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# Roadmapping Bibliography

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1. Abe, H., Ashiki, T., Suzuki, A., Jinno, F. and Sakuma, H. (2007), 'Integration studies of business modeling and roadmapping methods for innovation support technology (IST) and its practical application to real-world-cases', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland OR.
2. Abe, H., Ashiki, T., Suzuki, A., Jinno, F. and Sakuma, H. (2009), 'Integrating business modeling and roadmapping methods – the Innovation Support Technology (IST) approach', *Technological Forecasting & Social Change*, 76 (1), pp. 80-90.
3. Abe, H., Shinokura, K., Suzuki, A., Kubo, H. and Sakuma, H. (2006), '2<sup>nd</sup> generation business modeling: smart innovation planning method managing the link to corporate value creation for R&D outputs', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 8-13 July, Istanbul.
4. Abe, H., Suzuki, A., Etoh, M., Sibagaki, S. and Koike, S. (2008), 'Towards systematic innovation methods: innovation support technology that integrates business modeling, roadmapping and innovation architecture', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
5. Abele, T. (2006), *Verfahren für das technologie-roadmapping zur unterstützung des strategischen technologiemanagements*, PhD thesis, University of Stuttgart.
6. Afanasiev, A. and Khakhanov, Y. (2010), 'Use of technology roadmapping in selecting projects for financial support', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Phuket.
7. Aghaei, H.A., Beheshtinia, M.A., Amalnick, M.S., Gholimotlagh, M. and Fartash, K. (2012), 'Studying technology roadmapping development and selecting the appropriate model for aircraft design and manufacturing industry', *International Journal of Scientific Studies*, 1 (2), pp. 43-54.
8. Ahlqvist, T. and Halonen, M. (2011), 'Building capacities for systemic change: a diversified roadmap in the context of VTT's service research network', *VTT Symposium on Service Innovation*, pp. 35-47.
9. Ahlqvist, T., Valovirta, V. and Liokkanen, T. (2012), 'Innovation policy roadmapping as a systemic instrument for forward-looking policy design', *Science and Public Policy*, 29, pp. 178-190.
10. Albright, R.E. (2002), 'Roadmapping for global platform products', *Product Development and Management Association, Visions Magazine*, 26 (4), pp. 19-22.
11. Albright, R.E. (2003), 'A unifying architecture for roadmaps frames a value scorecard', *IEEE International Engineering Management Conference*, Albany, NY, 2-4 November.
12. Albright, R.E. (2003), 'Roadmapping convergence', Albright Strategy Group, 31 October.
13. Albright, R.E. and Kappel, T.A. (2003), 'Roadmapping in the corporation', *Research-Technology Management*, 42 (2), pp. 31-40.
14. Albright, R.E. (2004), 'How to use roadmapping for global platform products', *PDMA Visions*, XXVI (4), Product Development and Management Association, pp. 19-22.
15. Albright, R.E. and Nelson, B. (2004), 'Product and technology mapping tools for planning and portfolio decision making', *PDMA Toolbook 2 for New Product Development*, Chapter 15, Eds. Belliveau, P., Griffin, A. and Somermeyer, S., John Wiley & Sons.

16. Allendorf, M.D. (2001), 'Research needs for coatings on glass: summary of the US Department of Energy roadmapping workshop', *Thin Solid Films*, 392, pp. 155-163.
17. Alvarez, E. and Raghavan, S. (2010), 'Road map to relevance – how a capabilities-driven information technology strategy can help differentiate your company', *Booz&Co IT Matters*, 61, pp. 1-6.
18. Amadi-Echendu, J., Lephauphau, O., Maswanganyi, M. and Mkhize, M. (2011), 'Case studies of technology roadmapping in mining', *Journal of Engineering Technology Management*, 28, pp. 23-32.
19. Amadi-Echendu, J. and Mkhize, M. (2010), 'Technology roadmapping in platinum mining: a case study', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
20. Amer, M. and Daim, T.U. (2010), 'Application of technology roadmaps for renewable energy sector', *Technological Forecasting & Social Change*, 77, pp. 1355-1370.
21. Amir, A. (2006), *Industry technology roadmapping of nonwoven medical textiles*, Master of Science Thesis, North Carolina State University.
22. An, Y., Lee, S. and Park, Y. (2008), 'Development of an integrated product-service roadmap with QFD: a case study on mobile communications', *International Journal of Science Industry Management*, 19(5), pp. 621-638.
23. Ananda, J., Domazetis, G. and Hill, J. (2009), 'A roadmap to a green chemical industry in Australia', *Environment, Development and Sustainability*, 11, pp. 1051-1071.
24. Anderson, R.B. and Hendrix, M. (2008), 'Air Force Materiel Command roadmapping assessment', *US Air Force Test & Evaluation Days Conference*, Los Angeles, 5-7 February.
25. Arden, W.M. (2002), 'The International Technology Roadmap for Semiconductors – perspectives and challenges for the next 15 years', *Current Opinion in Solid State and Materials Science*, 6, pp. 371-377.
26. Arshed, N. (2012), 'Technology roadmapping and SMEs: a literature review', to be presented at *DRUID 2012*, Copenhagen, 19-21 June.
27. Arshed, N., Finch, J. and Bunduchi, R. (2012), 'Technology roadmapping and SMEs: a literature review', *DRUID Conference*, Copenhagen, 19-21 June.
28. Ashworth, P., Boughen, N., Mayhew, M. and Millar, F. (2009), 'An integrated roadmap of communication activities around carbon capture and storage in Australia and beyond', *Energy Procedia*, 1, pp. 4749-4756.
29. Bai, Q., Zhao, S. and Xu, P. (2012), 'Technology roadmap of electric vehicle industrialization', *Advances in Computer Science and Information Engineering - Advances in Intelligent and Soft Computing Volume*, 169, pp. 473-478.
30. Bagheri, S.K., Nilforoushan, H., Rezapour, M. and Rashtchi, M. (2009), 'A new approach to technology roadmapping in the open innovation context: the case of membrane technology for RIPI', *Journal of Science & Technology Policy*, 2 (1).
31. Bagheri, S.K., Rezapour, M. and Rashtchi, M. (2007), 'Open innovation roadmapping', *R&D Globalization Conference*, Tehran, 25-26 June.
32. Ballard, S.C., Levie, J., Nukari, J. and Saukkonen, J. (2013), 'Roadmap planning for science and technology based entrepreneurs', *Open 2013: NCIIA's 17<sup>th</sup> Annual Conference*, 22-23 March, Washington, DC.
33. Bansal, V. and Mittal, A.K. (2011), 'Mining patent database to build technology roadmap', *International Conference on Management of Technology – Step to Sustainable Production*, 8-10 June, Croatia.
34. Barker, D. and Smith, D.J.H. (1995), 'Technology foresight using roadmaps', *Long Range Planning*, 28 (2), pp. 21-28.
35. Bechtold, L.E. and Redman, D. (2013), 'Reliability roadmap and industry collaboration', *Reliability and Maintainability Symposium (RAMS)*, 28-31 January, Orlando.
36. Beeton, D.A. (2007), *Exploratory roadmapping for sector foresight*, PhD thesis, University of Cambridge.
37. Beeton, D.A., Phaal, R. and Probert, D.R. (2005), 'Integrating supply chains with technology roadmapping', *R&D Management Conference*, Pisa.
38. Beeton, D.A., Phaal, R., Probert, D.R. (2005), 'Using Roadmapping to Improve Business Interfaces in New Product Development', *ELIASM Conference*.
39. Beeton, D.A., Phaal, R. and Probert, D.R. (2008), 'Exploratory roadmapping for foresight', *International Journal of Technology Intelligence and Planning*, 4 (4), pp. 398-412.

40. Behrendt, S. and Erdmann, L. (2006), *Integriertes Technologie-Roadmapping zur Unterstützung nachhaltigkeits- orientierter Innovationsprozesse*, Workshop Report 84, Institute for Futures Studies and Technology Assessment (IZT).
41. Behrendt, S., Erdmann, L., Nolte, R. and Diegner, B. (Eds.) (2007), 'Integrated technology roadmapping – a practical guide to the search for technological answers to social challenges and trends', German Electrical and Electronics Manufacturers' Association (ZVEI).
42. Behrendt, S., Fichter, K., Clausen, J., Erdmann, L., Hintermann, R., Marwede, M. and Caporal, S. (2010), 'Cooperative roadmapping as a tool for innovation-oriented resource policy', Paper 9.4, Material Efficiency and Resource Conservation (MaResS) project.
43. Behrens, S. (2003), *Möglichkeiten der Unterstützung von Strategischer Geschäftsfeldplanung und Technologieplanung durch Roadmapping*, Verlag, Berlin.
44. Behrendt, S., Fichter, K., Clausen, J., Erdmann, L., Hintermann, R., Marwede, M. and Caporal, S. (2010), *Cooperative roadmapping as a tool for innovation-oriented resource policy*, Material Efficiency and Resource Conservation (MaResS) Project, Paper 9.4, Wuppertal Institute.
45. Bellandi, V., Ceravolo, P., Damiani, E. and Frati, F. (2011), 'CR2S: competency roadmap to strategy', *6<sup>th</sup> Conference on Professional Knowledge Management: From Knowledge to Action*, 21-23 February, Innsbruck.
46. Benner, F. (2010), *Einsatz des Technologie-Roadmapping im Innovationscontrolling*, Masters thesis, Hochschule Esslingen.
47. Bernal, L., Dornberger, U., Torres, O. and Byrnes, T. (2009), *Technology roadmapping handbook*, International SEPT Program, University of Leipzig.
48. Bernardini, N. and De Poli, G. (2007), 'The sound and music computing field: present and future', *Journal of New Music Research*, 36(3), pp. 143-148.
49. Bessis, N., Asimakopoulou, E. and Xhafa, F. (2011), 'A next generation emerging technologies roadmap for enabling collective computational intelligence in disaster management', *International Journal of Space-Based and Situated Computing*, 1 (1), pp. 76-85.
50. Bhawanani, P., Ruhe, G., Kudorfer, F. and Meyer, L. (2006), 'Intelligent decision support for road mapping a technology transfer case study with Siemens corporate technology', *International Workshop on Software Technology Transfer in Software Engineering*, Shanghai.
51. Biazzo, S. (2011), 'Innovation roadmapping – allineare prodotti e tecnologie all'evoluzione dei propri mercati', *Innovation Briefing*, Università di Padova, No. 2.
52. Bicking, M. and Wimmer, M.A. (2011), 'Concept to integrate open collaboration in technology roadmapping: stakeholder involvement in strategic e-government planning', *44<sup>th</sup> International Conference on System Sciences*, Hawaii, 4-7 January.
53. Bielefeld, T. and Eurich, C. (2005), 'Science Roadmapping für Rüstungstechnologie-Folgenabschätzung und präventive Rüstungskontrolle', *Technikfolgenabschätzung – Theorie und Praxis*, 3 (14), pp. 128-134.
54. Blair, A.J. (2009), 'Working toward producing sustainable biodiesel in the Pacific Northwest: analysis and implementation using the T-Plan technology roadmapping approach', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
55. Bloch, P. (2013), *Einbindung des roadmapping in die technologiefrüherkennung*, GRIN Verlag GmbH, Norderstedt.
56. Blois, J.O. and Blois, C.J. (2000), 'Perfection, ideality, and technology road map as measured by a sliding scale (technology creativity metrics)', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 12-15 November, Singapore.
57. Bonnema, B.E. (2002), 'Incorporating the technology roadmap uncertainties into the project risk assessment', *Waste Management Conference*, 24-28 February, Tucson, AZ.
58. Borch, K. and Norus, J. (2004), 'Roadmapping as a tool for renewing regulatory practices – the case of stem cells', *Biotech Business Working Paper*, No. 05-2004, Copenhagen Business School.
59. Bott, E.O. (2001), 'Microsoft's technology roadmap', *smartbusinessmag.com*, pp. 121-125.
60. Bouchaud, J., Knoblich, B., Tilmans, H., Coccetti, F. and El Fatatry, A. (2007), 'RF MEMS roadmap', *Proceedings of the 37<sup>th</sup> European Microwave Conference / 2<sup>nd</sup> European Microwave Integrated Circuits Conference*, Munich, October, pp. 1141-1141 / 343-346.
61. Boulding, W., Staelin, R., Ehret, M. and Johnston, W.J. (2005), 'A customer relationship management roadmap: what is known, potential pitfalls, and where to go', *Journal of Marketing*, 69 (4), pp. 155-166.
62. Brandt, L.D. (2008), 'Homeland security R&D roadmapping – risk-based methodological options', Report SAND2008-7828, Sandia National Laboratories.

