence of residual fit: Can competing frames coexist?. *Organization Science*, 17(1), 150-167.
  - (Article) Gioia, D. A., Schultz, M., & Corley, K. G. (2000). Organizational identity, image, and adaptive instability. *Academy of Management Review*, 25(1), 63-81.
  - (Article) Girotra, K., Terwiesch, C., & Ulrich, K. T. (2010). Idea generation and the quality of the best idea. *Management Science*, 56(4), 591-605.
  - (Article) Grant, A. M., & Berry, J. W. (2011). The necessity of others is the mother of invention: Intrinsic and prosocial motivations, perspective taking, and creativity. *Academy of Management Journal*, 54(1), 73-96.
  - (Article) Gruber, M., MacMillan, I. C., & Thompson, J. D. (2013). Escaping the prior knowledge corridor: What shapes the number and variety of market opportunities identified before market entry of technology start-ups?. *Organization Science*, 24(1), 280-300.
  - (Article) Hargadon, A., & Sutton, R. I. (1997). Technology brokering and innovation in a product development firm. *Administrative Science Quarterly*, 716-749.
  - (Article) Hodgkinson, G. P., Bown, N. J., Maule, A. J., Glaister, K. W., & Pearman, A. D. (1999). Breaking the frame: An analysis of strategic cognition and decision making under uncertainty. *Strategic Management Journal*, 977-985.
  - (Article) Jansson, D.G., and Smith, S.M. (1991). Design fixation, *Design Studies*, 12 (1), 3-11.
  - (Article) Jucevicius, G. (2010). Management innovations across domains: challenge to the dichotomy of specialist vs. generalist skills. *Social Sciences*, 69(3), 7-13
  - (Article) Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *The American Economic Review*, 93(5), 1449-1475.
  - (Article) Kaplan, S. (2008). Framing contests: Strategy making under uncertainty.

- Organization Science*, 19(5), 729-752.
- (Article) Kim, K. H. (2006). Can we trust creativity tests? A review of the Torrance Tests of Creative Thinking (TTCT). *Creativity Research Journal*, 18(1), 3-14.
  - (Article) King, L. A., Walker, L. M., & Broyles, S. J. (1996). Creativity and the five-factor model. *Journal of Research in Personality*, 30(2), 189-203.
  - (Article) Leclerc, O., & Moldoveanu, M. (2013). Five routes to more innovative problem solving. *McKinsey Quarterly*, 2013, 1-11.
  - (Article) Liao, S., Fei, W., & Liu, C. (2008). Relationships between knowledge inertia, organizational learning and organizational innovation. *Technovation*, 28, 183-195.
  - (Article) Maguire, S., & Hardy, C. (2009). Discourse and deinstitutionalization: The decline of DDT. *Academy of Management Journal*, 52(1), 148-178.
  - (Article) Malik, M. A. R., & Butt, A. N. (2017). Rewards and Creativity: Past, Present, and Future. *Applied Psychology*, 66(2), 290-325.
  - (Article) Mednick, Sarnoff. "The associative basis of the creative process." *Psychological Review*, 69.3 (1962): 220.
  - (Article) Oldham, G. R., & Da Silva, N. (2015). The impact of digital technology on the generation and implementation of creative ideas in the workplace. *Computers in Human Behavior*, 42, 5-11.
  - (Article) Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *Academy of Management Review*, 28(1), 89-106.
  - (Article) Petruzzelli, A. M., & Savino, T. (2014). Search, recombination, and innovation: Lessons from haute cuisine. *Long Range Planning*, 47(4), 224-238.
  - (Article) Poskela, J., & Martinsuo, M. (2009). Management control and strategic renewal in the front end of innovation. *Journal of Product Innovation Management*, 26(6), 671-684.
  - (Article) Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research Journal*, 24(1), 92-96.
  - (Article) Savino, T., Messeni Petruzzelli, A., & Albino, V. (2017). Search and recombination process to innovate: a review of the empirical evidence and a research agenda. *International Journal of Management Reviews*, 19(1), 54-75.
  - (Article) Sosa, M. E. (2011). Where do creative interactions come from? The role of tie content and social networks. *Organization Science*, 22(1), 1-21.
  - (Article) Tripsas, M., & Gavetti, G. (2000). Capabilities, cognition, and inertia: Evidence from digital imaging. *Strategic Management Journal*, 21(10-11), 1147-1161.
  - (Article) Unsworth, K. (2001). Unpacking creativity. *Academy of Management Review*, 26(2), 289-297.
  - (Article) Ward, T., Patterson, M. J., & Sifonis, C. M. (2004). The role of specificity and abstraction in creative idea generation. *Creativity Research Journal*, 16(1), pp. 1-9.
  - (Article) Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18(2), 293-321.