63. Bray, O.H. and Garcia, M.L. (1997), 'Technology roadmapping: the integration of strategic and technology planning for competitiveness', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, OR.
64. Brasher, A., McAndrew, P. and Sharples, M. (2005), *A road map for further research into the theory and practice of personal mobile learning supported by new technologies*, MOBILearn, EU Framework 5 IST Programme.
65. Bray, O. (2003), 'Technology roadmapping for waste management', *Waste Management Conference*, Tucson AZ, 23-27 February.
66. Brenden, R.K., Hallaj, W., Subramanian, G. and Katoch, S. (2009), 'Wind energy roadmap', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
67. Brillouët, M. (Ed) (2011), *Towards a "More –than-Moore" roadmap*, Report from the Cluster for Application and Technology Research in Europe on NanoElectronics (CATRENE) Scientific Committee.
68. Brown, R. and Phaal, R. (2001), 'The use of technology roadmaps as a tool to manage technology developments and maximise the value of research activity', *IMEchE Mail Technology Conference (MTC 2001)*, Brighton, 24-25<sup>th</sup> April 2001.
69. Brown, R. and O'Hare, S. (2001), 'The use of technology roadmapping as an enabler of knowledge management', *IEE Seminar on Managing Knowledge for Competitive Advantage*, 7 February, Institution of Electrical Engineers.
70. Bruce, E. and Fine, C.H. (2004), 'Technology roadmapping: mapping a future integrated photonics', Invited Tutorial, HBS seminar, MIT.
71. Bucher, P.E. (2003), *Integrated technology roadmapping: design and implementation for technology-based multinational enterprises*, PhD dissertation, Swiss Federal Institute of Technology Zurich.
72. Buckl, S., Ernst, A.M., Matthes, F. and Schweda, C.M. (2009), 'Visual roadmaps for managed enterprise architecture evolution', *10<sup>th</sup> ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing*, Daegu, Korea, 27-29 May.
73. Bullinger, H.-J., Auernhammer, K. and Gomeringer, A. (2004), 'Managing innovation networks in the knowledge-driven economy', *International Journal of Production Research*, 42 (17), pp. 3337-3353.
74. Bunse, K., Vodicka, M., Schonsleben, P., Brulhart, M. and Ernst, F.O. (2011), 'Integrating energy efficiency performance in production management – gap analysis between industrial needs and scientific literature', *Journal of Cleaner Production*, 19, pp. 667-679.
75. Caetano, M. and Amaral, D.C. (2011), 'Roadmapping for technology push and partnership: a contribution for open innovation environments', *Technovation*, 31, pp. 320-335.
76. Cagnin, C. and Könnölä, T. (2014), 'Global foresight: lessons from a scenario and roadmapping exercise on manufacturing systems', *Futures*, 59, pp. 27-38.
77. Cai, Z. (2010), 'A framework of knowledge innovation based on technology road-mapping', *3<sup>rd</sup> International Conference on Information Management, Innovation Management and Industrial Engineering (ICIII)*, Kunming, China, 26-28 November.
78. Camarinha-Matos, L.M. and Afsarmanesh, H. (2004), 'A roadmapping methodology for strategic research on VO', in *Collaborative networked organizations – a research agenda for emerging business models*, Ed., L.M. Camarinha-Matos and H. Afsarmanesh, Kluwer Academic Publishers, pp. 275-288.
79. Camarinha-Matos, L.M. and Afsarmanesh, H. (2009), 'The need for a strategic R&D roadmap for active ageing', in *PRO-VE 2009, IFIP AICT 307*, L.M. Camarinha-Matos et al. (Eds.), pp. 669-681.
80. Camarinha-Matos, L.M. and Afsarmanesh, H., del Cura, A. and Playfoot, J. (2010), 'ePAL roadmap for active ageing – a collaborative networks approach to extending professional life', *4<sup>th</sup> International Conference on Pervasive Computing Technologies for Healthcare*, Munich, 22-25 March.
81. Camponovo G. and Pigneur Y. (2004), 'Extending technology Roadmapping for environmental analysis', *Veille Stratégique Scientifique & Technologique*, 25-29 October, Toulouse.
82. Candido, G., Barata, J., Colombo, A.W. and Jammes, F. (2009), 'SOA in reconfigurable supply chains: a research roadmap', *Engineering Applications of Artificial Intelligence*, 22, pp. 939-949.
83. Carlos, R. (2014), *Modelo para atualização de roadmaps utilizando conceitos de agilidade e inteligência competitiva*, Masters Dissertation, University of São Paulo (São Carlos).

84. Carlos, R., Rodrigues, K.F.C., Oliveira, M.G., Amaral, D.C. and Rozenfeld, H. (2013), 'Managing roadmapping through principles and practices of agile project management', *22<sup>nd</sup> International Conference on Management of Technology (IAMOT)*, 14-18 April, Porto Alegre, Brazil.
85. Carlsen, H., Dreborg, K.H., Godman, M., Hansson, S.O., Johansson, L. and Wikman-Svahn, P. (2010), 'Assessing socially disruptive technological change', *Technology in Society*, 32, pp. 209-218.
86. Carvalho, M.M., Fleury, A. and Lopes, A.P. (2013), 'An overview of the literature on technology roadmapping (TRM): contributions and trends', *Technological Forecasting & Social Change*, 80, pp. 1418-1437.
87. Caulliriaux, A.A., Proenca, A. and Cardoso, V. (2013), 'Synergies between strategic design and roadmapping: a development roadmap for the Rio de Janeiro State Biotechnology Cluster', *2<sup>nd</sup> Cambridge Academic Design Management Conference*, 4-5 September.
88. Castro Gama, C.A. and Güemes-Castorena, D. (2014), 'Project portfolio and strategic alignment through technology roadmapping for medium sized organisations and business units', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
89. Cesarone, R.J., Abraham, D.S., Shambayati, S. and Rush, J. (2011), 'Deep-space optical communications – visions, trends, and prospects', *IEEE International Conference on Space Optical Systems and Applications*, Santa Monica, 11-13 May.
90. Chen, D. and Doumeingts, G. (2003), 'European initiatives to develop interoperability of enterprise applications – basic concepts, framework and roadmap', *Annual Reviews in Control*, 27, pp. 153-162.
91. Chen, D.C., Kameoka, A. and Toyama, R. (2005), 'How Taiwan fables firms use technology roadmap in product development: a preliminary study', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 1-4 August, Portland, OR.
92. Chen, S.-H., Huang, M.-H., Chen, D.-Z. and Lin, S.-Z. (2012), 'Detecting the temporal gaps of technology fronts: a case study of smart grid field', *Technological Forecasting & Social Change*, 79, pp. 1705-1719.
93. Cheng, M.N., Cheung, C.F., Fung, S.H. and Tsang, K.K. (2014), 'A hybrid roadmapping method for technology forecasting and assessment: a case study in an information and communication technology company', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
94. Chiou, H., Wan, C. (2011), 'A combined fuzzy MCDM approach for exploring the roadmap of R&D alliances in Taiwan's enterprises', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
95. Cho, C. and Lee, S. (2011), 'Taxonomy of technology roadmaps in service areas', *IEEE Technology Management Conference (ITMC)*, 27-30 June, San Jose.
96. Cho, Y., Yoon, S.-P., Kim, K.S. and Chang, B. (2014), 'Industrial technology roadmap as a decision making tool to support public R&D planning', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
97. Choi, S., Kim, H., Yoon, J., Kim, K. and Lee, J.Y. (2013), 'An SAO-based text-mining approach for technology roadmapping using patent information', *R&D Management*, 43 (1), pp. 52-74.
98. Choi, Y. (2003), 'Technology roadmap in Korea', *Second International Conference on Technology Foresight*, 27-28 February, Tokyo.
99. Choomon, K., Leeprechanon, N. and Laosirhongthong, T. (2009), 'A review of literature on technology roadmapping: a case study of power line communication (PLC)', *International Journal of Foresight and Innovation Policy*, 5(4), pp. 300-313.
100. Choomon, K. and Leeprechanon, N. (2011), 'A literature review on technology road-mapping: a case of power-line communication', *African Journal of Business Management*, 5 (14), pp. 5477-5488.
101. Clark, I.G. and Olds, J.R. (2005), 'The technology roadmapping and investment planning system (TRIPS)', *41<sup>st</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit*, 10-13 July, Tucson.
102. Clary, B.G. and Behles, D.N. (2000), 'Roadmapping and legal writing', *Perspectives*, (8)134, University of Minnesota Law School.
103. Clements, P.C. and Jones, L.G. (2006), 'Getting there from here: a roadmap for software product line development – mapping the technical and business activities and steps required for successful organizational adoption', *Communications of the Association of Computing Machinery (ACM)*, 49 (12), pp. 33-36.