### Fostering employee-driven innovation

- (Book) Høyrup, S. (2012) [Employee-driven innovation: a new phenomenon, concept and mode of innovation](#). Palgrave Macmillan UK.
- (Book) Patterson, F., Port, R. L., and Hobley, S. (2003) [The Psychology of Innovation and Creativity: A review of research and practice in organisations](#). Chartered Institute



- of Personal Development. ISBN 0-9545861-0-7.
- (Video) [Fostering creativity and innovation in the workplace](#): Jude Reggett at TEDxNorthernSydneyInstitute
  - (Article) Adamczyk, S., Bullinger, A. C., & Möslein, K. M. (2012). Innovation contests: A review, classification and outlook. *Creativity and Innovation Management*, 21(4), 335-360.
  - (Article) Artto, K., Kulvik, I., Poskela, J., & Turkulainen, V. (2011). The integrative role of the project management office in the front end of innovation. *International Journal of Project Management*, 29(4), 408-421.
  - (Article) Bharadwaj, S., & Menon, A. (2000). Making innovation happen in organizations: individual creativity mechanisms, organizational creativity mechanisms or both?. *Journal of Product Innovation Management*, 17(6), 424-434.
  - (Article) Bjelland, O. M., & Wood, R. C. (2008). An inside view of IBM's' Innovation Jam'. *MIT Sloan Management Review*, 50(1), 32.
  - (Article) Bullinger, A. C., Neyer, A. K., Rass, M., & Moeslein, K. M. (2010). Community-based innovation contests: Where competition meets cooperation. *Creativity and Innovation Management*, 19(3), 290-303.
  - (Article) Carrier, C. (1998). Employee creativity and suggestion programs: an empirical study. *Creativity and Innovation Management*, 7(2), 62-72.
  - (Article) Chen, J., Leung, W. S., & Evans, K. P. (2016). Are employee-friendly workplaces conducive to innovation?. *Journal of Corporate Finance*, 40, 61-79.
  - (Article) Cooper, R.G., & Edgett, S. (2008). Ideation for product innovation: What are the best methods?. *PDMA visions magazine*, 1(1), 12-17.
  - (Article) De Spiegelaere, S., G. Van Gyes, G. Van Hootegem (2012) Mainstreaming innovation in Europe- Findings on employee innovation and workplace learning from Belgium, *Lifelong Learning in Europe* 17(4)
  - (Article) Fairbank, J. F., & Williams, S. D. (2001). Motivating creativity and enhancing innovation through employee suggestion system technology. *Creativity and Innovation Management*, 10(2), 68-74.
  - (Article) Gray, P., Parise, S., & Iyer, B. (2011). 'Innovation Impacts of Using Social Bookmarking Systems'. *MIS Quarterly*, 35, 629-643.
  - (Article) Kesting, P., & Parm Ulhøi, J. (2010). Employee-driven innovation: extending the license to foster innovation. *Management Decision*, 48(1), 65-84.
  - (Article) Mainemelis, C. (2010). Stealing fire: Creative deviance in the evolution of new ideas. *Academy of Management Review*, 35(4), 558-578.
  - (Article) Martinez, M. (2015). Solver engagement in knowledge sharing in crowdsourcing communities: Exploring the link to creativity. *Research Policy*, 44, 1419-1430.
  - (Article) Martinsuo, M. (2009). Teaching the fuzzy front end of innovation: experimenting with team learning and cross-organizational integration. *Creativity and Innovation Management*, 18(3), 147-159.
  - (Article) Mumford, M. D. (2000). Managing creative people: Strategies and tactics for innovation. *Human Resource Management Review*, 10(3), 313-351.
  - (Article) Rigtering, J. C., Weitzel, G. U., & Muehlfeld, K. K. (2018). Increasing quantity without compromising quality: How managerial framing affects intrapreneurship. *Journal of Business Venturing*, 34(2), 224-241.
  - (Article) Sandstrom, C., & Bjork, J. (2010). Idea management systems for a changing innovation landscape. *International Journal of Product Development*, 11(3-4), 310-324.