104. Coates, V., Farooque, M., Klavans, R., Lapid, K., Linstone, H.A., Pistorius, C. and Porter, A.L. (2001), 'One the future of technology forecasting', *Technology Forecasting & Social Change*, 67, pp. 1-17.
105. Codagnone, C. and Wimmer, M.A., Eds (2007), *Roadmapping eGovernment research – visions and measures towards innovative governments in 2020*, EU eGovRTD2020 project.
106. Coelho, J.A.F., Botelho, S. and Tahim, E.F. (2012), 'Roadmap tecnológico: um estudo preliminar', *Revista Eletrônica de Ciência Administrativa (RECADM)*, 11 (2), pp. 168-177.
107. Colbeck, P.J. (2006), *Information technology roadmap for professional service firms*, Perspective Shifts Press, Canton MI.
108. Cole, B.F. (2009), *An evolutionary method for synthesizing technological planning and architectural advance*, PhD thesis, Georgia Institute of Technology.
109. Collins, J.W. (2002), 'Roadmapping – a tool for strategic planning and leveraging R&D completed by other agencies', *Waste Management Conference*, 24-28 February, Tucson, AZ.
110. Collins, J.W. (2008), 'Roadmapping – a systematic approach to overcoming NGNP challenges', *4<sup>th</sup> International Topic Meeting on Hight Temperature Reactor Technology (HTR2008)*, 28 Sept. – 1 Oct, Washington.
111. Coman, A. (2007), 'New product attack roadmapping', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland OR.
112. Corporate Executive Board (2011), 'Build better IT roadmaps', CEB, White Paper.
113. Cosner, R.R., Hynds, E.J., Fushfeld, A.R., Loweth, C.V., Scouten, C. and Albright, R. (2007), 'Integrating roadmapping into technical planning', *Research-Technology Management*, 50 (6), pp. 31-48.
114. Coutinho, P. and Bomtempo, J.V. (2011), 'Roadmap tecnológico em matérias-primas renováveis: uma base para a construção de políticas e estratégias no Brasil', *Quim. Nova*, 34 (5), pp. 910-916.
115. Cowan, K.R. (2013), 'A new roadmapping technique for creatively managing the emerging smart grid', *Creativity and Innovation Management*, 22 (1), pp. 67-83.
116. Cowan, K.R. and Daim, T. (2009), 'Comparative technological road-mapping for renewable energy', *Technology in Society*, 31, pp. 333-341.
117. Cowan, K.R., Daim, T.U. and Walsh, T. (2014), 'Developing an integrated technology roadmapping process to meet regional technology planning needs: the e-bike pilot study', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
118. Da Costa O., Boden M., Punie Y., Zappacosta M. (2003), 'Science and technology roadmapping: from industry to public policy', The Institute for Prospective Technological Studies (IPTS), Report 73, April.
119. Da Costa O., Boden, M. Friedewald, M. (2005), 'Science and technology roadmapping for policy intelligence - lessons for future projects', *Designing the Future in Europe Colloquium & Second Prague Workshop On Futures Studies Methodology*, October.
120. Daim, T.U., Amer, M. and Brenden, R. (2012), 'Technology roadmapping for wind energy: case of the Pacific Northwest', *Journal of Cleaner Production*, 20, pp. 27-37.
121. Daim, T.U. and Dash, P. (2011), 'Roadmapping the convergence of technologies for service over broadband: a benchmarking effort', *Benchmarking: An International Journal*, 18 (5), pp. 668-693.
122. Daim, T., Gerdri, N., Kockan, I. and Kocaoglu, D. (2011), 'Technology development envelope approach for adoption of future powertrain technologies: a case study on Ford Otosan roadmapping model', *Journal of Transportation Systems Engineering and Information Technology*, 11(2), pp. 58-69.
123. Daim, T.U. and Intarode, N. (2011), 'Technology roadmapping for mature industries: 2010-2050 global cement product roadmap', *International Journal of Technology, Policy and Management*, 11 (2) pp. 173-186.
124. Daim, T.U. and Oliver, T. (2008), 'Implementing technology roadmap process in the energy services sector: a case study of a government agency', *Technology Forecasting & Social Change*, 75, pp. 687-720.
125. Daim, T.U., Pizarro, M. and Talla, R. (Eds) (2014), *Planning and roadmapping technological innovations – cases and tools*, Innovation, Technology, and Knowledge Management series, Springer, Heidelberg.
126. Damrongchai, N. (2005), *Biofuel roadmap for Thailand: developing a practical foresight approach toward a sustainable economy*, MPhil thesis, University of Cambridge.

127. Damrongchai, N., Phaal, R. and Probert, D.R. (2005), 'Roadmapping biofuel as a contribution to the sustainable economy: developing a practical foresight approach', *R&D Management Conference*, Pisa.
128. Damrongchai, N. and Tegart, G. (2006), 'Future fuel technology scenario and roadmapping for Asia-Pacific', *Second International Seville Seminar on Future-Oriented Technology Analysis (FTA): Impacts on Policy and Decision Making*, 28-29 September, Seville.
129. de Andrade, C.C., Monti, L.dL. and Silva, A.R.P. (2008), 'Aplicacao do technology roadmapping em empresa automobilistica', *Simposio de Excelencia em Gestao e Tecnologia (SEGeT)*, 20-22 October, Rio de Janeiro.
130. De Bosschere, K., Luk, W., Martorell, X., Navarro, N., O'Boyle, M., Pnevmatikatos, D., Ramirez, A., Sainrat, P., Sez nec, A., Stenstrom, P. and Temam, O. (2007), 'High-performance embedded architecture and compilation roadmap', *Transactions on HiPEAC I*, P. Stenstrom (Ed.), LNCS 4050, pp. 5-29.
131. Dede, G., Kamalakis, T. and Varoutas, D. (2011), 'Towards a roadmap for future home networking systems: an analytical hierarchy process approach', *IEEE Systems Journal*, 5 (3), pp. 374-384.
132. de Graaf, J.J., Noordervliet, M.A.W., Musters, C.J.M. and de Snoo, G.R. (2009), 'Roadmap for interactive exploration of sustainable development opportunities: the use of simple instruments in the complex setting of bottom-up processes in rural areas', *Land Use Policy*, 26, pp. 295-307.
133. DeGregorio, G. (2000), 'Technology management via a set of dynamically linked roadmaps', *IEEE International Engineering Management Conference*, 13-15 August, Albuquerque.
134. de Laat, B. and McKibbin, S. (2003), 'The effectiveness of technology road mapping - building a strategic vision', Report, Technopolis, Dutch Ministry of Economic Affairs.
135. de Laat, B. (2004), 'Conditions for effectiveness of roadmapping – a cross-sectoral analysis of 80 different roadmapping exercises', *EU-US Seminar: New Technology Foresight, Forecasting & Assessment*, 13-14 May, Seville.
136. de Reuver, M., Bouwman, H. and Haaker, T. (2013), 'Business model roadmapping: a practical approach to come from an existing to a desired business model', *International Journal of Innovation Management*, 17 (1).
137. de Reuver, M., Skournetou, D. and Lohan, E.-S. (2012), 'Designing roadmaps for the Galileo commercial service platform', *International Conference on Localisation and GNSS (ICL-GNSS)*, 25-27 June, Starnberg.
138. De Smedt, P., Borch, K. and Fuller, T. (2013), 'Future scenarios to inspire innovation', *Technological Forecasting & Social Change*, 80, pp. 432-443.
139. De Souza Giodano, C.S. (2011), *Technology roadmapping (TRM) como método de planejamento e gestão: o caso do centro de tecnologia senai ambiental*, Masters Thesis, Universidade Federal Do Rio De Janiero, Escola de Química.
140. de Vries, M. (2012), *Roadmappinggestützte innovationskommunikation*, PhD Dissertation, Universität Bremen.
141. Didio, R.J. and Barroso, A.C.O. (2011), 'A different technology roadmapping methodology applied to a radiopharmacy industry', *International Journal of Nuclear Energy Science and Technology*, 6 (4), pp. 253-270.
142. Dingsøyr, T., Dybå, T. and Abrahamsson, P. (2008), 'A preliminary roadmap for empirical research on agile software development', *Agile '08 Conference*, Toronto, 4-8 August, pp. 83-94.
143. Dissel, M.C., Phaal, R., Farrukh, C.J. and Probert, D.R. (2006), 'Value roadmapping: a structured approach for early stage technology investment decisions', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 8-13 July, Istanbul.
144. Dissel, M.C., Phaal, R., Farrukh, C.J. and Probert, D.R. (2009), 'Value roadmapping: a systematic approach for early stage technology investment decisions', *Research-Technology Management*, Nov-Dec, pp. 45-53.
145. Dixon, B. (2001), 'Guidance for environmental management science and technology roadmapping', *Waste Management Conference*, 25 February - 1 March, Tucson, AZ.
146. Dixon, B., Hanson, D. and Matthern, G. (2003), 'Strategic program planning sessions learned in developing the long-term stewardship science and technology roadmap', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
147. Dixon, B., Hanson, D. and Matthern, G. (2003), 'Designing program roadmaps to catalyze community formation', *Waste Management Conference*, 23-27 February, Tucson AZ.
148. Dixon, T. (2011), 'Low carbon scenarios, roadmaps, transitions and pathways: an overview and discussion', *Retrofit 2050*, Working paper WP2011/6.

149. Dobrzanska-Danikiewicz, A.D. (2010), 'Foresight methods for technology validation, roadmapping and development in the surface engineering area', *Archives of Materials Science and Engineering*, 44 (2), pp. 69-86.
150. DoE, (2000), Applying science and technology roadmapping in environmental management, Draft B, US Department of Energy, Office of Environmental Management.
151. Dorrington, P. and Disney, S.M. (2006), 'A new approach to micromanufacturing roadmapping: methodology and initial findings', Cardiff Business School Working Paper Series, LOM/06/009.
152. Du, Y., Turner, M., Sunkara, M., DeRouen, J., Greenwall, A., Rogness, J., Cole, K. and Gardner, J. (2012), 'Kentucky smart grid roadmap initiative', *IEEE PES Innovative Smart Grid Technologies (ISGT)*, 16-20 Jan, Washington DC.
153. Duarte, D.P., Maia, F.C., Neto, A.B., Cesar, L.S., Kagan, N., Guimarães, D.S., Bonini, A. and da Silva, J.F.R. (2013), 'Brazilian smart grid roadmap – an innovative methodology for proposition and evaluation of smart grid functionalities for highly heterogeneous distribution networks', *IEEE PES Conference on Innovative Smart Grid Technologies Latin America (ISGT LA)*, 15-17 April, Sao Paulo.
154. Duckles, J.M. and Coyle, E.J. (2002), 'Purdue's Center for Technology Roadmapping: a resource for research and education in technology roadmapping', *IEEE International Engineering Management Conference*, Cambridge, 18-20 August.
155. Ducq, Y., Chen, D. and Vallespir, B. (2004), 'Interoperability in enterprise modelling: requirements and roadmap', *Advanced Engineering Informatics*, 18, pp. 193-203.
156. Duis, D. (2006), *Technology roadmapping within Rolls-Royce*, Masters Thesis, Technische Universiteit Eindhoven.
157. du Preez, N.D. and Louw, L. (2008), 'A framework for managing the innovation process', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
158. Eager, R., Roos, D. and Kolk, M. (2013), 'Capability roadmapping – developing the means to the end', *Arthur D. Little Prism*, 2, pp. 30-45.
159. Ebert, C. (2007), 'The impacts of software product management', *The Journal of Systems and Software*, 80, pp. 850-861.
160. EDAA (1998), *System design technology roadmap*, European Design and Automation Association.
161. Eerola, A., Loikkanen, T., Joergensen, B.H., Anderson, P.D. and Eriksson, E.A. (2004), 'Nordic H<sub>2</sub> energy foresight – complementary contribution of expert views and formal analysis', *EU-US Seminar: New technology Foresight, Forecasting & Assessment Methods*, 13-14 May, Seville.
162. Eghlimi, M., Farmad, M. and Tavanpour, M.P. (2010), 'An introduction to road mapping of power trade development between Iran and its neighbouring countries', *4<sup>th</sup> International Power Engineering and Optimization Conference (PEOCO)*, Shah Alam, Malaysia, 23-24 June.
163. EIRMA (1997), *Technology Roadmapping - delivering business vision*, European Industry Research Management Association, Working Group Report No. 52, Paris.
164. Elliott, J. (2005) 'Biometrics roadmap for police applications', *BT Technology Journal*, 23 (4), pp. 37-44.
165. Erdmann, L. and Behrendt, S. (2006), 'From technology-driven roadmapping towards sustainability-oriented roadmapping: development and application of an integrated method', *2<sup>nd</sup> International Seville Seminar on Future-Oriented Technology Analysis: Impact of FTA Approaches on Policy and Decision-Making*, Seville, 28-29 September.
166. European Space Agency – ESA (2012), 'Technical Note 5: Roadmapping phase – Disruptive technology search for space applications', Deutsches Zentrum für Luft- und Raumfahrt (DLR), 4000101818/10/NL/GLC, Issue 2.0.
167. Eversheim, W., Brandenburg, F., Breuer, T., Hilgers, M. and Rosier, C. (2009), 'The InnovationRoadMap methodology', 3.10, in *Innovation management for technical products – systematic and integrated product development and production planning*, Ed. W. Eversheim, Springer-Verlag, Berlin, pp. 25-115.
168. Farkas, M. (2007), 'Technology in practice: a roadmap to Learning 2.0', *American Libraries*, 28 (2), pp. 26.
169. Farrokhzad, B., Kern, C. and de Vries, M. (2008), 'Innovation business plan at Siemens: portfolio-based roadmapping to convert promising innovation projects into concrete successes', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 153-164.
170. Farrukh, C., Kerr, C., Phaal, R., Athanassopoulou, N. and Routeley, M. (2014), 'Light-weighting innovation strategy: a roadmap-portfolio toolkit', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.



171. Farrukh, C.J.P., Phaal, R. and Probert, D.R. (2000), 'Technology management - integrating technology into business planning', *11<sup>th</sup> Annual Conference of the Production and Operations Management Society (POM2000)*, 1-4<sup>th</sup> April, San Antonio, TX.
172. Farrukh, C.J.P., Phaal, R. and Probert, D.R. (2000), 'Technology roadmapping - linking technology resources into business planning', *4<sup>th</sup> International Conference on Management Innovative Manufacturing (MIM2000)*, 17-19<sup>th</sup> July, Aston Business School, UK.
173. Farrukh, C., Phaal, R. and Probert, D.R. (2003), 'Technology roadmapping: linking technology resources into business planning', *International Journal of Technology Management*, 26 (1), pp. 2-19.
174. Federal Aviation Administration (2011), *Enterprise architecture roadmap guidance*, ver. 1.2, June.
175. Fenner, J.W., Brook, B., Clapworthy, G., Coveney, P.V., Feipel, V., Gregersen, H., Hose, D.R., Kohl, P., Lawford, P., McCormack, K.M., Pinney, D., Thomas, S.R., Van Sint Jan, S., Waters, S. and Viceconti, M., (2008), 'The EuroPhysiome, STEP and a roadmap for the virtual physiological human', *Philosophical Transactions: Mathematical, Physical and Engineering Sciences*, 366 (1878), pp. 2979-2999.
176. Fenwick, D., Daim, T.U. and Gerdtsri, N. (2009), 'Value driven technology road mapping (VTRM) process integrating decision making and marketing tools: case of internet security technologies', *Technological Forecasting & Social Change*, 76, pp. 1055-1077.
177. Ferreira, A. (2009), 'Road-mapping the digital revolution: visions from COST Foresight 2030 (an exercise in multi-disciplinarity)', *1<sup>st</sup> International Conference on Wireless Communication, Vehicular Technology, Information Theory and Aerospace & Electronic Systems Technology (Wireless VITAE)*, IEEE, Aalborg, 17-20 May.
178. Fiedeler, U., Fleischer, T. and Decker, M. (2004), 'Roadmapping as TA-tool: pre-requisites and potential benefits for assessing nanotechnology', *EU-US Seminar: New Technology Foresight, Forecasting & Assessment Methods*, Seville, 13-14 May, pp. 20-30.
179. Fine, C. (2004), 'Roadmapping the communications value chain', MIT Center for eBusiness, Research Brief, No. 2, Vol. III.
180. Fisher, J. (1998), 'National technology roadmaps', *Circuits Assembly*, 9 (12), pp. 36-41.
181. Fisher, J. (2004), 'How to read a roadmap', *Printed Circuit Design & Manufacture*, March, pp. 38-43.
182. Fisher, J.T. (2006), 'Technology roadmapping and the supply chain', *Circuit World*, 32 (4), pp. 28-31.
183. Fleischer, T., Decker, M. and Fiedeler, U. (2005), 'Assessing emerging technologies - Methodical challenges and the case of nanotechnologies', *Technological Forecasting & Social Change*, 52, pp. 1112-1121.
184. Fleury, A.L. and Fleury, A. (2009), 'A roadmap for the creation of new multinationals', *14<sup>th</sup> Cambridge International Manufacturing Symposium*, 24-25<sup>th</sup> September.
185. Fleury, A.L., Hunt, F., Spinola, M. and Probert, D. (2006), 'Customizing the technology roadmapping technique for software companies', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 9-13 July, Istanbul.
186. Fleury, A.L., Plonski, G.A., Dahmer, A.Z. and Schwartz, G. (2010), 'Roadmapping for educational technology services: expanding educational and research capabilities at higher educational institutions', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Phuket.
187. Foden, J. and Berends, H. (2010), 'Technology management at Rolls-Royce', *Research-Technology Management*, March-April.
188. Foley, R., Waldron, F., Slowey, J., Alderman, A., Narveson, B. and Mathuna, S.C. (2010), 'Technology roadmapping for power supply in packaging (PSiP) and power supply on chip (PwrSoC)', *25<sup>th</sup> Annual IEEE Applied Power Electronics Conference and Exposition (APEC)*, Palm Springs, 21-25 February.
189. Ford, S.J., Routley, M.J., Phaal, R. and Probert, D.R. (2014), 'The industrial emergence of commercial inkjet printing', *European Journal of Innovation Management*, 17 (2), pp. 126-143.
190. France, R. and Rumpe, B. (), 'Model-driven development of complex software: a research roadmap', *International Conference on Software Engineering, ISCE, FOSE '07 Workshop on the Future of Software Engineering*, 23-25 May, Minneapolis, pp. 37-54.
191. Fraunhofer ISI (2010), *Zukunftsfähig mit IT – wie kleine und mittlere Unternehmen mit Roadmaps ihre Innovationskraft stärken können*.
192. Freitas, J.S., Goncalves, C.A., Cheng, L.C. and Muniz, R.M. (2011), 'Structure and agency in academic spin-off creation: a retrospective roadmapping approach to characterize entrepreneurs'

- mental models', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
193. Freitas, J.S., Goncalves, C.A., Cheng, L.C. and Muniz, R.M. (2013), 'Structuration aspects in academic spin-off emergence: a roadmap-based analysis', *Technological Forecasting & Social Change*, 80 (6), pp. 1162-1178.
  194. Froese, T. (2009), 'Construction process technologies: a meta-analysis of Canadian research', *Canadian Journal of Civil Engineering*, 36), pp. 480-491.
  195. Fujii, M. and Ikawa, Y. (2008), 'The development of simplified technology roadmapping for use by Japanese chemical companies', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
  196. Fukuda, K., Watanabe, M., Korenaga, M. and Seimaru, K. (2008), 'The progress of the strategic technology roadmap of METI (Ministry of Economy, Trade and Industry of Japan): practical business cases and sustainable manufacturing perspective', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
  197. Gajsek, B., Simenc, M., Lerher, T. and Potrc, I. (2009), 'On the technology roadmapping based development of the new order-picking technology RF kinetic', *Advanced Engineering*, 3 (2).
  198. Galvin, R. (1998), 'Science roadmaps', *Science*, 280 (5365), pp. 803.
  199. Galvin, R. (2004), 'Roadmapping - a practitioner's update', *Technological Forecasting and Social Change*, 71, pp. 101-103.
  200. Garcia, M.L. and Bray, O.H. (1997), 'Fundamentals of technology roadmapping', Report SAND97-0665, Sandia National Laboratories.
  201. Garcia, M.L. (1997), 'Introduction to technology roadmapping: the Semiconductor Industry Association's technology roadmapping process', Report SAND97-0666, Sandia National Laboratories.
  202. Gardina, J. (2011), 'Federal preemption: a roadmap for the application of tribal law in state courts', *American Indian Law Review*, 35 (1), pp. 1-37.
  203. Garfunkel, M.S., Sarewitz, D. and Porter, A.L. (2006), 'A societal outcomes map for health research and policy', *American Journal of Public Health*, 96 (3), pp. 443-446.
  204. Garg, M. and Jindal, M.K. (2009), 'Reverse engineering – roadmap to effective software design', *International Journal of Recent Trends in Engineering*, 1 (2), pp. 186-188.
  205. Gausmemeier, J., Brink, V., Ihmels, S., Kokoschka, M. and Reymann, F. (2009), 'Strategic product- and technology-planning with the innovation-database: a field-proven approach from the market-oriented product idea up to an operational development roadmap', *International Conference on Industrial Technology (ICIT)*, Monash University, 10-13 February.
  206. Ghazinoory, S., Daneshmand-Mehr, M. and Arasti, M.R. (2014), 'Developing a model for integrating decisions in technology roadmapping by fuzzy PROMETHEE', *Journal of Intelligent & Fuzzy Systems*, 26, pp. 625-645.
  207. Gedney, R.W., McElroy, J.B. and Winkler, P.E. (1998), 'The implications of roadmapping on university research', *48<sup>th</sup> IEEE Electronic Components and Technology Conference*, 25-28 May.
  208. Gedney, R.W., McElroy, J.B. and Winkler, P.E. (1998), 'The implications of roadmapping on university research', *48<sup>th</sup> Electronic Components and Technology Conference*, 25-28 May, Seattle, pp. 638-642.
  209. Geels, F.W. and Schot, J. (2007), 'Typology of sociotechnical transition pathways', *Policy Research*, 36, pp. 399-417.
  210. Gehani, R.R. (2007), 'Technology roadmapping for commercializing strategic innovations', *Journal of Technology Management & Innovation*, 2 (2), pp. 31-45.
  211. Georgiou, P., Tourkolias, C. and Diakoulaki, D. (2008), 'A roadmap for selecting host countries of wind energy projects in the framework of the clean development mechanism', *Renewable and Sustainable Energy Reviews*, 12, pp. 712-731.
  212. Gerdri, N. (2004), *An analytical approach to building a technology development envelope for roadmapping of emerging technologies*, PhD Thesis, Portland State University.
  213. Gerdri, N. (2005), 'An analytical approach to building a technology development envelope (TDE) for roadmapping of emerging technologies', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 1-4 August, Portland, OR.
  214. Gerdri, N. (2007), 'An analytical approach to building a technology development envelope (TDE) for roadmapping of emerging technologies', *International Journal of Innovation and Technology Management*, 4 (2), pp. 121-135.
  215. Gerdri, N. (2007), 'Roadmapping – a new management tool for technology-driven organizations', *Chulalongkorn Review Journal*, April-June, pp. 24-38.
  216. Gerdri, N. and Assakul, P. (2007), 'Key success factors for initiating technology roadmapping