- (Article) Self, D. R., Bandow, D., & Schraeder, M. (2010). Fostering employee innovation: leveraging your “ground level” creative capital. *Development and Learning in Organizations: An International Journal*, 24(4), 17-19.
- (Article) Toubia, O. (2006). Idea generation, creativity, and incentives. *Marketing Science*, 25(5), 411-425.
- (Article) Watanabe, K., Fukuda, K., & Nishimura, T. (2015). A technology-assisted design methodology for employee-driven innovation in services. *Technology Innovation Management Review*, 5(2).

### Developing new technology platforms

- (Book) Kuhn, T. (2014). [What are scientific revolutions?](#) *Philosophy, Science, and History: A Guide and Reader*, 71.
- (Video) [Disruptive Innovation Festival](#) by James Curran (on Vimeo)
- (Video) [Inventing the Impossible](#): Pablos Holman at TEDxUCSD
- (Article) Almeida, P., & Phene, A. (2004). Subsidiaries and knowledge creation: The influence of the MNC and host country on innovation. *Strategic Management Journal*, 25(8-9), 847-864.
- (Article) Argyres, N. S., & Silverman, B. S. (2004). R&D, organization structure, and the development of corporate technological knowledge. *Strategic Management Journal*, 25(8-9), 929-958.
- (Article) Asakawa, K. (2001). Organizational tension in international R&D management: the case of Japanese firms. *Research Policy*, 30(5), 735-757.
- (Article) Augsdorfer, P. (2005). Bootlegging and path dependency. *Research Policy*, 34(1), 1-11.
- (Article) Bremser, W. G., & Barsky, N. P. (2004). Utilizing the balanced scorecard for R&D performance measurement. *R&D Management*, 34(3), 229-238.
- (Article) Breschi, S., Lissoni, F., & Malerba, F. (2003). Knowledge-relatedness in firm technological diversification. *Research Policy*, 32(1), 69-87.
- (Article) Brynjolfsson, Erik, and Lorin M. Hitt. (2000) “Beyond computation: Information technology, organizational transformation and business performance.” *The Journal of Economic Perspectives* 14.4 (2000): 23-48.
- (Article) Cardinal, L. B. (2001). Technological innovation in the pharmaceutical industry: The use of organizational control in managing research and development. *Organization Science*, 12(1), 19-36.
- (Article) Cesaroni, F., Minin, A. D., & Piccaluga, A. (2005). Exploration and exploitation strategies in industrial R&D. *Creativity and Innovation Management*, 14(3), 222-232.
- (Article) Chen, C. J., Huang, Y. F., & Lin, B. W. (2012). How firms innovate through R&D internationalization? An S-curve hypothesis. *Research Policy*, 41(9), 1544-1554.
- (Article) Cohen, W., & Levinthal, D. (1989). ‘Innovation and learning: The two faces of R&D’. *Econom. Journal*, 99, 569-596.
- (Article) Dattée, B., Alexy, O., & Autio, E. (2018). Maneuvering in poor visibility: How firms play the ecosystem game when uncertainty is high. *Academy of Management Journal*, 61(2), 466-498.
- (Article) DeSanctis, G., Glass, J. T., & Ensing, I. M. (2002). Organizational designs for R&D. *The Academy of Management Executive*, 16(3), 55-66.

- (Article) Dosi, G. (1982). Technological paradigms and technological trajectories: a suggested interpretation of the determinants and directions of technical change. *Research Policy*, 11(3), 147-162.
- (Article) Feinberg, S. E., & Gupta, A. K. (2004). Knowledge spillovers and the assignment of R&D responsibilities to foreign subsidiaries. *Strategic Management Journal*, 25(8-9), 823-845.
- (Article) Helfat, C. E. (1997). Know-how and asset complementarity and dynamic capability accumulation: the case of R&D. *Strategic Management Journal*, 18(5), 339-360.
- (Article) Henttonen, K., Ojanen, V., & Puumalainen, K. (2016). Searching for appropriate performance measures for innovation and development projects. *R&D Management*, 46(5), 914-927.
- (Article) Higon, D. (2016). In-house versus external basic research and first-to-market innovations. *Research Policy*, 45, 816-829.
- (Article) Kaplan, S., Murray, F., & Henderson, R. (2003). Discontinuities and senior management: Assessing the role of recognition in pharmaceutical firm response to biotechnology. *Industrial and Corporate Change*, 12(2), 203-233.
- (Article) Kapoor, R., & Furr, N.R. (2015). Complementarities and competition: Unpacking the drivers of entrants' technology choices in the solar photovoltaic industry. *Strategic Management Journal*, 36(3), 416-436.
- (Article) Kim, D. J., & Kogut, B. (1996). Technological platforms and diversification. *Organization Science*, 7(3), 283-301.
- (Article) Lahiri, N. (2010). Geographic distribution of R&D activity: how does it affect innovation quality?. *Academy of Management Journal*, 53(5), 1194-1209.
- (Article) Leten, B., Belderbos, R., & Van Looy, B. (2007). Technological diversification, coherence, and performance of firms. *Journal of Product Innovation Management*, 24(6), 567-579.
- (Article) Lin, B. W., & Chen, J. S. (2005). Corporate technology portfolios and R&D performance measures: a study of technology intensive firms. *R&D Management*, 35(2), 157-170.
- (Article) Nieto, M. J., & Rodriguez, A. (2011). Offshoring of R&D: Looking abroad to improve innovation performance. *Journal of International Business Studies*, 42(3), 345-361.
- (Article) Pistorius, C. W., & Utterback, J. M. (1997). Multi-mode interaction among technologies. *Research Policy*, 26(1), 67-84.
- (Article) Prahalad, CK, Hamel, G (1990) "The core competencies of the corporation", HBR May-June, 79-91
- (Article) Reger, G. (2004). Coordinating globally dispersed research centres of excellence—the case of Philips Electronics. *Journal of International Management*, 10(1), 51-76.
- (Article) Rosenberg, N. (1990). Why do firms do basic research (with their own money)?. *Research Policy*, 19(2), 165-174.
- (Article) Rotolo, D., Hicks, D., & Martin, B. R. (2015). What is an emerging technology?. *Research Policy*, 44(10), 1827-1843.
- (Article) Scannell, J.W., Alex Blanckley, Helen Boldon & Brian Warrington (2012) Diagnosing the decline in pharmaceutical R&D efficiency, *Nature Reviews Drug Discovery*, 11, 191-200
- (Article) Singh, J. (2008). Distributed R&D, cross-regional knowledge integration and

- quality of innovative output. *Research Policy*, 37(1), 77-96.
- (Article) Shin, J., Coh, B. Y., & Lee, C. (2013). Robust future-oriented technology portfolios: Black-Litterman approach. *R&D Management*, 43(5), 409-419.
  - (Article) Steinberg, P. J., Procher, V. D., & Urbig, D. (2017). Too much or too little of R&D offshoring: The impact of captive offshoring and contract offshoring on innovation performance. *Research Policy*, 46(10), 1810-1823.
  - (Article) Suzuki, J., & Kodama, F. (2004). Technological diversity of persistent innovators in Japan: Two case studies of large Japanese firms. *Research Policy*, 33(3), 531-549.
  - (Article) Tsai, W. (2001). 'Knowledge transfer in intraorganizational networks: effects of network position and absorptive capacity on business unit innovation and performance'. *Academy of Management Journal*, 44, 996-1004.
  - (Article) Von Zedtwitz, M., & Gassmann, O. (2002). Market versus technology drive in R&D internationalization: four different patterns of managing research and development. *Research Policy*, 31(4), 569-588.
  - (Article) Wang, C. H., Lu, I. Y., & Chen, C. B. (2008). Evaluating firm technological innovation capability under uncertainty. *Technovation*, 28(6), 349-363.
  - (Article) Zahra, S. A. (1996). Technology strategy and financial performance: Examining the moderating role of the firm's competitive environment. *Journal of Business Venturing*, 11(3), 189-219.