- (TRM) process: a case study of a leading Thai firm', *Asia Pacific Academy of Management and Business Conference (APAMB)*, 5-8 March, Singapore.
217. Gerd Sri, N., Assakul, P. and Vatananan, R.S. (2008), 'Applying change management approach to guide the implementation of technology roadmapping (TRM)', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
  218. Gerd Sri, N., Assakul, P. and Vatananan, R.S. (2010), 'An activity guideline for technology roadmapping implementation', *Technology Analysis & Strategic Management*, 22 (2), pp. 229-242.
  219. Gerd Sri, N. and Danamasatid, S. (2008), 'Applying technology roadmapping to drive the corporate's strategic medium-term plan into actions: lessons from the SCG Building Materials Co.', *Sasin Journal of Management*, 14 (1), pp. 41-53.
  220. Gerd Sri, N. and Kocaoglu, D.F. (2003), 'An analytical approach to building a technology development envelope (TDE) for roadmapping of emerging technologies: a case study of emerging electronic cooling technologies for computer servers', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
  221. Gerd Sri, N. and Kocaoglu, D.F. (2003), 'An Analytical Approach to Building a Technology Development Envelope (TDE) for Roadmapping of Emerging Technologies', Institute for Operations Research and the Management Sciences (INFORMS) Conference, October, Atlanta, GA.
  222. Gerd Sri, N. and Kocaoglu, D.F. (2007), 'Applying the analytic hierarchy process (AHP) to build a strategic framework for technology roadmapping', *Mathematical and Computer Modelling*, 46 (7-8), pp. 1071-1080.
  223. Gerd Sri, N., Kongthon, A. and Vatananan, R.S. (2013), 'Mapping the knowledge evolution and professional network in the field of technology roadmapping: a bibliometric analysis', *Technology Analysis & Strategic Management*, 25 (4), pp. 403-422.
  224. Gerd Sri, N., Vatananan, R.S. (2007), 'Dynamics of technology roadmapping (TRM) implementation', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland OR.
  225. Gerd Sri, N., Vatananan, R.S. and Dansamasatid, S. (2009), 'Dealing with the dynamics of technology roadmapping implementation: a case study', *Technological Forecasting & Social Change*, 76 (1), pp. 50-60.
  226. Geum, Y., Kim, J., Son, C. and Park, Y. (2013), 'Development of dual technology roadmap (TRM) for open innovation: structure and typology', *Journal of Engineering and Technology Management*, 30 (3), pp. 309-325.
  227. Geum, Y., Lee, S., Kang, D & Park, Y (2011), 'The customisation framework for roadmapping product-service integration', *Service Business*, 5, pp. 213-236.
  228. Geum, Y., Lee, S., Kang, D & Park, Y (2011), 'Technology roadmapping for technology-based product-service integration: a case study', *Journal of Engineering and Technology Management*, 28, pp. 128-146.
  229. Geum, Y., Lee, S. and Park, Y. (2014), 'Combining technology roadmap and system dynamics simulation to support scenario planning: a case of car-sharing system', *Computers & Industrial Engineering*, 71, pp. 37-49.
  230. Geum, Y. and Park, Y. (2010), 'Development of technology roadmap for product-service system (TRPSS)', *IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, Macao, 7-10 December.
  231. Geum, Y. and Park, Y. (2013), 'The state-of-the-art of public sector technology roadmaps: a taxonomical approach to energy technology roadmaps', *Science and Public Policy*, 40, pp. 327-339.
  232. Giebel, M., Essmann, H., Du Preez, N. and Jochem, R. (2009), 'Improved innovation through the integration of quality gates into the enterprise and product lifecycle roadmaps', *CIRP Journal of Manufacturing Science and Technology*, 1, pp. 199-205.
  233. Gilbert, E., Day, M. and Oelke, J. (2009), 'Case study: developing a smart grid roadmap for a regional utility company', *Proceedings of Grid-Interop*, Denver, 17-19 November, pp. 17-19.
  234. Gilmer, C. (2011), *Product roadmapping 101: tips for managing product requirements*, August, Opus Plus Inc.
  235. Gindy, N., Arman, H. and Cavin, S. (2009), 'Linking R&D investment strategies to business needs: strategic technology alignment roadmapping (STAR)', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
  236. Gindy, N.N.Z., Cerit, B. and Hodgson, A. (2006), 'Technology roadmapping for the next generation manufacturing enterprise', *Journal of Manufacturing Technology Management*, 17 (4),

- pp. 404-416.
237. Gindy, N., Morcos, M., Cerit, B. and Hodgson, A. (2008), 'Strategic technology roadmapping STAR® aligning R&D investments with business needs', *International Journal of Computer Integrated Manufacturing*, 21 (8), pp. 957-970.
  238. Gokhale, M.M. and Myers, D.D. (2007), 'Technology and competence alignment to the roadmap', *19<sup>th</sup> IEEE International Engineering Management Conference (IEMC)*, 29 July – 1 August, Austin.
  239. Golovatchev, J., Kellmerit, D. and Budde, O. (2008), 'Innovation radar – a strategic approach for an innovation development and profitable launch of new product and services', *4<sup>th</sup> IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 21-24 Sept, Bangkok.
  240. Gomes, L.D.V. and Salerno, M.S. (2010), 'Proposition of a dynamic approach for a technology roadmap', *21<sup>st</sup> Annual Conference of the Production and Operations Management Society (POM)*, Vancouver, 7-10 May.
  241. Gonzalez, C.J.I., Ogliari, A. and Back, N. (2008), 'Systematization of technology roadmapping', *Product: Management & Development*, 6 (2), pp. 77-97.
  242. Gordon, T.J. (2011), 'Science and technology roadmapping', *Futures Research Methodology – V3.0*, Ed. J.C. Glenn and T.J. Gordon, The Millennium Project.
  243. Gough, C., Mander, S. and Haszeldine, S. (2010), 'A roadmap for carbon capture and storage in the UK', *International Journal of Greenhouse Gas Control*, 4, pp. 1-12.
  244. Grover, H.K. and Pretorius, M.W. (2007), 'The technology assessment of demand side bidding within the South African context', *IEEE Africon Conference*, Windhoek, 26-28 September.
  245. Green, J.A.S. (2009), 'Developing a technology roadmap for automotive lightweight metals recycling', *Light Metal Age*, December, pp. 32-34.
  246. Grinnell, M., Richey, J. and McQueen, E. (2002), 'Case study: innovation roadmapping using enterprise automation software', *Motorola White Paper*, 14<sup>th</sup> June, and International Society for Professional Innovation Management (ISPIM), Newsletter, November, pp. 6-7.
  247. Groenveld, P. (1997), 'Roadmapping integrates business and technology', *Research-Technology Management*, Sept-Oct., 40 (5), pp. 48-55.
  248. Groenveld, P. (2007), 'Roadmapping integrates business and technology', *Research-Technology Management*, 50 (6), pp. 49-58.
  249. Grossman, D.S. (2004), 'Putting technology on the road', *Research-Technology Management*, 47 (2), pp. 41-46.
  250. Güemes-Castorena, D. and Uscanga-Castillo, G.I. (2014), 'Evaluation tool for technological project selection in the early stage of innovation: experiences from the development of the application of a technology transfer office', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
  251. Guler, S. and Oner, M.A. (2003), 'Technology roadmapping of wireless local area networks using Graphical Modelling System', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
  252. Guo, W. (2010), 'Technology roadmapping as a new tool of knowledge management', *Control and Decision Conference (CCDC)*, 26-28 May, Xuzhou.
  253. Guohong, W. and Dapeng, C. (2010), 'The evolutionary game analysis on the technological road mapping of low carbon economy within a cluster', *International Conference on Management and Service Science (MASS)*, Wuhan, 24-26 August.
  254. Ha, H., Yoon, B. and Phaal, R. (2010), 'Investigation of evolution and link patterns in technology roadmapping', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
  255. Haaker, T. (Ed.) (2012), *Creating robust business models – practical tools to harness your business*, Novay.
  256. Hakkarainen, K. (2006), 'Strategic management of technology – from creative destruction to superior resilience', *Acta Wasaensia*, 162, University of Wasaensis.
  257. Hakkarainen, K. (2006), 'Got lost with a roadmap?', White Paper, Virike Consulting.
  258. Hakkarainen, K. and Talonen, T. (2008), 'Dualism of roadmap planning and portfolio management', *17<sup>th</sup> International Conference on Management of Technology*, Dubai, 6-10<sup>th</sup> April.
  259. Hallbert, B.P., Kowall, S.J., Klinger, R.D. and Weingartner, C.B. (2002), 'Long-term stewardship science and technology roadmap', *Waste Management Conference*, 24-28 February, Tucson.
  260. Hamid, S. and Anwar, R. (2007), 'Framework and roadmap for e-learning industry: and analysis', *3<sup>rd</sup> International Conference on Information Technology*, Al-Zaytoonah University, Jordan, 9-11 May.

261. Han, H., An, X., Zhu, D. and Wang, X. (2012), 'Technology road mapping method combined required-pull with technology push analysis', in *Affective Computing and Intelligent Interaction*, Ed. J. Luo, Springer (selected papers from 2012 International Conference on Affective Computing and Intelligent Interaction (ICACII), Taipei, 27-28 February).
262. Han, X. and Zhang, Q. (2007), 'The effect of technology roadmapping in knowledge management' (in Chinese), *Forecasting*, 26(2), pp. 41-47.
263. Hanninen, D. and Sandberg, B. (2006), 'Consumer learning roadmap: a necessary tool for new products', *International Journal of Knowledge and Learning*, 2 (3-40), pp. 298-307.
264. Hardisty, A.R., Peirce, S.C., Preece, A., Bolton, C.E., Conley, E.C., Gray, W.A., Rana, O.F., Yousef, Z. and Elwyn, G. (2011), 'Bridging two translation gaps: a new informatics research agenda for telemonitoring of chronic disease', *International Journal of Medical Informatics*, 80, pp. 734-744.
265. Harmon, R.R., Daim, T. and Raffo, D. (2010), 'Roadmapping the future of sustainable IT', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Phuket.
266. Harmon, R.R., Demirkan, H. and Raffo, D. (2012), Roadmapping the next wave of sustainable IT', *Foresight*, 14 (2), pp. 121-138.
267. Harmon, R.R. and Laird, G.L. (2012), 'Roadmapping the service transition: insights for technology organizations', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 29 July – 2 August, Vancouver.
268. Harrell, S., Seidel, T. and Fay, B. (1996), 'The National Technology Roadmap for Semiconductors and SEMATECH future directions', *Microelectronic Engineering*, 30, pp. 11-15.
269. Hassan, S., Chishti, M.A., Anwar, F. and Elamvazuthi, C. (2004), 'Technology roadmap composer: web based tool for technology developemnt', *MMU International Symposium on Information and Communications Technologies (M2USIC)*, 7-8 October, Putrajaya, Malaysia.
270. Hassan, S., Chishti, A. and Elamvazuthi, C. (2006), 'Web-based documentation system for dynamic roadmaps', *AACE Journal*, 14 (3), pp. 257-268.
271. Hertzberg, M., Aspeborg, H., Schrader, J., Andersson, A., Erlandsson, R., Blomqvist, Bhalerao, R., Uhlen, M., Teeri, T.T., Lundberg, J., Sundberg, B., Nilsson, P. and Sandberg, G. (), 'A transcriptional roadmap to wood formation', *Proceedings of the National Academy of Sciences of the United States of America*, 98 (25), pp. 14732-14737.
272. Herrmann, K. (2007), 'Roundtrip roadmapping: from the roadmap to the model and back again', *International Conference on Software Process and Product Measurement (IWSM-Mensura)*, Palma, 5-8 November.
273. Hicks, B., Riggs, L.H., McDaniel, L. and Sanner, J. (2003), 'Managing change through roadmapping', *Digital Avionics Systems Conference (DASC)*, 12-16 October, Indianapolis; also published in *IEEE A&E Systems Magazine*, May 2004, pp. 9-15.
274. Hinkebein, T.E. and Price, M.K. (2005), 'Progress with the desalination and water purification technologies US roadmap', *Desalination*, 182, pp. 19-28.
275. Hoffman, M. and Daim, T.U. (2006), 'Building energy efficient technology roadmaps: a case of Bonneville Power Administration (BPA)', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 8-13 July, Istanbul.
276. Holmes, C. and Ferrill, M. (2005), 'The application of operation and technology roadmapping to aid Singaporean SMEs identify and select emerging technologies', *Technology Forecasting & Social Change*, 72, pp. 349-357.
277. Holmes, C.J. and Ferrill, M.B.A. (2006), 'A process for the update and review of operation and technology roadmaps', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 21-23 June, Singapore.
278. Holmes, C.J., Ferrill, M.B.A. and Phaal R. (2004), 'Reasons for roadmapping: a study of the Singaporean SME manufacturing sector', *IEEE International Engineering Management Conference (IEMC)*, 18-21 October, Singapore.
279. Hooshangi, S., Arasti, M.R., Hounshell, D.A. and Sahebzamani, S. (2013), 'Evolutionary learning methodology: a case study of R&D strategy development', *Technological Forecasting & Social Change*, 80, pp. 956-976.
280. Hooshangi, S., Arasti, M.R. and Sahebzamani, S. (2008), 'Crafting a methodology for formation of R&D strategy based on evolutionary epistemology: case study of Iran power industry', *3<sup>rd</sup> European Conference on Management of Technology (EuroMOT)*, Nice, 17-19 September.
281. Hopkins, D.C., Mathúna, S.C. and Alderman, A.N. (1998), 'A four-dimensional road-mapping framework for power packaging technology', *Proceedings of IMAPS 31<sup>st</sup> International Symposium on Microelectronics*, San Diego, 1-4 November.

282. Hoppermann, J. (2009), *The lean innovation roadmap – a systematic approach to introducing lean in product development processes and establishing a learning organization*, Diploma Thesis, Technical University of Braunschweig.
283. Hou, J., Lu, Q., Shi, Y., Rong, K. and Lei, Q. (2010), 'Critical factors for technology roadmapping: case studies', *IEEE International Conference on Industrial Engineering and Engineering Management*, Macau, 7-10 December.
284. Hosking, J., Smith, P., Krull, E. and Jones, N. (2011), 'Learning at the elbows of experts: technology roadmapping with software engineering students', *IEEE-CS Conference on Software Engineering Education and Training*, 22-24 May, Honolulu.
285. Howard, E.G. (2005), 'Technology insertion for major aerospace programs', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 1-4 August, Portland, OR.
286. Howard-Grenville, J.A. (2005), 'The persistence of flexible organizational routines: the role of agency and organizational context', *Organizational Science*, 16 (6), pp. 618-636.
287. Howard-Grenville, J. and Carlile, R.R. (2006), 'The incompatibility of knowledge regimes: consequences of the material world for cross-domain work', *European Journal of Information Systems*, 15, pp. 473-485.
288. Huang, L., Guo, Y., Porter, A.L., Joutie, J. and Robinson, D.K.R. (2012), 'Visualising potential innovation pathways in a workshop setting: the case of nano-enabled biosensors', *Technology Analysis & Strategic Management*, 25 (5), pp. 527-542.
289. Huang, L., Zhang, Y., Guo, Y., Zhu, D. and Porter, A.L. (2014), 'Four dimensional science and technology planning: a new approach based on bibliometrics and technology roadmapping', *Technology Forecasting & Social Change*, 81, pp. 39-48.
290. Hugh, M.J., Roche, M.Y. and Bennett, S.J. (2007), 'A structured and qualitative systems approach to analysing hydrogen transitions: key changes and actor mapping', *International Journal of Hydrogen Energy*, 32, pp. 1314-1323.
291. Hussain, M.K., Tapinos, E. and Knight, L. (2014), 'A conceptual method combining scenario planning and technology roadmapping', *XXV ISPIM Conference – Innovation for Sustainable Economy & Society*, Dublin, 8-11 June.
292. Hutchby, J.A. (2014), 'A "Moore's Law"-like approach to roadmapping photovoltaic technologies', *Renewable and Sustainable Energy Reviews*, 29, pp. 883-890.
293. Ibarra, C.J.G., Ogliari, A. and Albertazzi, A. (2014), 'Application of technology roadmapping to the planning of new measurement systems', *International Conference on Engineering, Technology and Innovation (ICE)*, Bergamo, 23-25 June.
294. Il, L.W. and Sangbum, P. (2011), 'The major determinants for the adoption of the strategic technology roadmap (STRM) as an infrastructure for technological innovation', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
295. Ilevbare, I. (2013), *An investigation into the treatment of uncertainty and risk in roadmapping: a framework and practical process*, PhD thesis, University of Cambridge.
296. Ilevbare, I.M., Probert, D. and Phaal, R. (2014), 'Towards risk-aware roadmapping: influencing factors and practical measures', *Technovation*, 34, pp. 399-409.
297. Industry Canada (2002), 'Synthesis of six technology roadmap evaluations', Final Report, The Strategic Review Group, March.
298. Industry Canada (2007), 'Technology roadmapping in Canada: A development guide', Industry Canada.
299. Industry Canada (2007). 'Evaluating technology roadmaps – a framework for monitoring and measuring results', Industry Canada.
300. Ioannou, C.A., Panagiotopoulos, P. and Stergioulas, L. (2009), 'Roadmapping as a collaborative strategic decision-making process: shaping social dialogue options for the European banking sector', *World Academy of Science, Engineering and Technology*, Vol. 54, Paris, June.
301. ISR (2001), *Technology planning for business competitiveness – a guide to developing technology roadmaps*, Emerging Industries Section, Department of Industry, Science and Resources, Australia, August.
302. International Energy Agency (2010), *Energy technology roadmaps – a guide to development and implementation*, IEA, Paris.
303. Ish-Shalom, P. (2008), 'The rhetorical capital of theories: the democratic peace and the road to the roadmap', *International Political Science Review*, 29 (3), pp. 281-301.

304. Jamali, D., Khoury, G. and Sahyoun, H. (2006), 'From bureaucratic organizations to learning organizations: an evolutionary roadmap', *The Learning Organization: An International Journal*, 13 (4), pp. 337-352.
305. Janson, F., Cuhls, K. and Isenmann, R. (Eds) (2010), *Zukunftsfähig mit IT – Wie kleine und mittlere Unternehmen mit Roadmaps ihre Innovationskraft stärken können*, MFG Baden-Württemberg.
306. Jantan, M., Ndubisi, N.O. and Hing, L.C. (2006), 'Supplier selection strategy and manufacturing flexibility: impact of quality and technology roadmaps', *Asian Academy of Management Journal*, 11 (1), pp. 19-47.
307. Jantunen, S. and Smolander, K. (2006), 'Challenges of knowledge and collaboration in roadmapping', *International Workshop on Software Product Management (IWSPM)*, 12 September, Minneapolis.
308. Jeffrey, H., Sedgwick, J. and Robinson, C. (2013), 'Technology roadmaps: an evaluation of their success in the renewable energy sector', *Technological Forecasting & Social Change*, 80, pp. 1015-1027.
309. Jeong, J., Lee, H. and Park, Y. (2011), 'Implementing technology roadmapping with supplier selection for semiconductor manufacturing companies', *Technology Analysis & Strategic Management*, 23 (8), pp. 899-918.
310. Jeong, Y. and Yoon, B. (2011), 'Technology roadmapping based on patent citation network considering technology life cycle', *IEEE Technology Management Conference (ITMC)*, 27-30 June, Jan Jose.
311. Jie, Y., Kobayashi, T. and Nakamori, Y. (2005), 'Study on a roadmapping process model as a way to support technology creation in university setting', *1<sup>st</sup> Congress of the International Federation for Systems Research*, Kobe, 14-17 November.
312. Jirapornanan, A. (2010), 'Study of smart grid for Thailand and identification of the required research and development', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Portland, OR.
313. Johnson, J.A.R. (2011), 'Exploring the development of place-based learning within a Singaporean context: the research road mapping process (RRRP)', *Conference on Redesigning Pedagogy: Transforming Teaching, Inspiring Learning*, 30 May – 1 June, Singapore.
314. Johnson, S. (2013), *On roadmaps and roadmapping: agile beyond the product team*, Under 10 Templates LLC.
315. Juehling, E., Stehr, J. and Herrmann, C. (2010), 'Adaptation of technology roadmapping to automotive after sales', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
316. Juehling, E., Torney, M., Herrmann, C. and Droeder, K. (2010), 'Integration of automotive service and technology strategies', *CIRP Journal of Manufacturing Science and Technology*, 3, pp. 98-106.
317. Jühling, E., Torney, M., Herrmann, C. and Dröder, K. (2009), 'Framework for the integration of service and technology strategies', *1<sup>st</sup> CIRP Industrial Product-Service Systems (IPS2) Conference*, Cranfield, 1-2 April.
318. Jun, S.-P., Seo, J.H. and Son, J.-K. (2013), 'A study of the SME technology roadmapping program to strengthen the R&D planning capability of Korean SMEs', *Technological Forecasting & Social Change*, 80, pp. 1002-1014.
319. Jurgens-Kowal, T. (2011), 'Roadmapping 101', New Product Innovation Paper 17, Global NP Solutions. LLC.
320. Kachieng'a, M.O. (2009), 'Roadmap from technology colony to industrialisation: the case of South Africa', *IEEE International Conference on Industrial Engineering and Engineering Management*, 8-11 December, Hong Kong.
321. Kahng, A.B. (2002), 'Shared red bricks', *IEEE Design & Test of Computers*, March-April, pp. 104-106.
322. Kahng, A.B. (2011), 'Roadmapping power', *IEEE Design & Test of Computers*, Sept-Oct, pp. 104-106.
323. Kahng, A.B. (2013), 'The ITRS design technology and system drivers roadmap: process and status', *50th ACM/EDC/IEEE Design Automation Conference (DAC)*, 29 May – 7 June, Austin.
324. Kajikawa, Y. (2010), 'Computer-assisted roadmapping – current status and limitations', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
325. Kajikawa, Y., Kikuchi, Y., Fukushima, Y. and Koyama, M. (2011), 'Utilizing risk analysis and scenario planning for technology roadmapping: a case in energy technologies', *Portland*

- International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
326. Kajikawa, Y., Takeda, Y. and Matsushima, K. (2008), 'Computer-assisted roadmapping: a case study in energy research', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Cape Town.
  327. Kajikawa, Y., Takeda, Y. and Matsushima, K. (2010), 'Computer-assisted roadmapping: a case study in energy research', *Foresight – The Journal of Future Studies, Strategic Thinking and Policy*, 12 (2), pp. 4-15.
  328. Kajikawa, Y., Usui, O., Hakata, K., Yasunaga, Y. and Matsushima, K. (2008), 'Structure of knowledge in the science and technology roadmaps', *Technology Forecasting & Social Change*, 75, pp. 1-11.
  329. Kajikawa, Y., Yosikawa, J., Takeda, Y. and Matsushima, K. (2008), 'Tracking emerging technologies in energy research: toward a roadmap for sustainable energy', *Technological Forecasting & Social Change*, 75, pp. 771-782.
  330. Kamalakidis, T., Neokosmidis, D., Varoutas, D. and Sphicopoulos, T. (2006), 'Demand and price evolution forecasting as tools for facilitating the roadmapping process of the photonic component industry', *Proceedings of World Academy of Science, Engineering and technology*, Vol. 18, December, pp. 138-143.
  331. Kameoka, A. (2003), Road-mapping for corporate strategy, *Tech Monitor*, Jul-Aug, pp. 35-40.
  332. Kameoka, A. (2003), 'Road-mapping for corporate strategy – a Japanese case study involving Delphi-scenario writing', *Tech Monitor*, Jul-Aug, pp. 35-40.
  333. Kameoka, A., Kuwahara, T. and Li, M. (2003), 'Integrated strategy development: an integrated roadmapping approach', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
  334. Kameoka, A. and Li, M. (2004), 'New direction and strategy of MOT practice in Japan – from "just-in-time production" to "just-in-time innovation"', *International Engineering Management Conference (IEMC)*, 18-21 October, Singapore.
  335. Kamtsiou, V. and Klobučar, T. (2013), 'Integrating roadmapping and disagreement management methodologies for coordinating development of competency-driven education standards: the ICOPER case', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 28 Jul – 1 Aug, San Jose.
  336. Kamtsiou, V. and Naeve, A. (2008), 'Roadmapping: a methodology to improve strategy for design of learning technologies', *8<sup>th</sup> IEEE International Conference on Advanced Learning Technologies*, 1-5 July, Santander.
  337. Kamtsiou, V., Naeve, A., Stergioulas, L.K. and Koskinen, T. (2006), 'Roadmapping as a knowledge creation process: the PROLEARN roadmap', *Journal of Universal Knowledge Management*, 1 (3), pp. 163-173.
  338. Kamtsiou, V., Naeve, A., Stergioulas, L.K. and Koskinen, T. (2006), 'Future visions of technology-enhanced professional learning', *6<sup>th</sup> International Conference on Advanced Learning Technologies (ICALT)*, 5-7 July, Kerkrade, The Netherlands.
  339. Kamtsiou, V., Naeve, A., Stergioulas, L.K. and Pappa, D. (2007), 'Future visions of technology-enhanced professional learning', *6<sup>th</sup> IEEE International Conference on Advanced Learning Technologies (ICALT)*, Kerkrade, 5-6 July.
  340. Kamtsiou, V., Olivier, B., Derntl, M., Millwood, R. and Naeve, A. (2013), *An implementation guide for roadmapping practitioners*, EU TEL-MAP project report.
  341. Kanama, D. (2007), 'EU nanoroadmap: issues and outlook for technology roadmaps in the nanotechnology field', *Science & Technology Trends – Quarterly Review*, 23, pp. 55-64.
  342. Kanama, D., Kondo, A. and Yokoo, Y. (2008), 'Development of technology foresight: integration of technology roadmapping and the Delphi method', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 184-200.
  343. Kappel, T.A. (1998), *Technology roadmapping: an evaluation*, PhD thesis, Northwestern University.
  344. Kappel, T.A. (1998), 'The social context of industrial creativity: R&D planning using roadmaps', *Kellogg Journal of Organizational Behavior*, Kellogg Team and Group Research Center (KTAG), Northwestern University.
  345. Kappel, T.A. (2001), 'Perspectives on roadmaps: how organizations talk about the future', *Journal of Product Innovation Management*, 18, pp. 39-50.
  346. Karlsson, M. and Dawidson, O. (2003), 'Product & technology roadmapping in the mobile phone industry', *International Conference on Management of Research and Development*, 10-11 January, New Dehli.



347. Kayser, V., Goluchowicz, K. and Bierwisch, A. (2014), 'Text mining for technology roadmapping – the strategic value of information', *International Journal of Innovation Management*, 18 (3), 23pp.
348. Kazi, A.S. (2007), 'Strategic roadmapping and implementation actions', *Hands-on knowledge co-creation and sharing: practical methods and techniques*, Ed. A.S. Kazi, L. Wohlfart and P. Wolf, KnowledgeBoard, pp. 539-556.
349. Kazi, A.S., Aouad, G. and Baldwin, A. (2009), 'Editorial – next generation construction IT: technology foresight, future studies, roadmapping, and scenario planning', *Journal of Information Technology in Construction*, 14, pp. 123-128.
350. Kekäläinen, H. (2004), 'Challenges of e-business for logistics – building a technology roadmap for logistics', *Logistics Research Network (LRN) Annual Conference*, 9-10 September, Dublin.
351. Kennedy, C. (1998), 'The roadmap to success: how Gerhard Schulmeyer changed the culture at Siemens Nixdorf', *Long Range Planning*, 31(2), pp. 262-271.
352. Kerr, C., Farrukh, C., Phaal, R. and Probert, D. (2011), 'A philosophical stance on developing industrially relevant strategic technology management toolkits', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
353. Kerr, C., Farrukh, C., Phaal, R. and Probert, D. (2013), 'Key principles for developing industrially relevant strategic technology management toolkits', *Technology Forecasting & Social Change*, 80(6), pp. 1050-1070.
354. Kerr, C.I.V., Phaal, R. and Probert, D.R. (2009), 'Addressing the cognitive and social influence inhibitors during the ideation stages of technology roadmapping workshops', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
355. Kerr, C., Phaal, R. and Probert, D. (2010), 'Depicting options and investment appraisal information in roadmaps', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
356. Kerr, C., Phaal, R. and Probert, D. (2012), 'Depicting options and investment appraisal information in roadmaps', *International Journal of Innovation and Technology Management*, 9 (3), 19 pages.
357. Kerr, C.I.V., Phaal, R. and Probert, D.R. (2014) 'Depicting the future strategic plans of the Royal Australian Navy using a roadmapping framework as a visual composite canvas', *Technology Analysis & Strategic Management*, 26 (1), pp. 1-22.
358. Kiatpongsan, S. (2008), 'Policy roadmap for stem cell technology in Thailand', *J Med Assoc Thai*, 91 (1), pp. 124-128.
359. Kim, B. (2006), 'Technology roadmapping: R&D planning coordination between component supplier-system integrator', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 21-23 June, Singapore.
360. Kim, C., Kim, H., Han, S.H., Kim, C., Kim, M.K. and Park, S.H. (2009), 'Developing a technology roadmap for construction R&D through interdisciplinary research efforts', *Automation in Construction*, 18, pp. 330-337.
361. Kim, H., Lee, J. and Park, B. (2009), 'A suggestion of the roadmapping process to make an integration roadmap between service-device technology – with a focus on the case of u-city', *9<sup>th</sup> International Conference on Electronic Business*, Macau, 30 November – 4 December.
362. Kim, H.Y. and Park, Y.T. (2004), 'Development and application of web-based technology roadmap: QFD and scenario planning approach', *Proceedings of the Korean Institute of Industrial Engineers*, Seoul, pp. 110-116.
363. Kirsi, E. (2010), *Strategic roadmap creating process*, Thesis, Laurea University of Applied Sciences.
364. Klappert, S. and Wellensiek, M. (2009), 'Monitoring-Radare und Technologie-Roadmaps', *Elektronik*, Issue 4, pp. 40-45.
365. Kockan, I., Yildirim, A.M. and Daim, T. (2009), 'Application of technology development envelope methodology for future powertrain systems', *17<sup>th</sup> GERPISA International Colloquium*, 17-19 June, Paris.
366. Koen, P.A. (1997), 'Technology maps: choosing the right path', *Engineering Management Journal*, 9 (4), pp. 7-11.
367. Koivisto, R., Wessberg, N., Eerola, A., Ahlqvist, T., Kivisaari, S., Myllyoja, J. and Halonen, M. (2009), 'Integrating future-oriented technology analysis and risk assessment methodologies', *Technological Forecasting & Social Change*, 76, pp. 1163-1176.

368. Kolar, J.W., Biela, J., Waffler, S., Friedli, T. and Badstuebner, U. (2010), 'Performance trends and limitations of power electronic systems', *6<sup>th</sup> International Conference on Integrated Power Electronics Systems*, Nuremberg, 16-18 May.
369. Komssi, M., Kauppinen, M., Tohonen, H., Lehtola, L. and Davis, A.M. (2011), 'Integrating analysis of customers' processes into roadmapping: the value-creation perspective', *IEEE 19<sup>th</sup> International Requirements Engineering Conference*, 29 Aug – 2 Sept, Trento.
370. Komssi, M., Kauppinen, M., Tohonen, H., Lehtola, L. and Davis, A.M. (2013), 'Roadmapping problems in practice: value creation from the perspective of the customers', *Requirements Engineering*, DOI 10.1007/s00766-013-0186-3.
371. Konkol, S. and Kiepuszewski, B. (2006), 'Enterprise architecture agility: roadmapping with EARM', *Cutter IT Journal*, March, pp. 10-15.
372. Konkol, S., Ozimek, W., Kiepuszewski, B. and Stokalski, B. (2005), 'The hitchhiker's guide to enterprise architecture roadmapping', Executive Report, Cutter Consortium, 8 (9).
373. Konnola, T., (2007), 'Innovation roadmap: exploring alternative futures of industrial renewal', Conference of Corporate R&D (CONCORD), Seville, 8-9<sup>th</sup> October.
374. Kono, T., Kohtsuki, S. and Aoyama, A. (2011), 'Strategic road mapping of embedded software production technology', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
375. Kostoff, R.N., Boylan, R. and Simons, G.R. (2004), 'Disruptive technology roadmaps', *Technological Forecasting and Social Change*, 71, pp. 141-159
376. Kostoff, R.J., Eberhart, H.J. and Toothman, D.R. (1998), 'Database tomography for technical intelligence: a roadmap of the near-earth space science and technology literature', *Information Processing & Management*, 34(1), pp. 69-85.
377. Kostoff, R.N. and Schaller, R.R. (2001), 'Science and technology roadmaps', *IEEE Transactions of Engineering Management*, 38 (2), pp. 132-143.
378. Kostoff, R.N., Tshiteya, R., Pfeil, K.M., Humenik, J.A. and Karypis, G. (2005), 'Power source roadmap using bibliometrics and database tomography', *Energy*, 30 (5), pp. 709-730.
379. Kumar, N. (2005), 'A broader Asian community and a possible roadmap', *Economic and Political Weekly*, 40 (36), pp. 3926-3931.
380. Kumar, S. and Krenner, N. (2002), 'Review of the semiconductor industry and technology roadmap', *Journal of Science Education and Technology*, 11 (3), pp. 229-236.
381. Kurokawa, S. and Meyer, J., (2001), 'An overview of technology roadmapping', 15 December, Drexel University.
382. Kynkäänniemi, T. (2007), 'Product roadmapping in collaboration', VTT Publications, 625.
383. Lamb, A.M. and Daim, T.U. (2012), 'Wood pellet technology roadmap', *IEEE Transactions on Sustainable Energy*, 3 (2), pp. 218-230.
384. Lanfer, S. (2012), *Technology-roadmapping in a project-driven organization*, Masters Thesis, School of Management and Governance (SMG), University of Twente.
385. Lange, K., Müller-Seitz, G., Sydow, J. and Windeler, A. (2013), 'Financing innovations in uncertain networks – filling in roadmap gaps in the semiconductor industry', *Research Policy*, 42, pp. 647-661.
386. Langen, M. and Kammergruber, W.C. (2013), 'Collaborative trend scouting and roadmapping', *IEEE International Technology Management Conference*, 24-26 June, The Hague.
387. Laube, T., Phaal, R. *et al.* (2007), *Praxishandbuch technologie roadmapping*, Fraunhofer Institut Produktionstechnik und Automatisierung.
388. Lawley, B. (2006), 'How to create compelling product roadmaps – tips and best practices for success', White Paper, 280 Group LLC.
389. Lawrence, J., Sedgwick, J., Jeffrey, H. and Bryden, I. (2013), 'An overview of the U.K. marine energy sector', *Proceedings of the IEEE*, 101 (4), pp. 876-890.
390. Lee, C.W. (2010), 'An international collaboration of technology using a business roadmapping approach', *International Journal of Entrepreneurship and Innovation Management*, 12 (3-4), pp. 363-374.
391. Lee, W.I. (2013), 'Major determinants for the successful implementation of technology roadmap in the technology intensive organization: a case of smart grid roadmap in Korea', *Journal of Advanced Management Science*, 1 (1), pp. 112-117.
392. Lee, S., Kang, S., Oh, M., Kim, K., Park, E., Lee, S. and Park, Y. (2006), 'Using patent information for new product development: keyword-based technology roadmapping approach', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 9-13 July, Istanbul.

393. Lee, S., Kang, S., Park, E. and Park, Y. (2007), 'Technology roadmapping for R&D planning: the case of the Korean parts and materials industry', *Technovation*, 27, pp. 433-445.
394. Lee, S., Kang, S., Park, E. and Park, Y. (2008), 'Applying technology road-maps in project selection and planning', *International Journal of Quality & Reliability Management*, 25 (1), pp. 39-50.
395. Lee, J.H., Kim, H. and Phaal, R. (2012), 'An analysis of factors improving technology roadmap credibility: a communications theory assessment of roadmapping processes', *Technological Forecasting & Social Change*, 79, pp. 263-280.
396. Lee, Y.-G., Lee, S.-J. and Chung, Y.-C. (2004), Technology roadmapping in strategic research areas: an R&D planning example of Korea Institute of Science and Technology, *Portland International Conference on Management of Engineering and Technology (PICMET)*, Seoul, 31st July - 4th August.
397. Lee, J., Lee, C.-Y. and Kim, T.-Y. (2009), 'A practical approach for beginning the process of technology roadmapping', *International Journal of Technology Management*, 47(4), pp. 306-321.
398. Lee, H.-K. and Liu, C.-M. (2008), 'Strategic alignment: from attention to execution', *Journal of Global Business Management*, 4 (1).
399. Lee, H.K., Liu C.-M. and Lee, M.-H. (2006), 'Aligning the business roadmap to technology roadmap for managing the new product development project', *Journal of the Chinese Institute of Industrial Engineers*, 23(6), pp. 449-457.
400. Lee, S., Lee, S., Seol, H. and Park, Y. (2008), 'Using patent information for designing new product and technology: keyword based technology roadmapping', *R&D Management*, 38(2), pp. 169-188.
401. Lee, H.K., Liu C.-M. and Lee, M.-H. (2006), 'Aligning the business roadmap to technology roadmap for managing the new product development project', *Journal of the Chinese Institute of Industrial Engineers*, 23(6), pp. 449-457.
402. Lee, S.K., Mogi, G. and Kim, J.W. (2009), 'Energy technology roadmap for the next 10 years: the case of Korea', *Energy Policy*, 37, pp. 588-596.
403. Lee, J.H., Phaal, R. and Lee, S.-H. (2013), 'An integrated service-device-technology roadmap for smart city development', *Technology Forecasting & Social Change*, 80, pp. 286-306.
404. Lee, S. and Park Y. (2005), 'Customization of technology roadmaps according to roadmapping purposes: overall process and detailed modules', *Technology Forecasting & Social Change*, 72, pp. 267-583.
405. Lee, C., Song, B., Cho, Y. and Park, Y. (2010), 'A Bayesian belief network approach to operationalization of multi-scenario technology roadmap', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Phuket.
406. Lee, C., Song, B. and Park, Y. (2015), 'An instrument for scenario-based technology roadmapping: how to assess the impacts of future changes on organisational plans', *Technology Forecasting & Social Change*, 90, pp. 285-301.
407. Lee, S., Yoon, B., Lee, C. and Park, J. (2009), 'Business planning based on technological capabilities: patent analysis for technology-driven roadmapping', *Technological Forecasting & Social Change*, 76, pp. 769-786.
408. Lee, S., Yoon, B. and Park, Y. (2008), 'Web-based supporting system for technology roadmap: development, application and integration', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 165-183.
409. Lee, W., (2015), 'The relationship between technology planning capability enhancement, the technology roadmap, and innovation', *International Journal of Innovation and Technology*, 6 (1), pp. 26-29.
410. Lehtola, L., Kauppinen, M. and Kujala, S. (2005), 'Linking the business view to requirements engineering: long-term product planning by roadmapping', *13<sup>th</sup> IEEE International Conference on Requirements Engineering*, 11-15 September, Minneapolis / St. Paul.
411. Lehtola, L., Kauppinen, M. and Vahaniitty, J. (2007), 'Strengthening the link between business decisions and RE: long-term product planning in software product companies', *15<sup>th</sup> IEEE International Requirements Engineering Conference*, 15-19<sup>th</sup> October, New Delhi.
412. Li, X.D., Hong, W., Liu, N. and Geng, L.X. (2013), 'Establishment research on industry technology roadmapping for technology innovation', *Applied Mechanics and Materials*, 321-324, pp. 2363-2366.
413. Li, Y.-R. (2009), 'The technological roadmap of Cisco's business ecosystem', *Technovation*, 29, pp. 397-386.

414. Li, M., Gao, F. and Kameoka, A. (2004), 'Enhancing creativity and imagination in process management', *International Engineering Management Conference (IEMC)*, 18-21 October, Singapore.
415. Li, M. and Kameoka, A. (2003), 'Creating added value from roadmapping process: a knowledge-creating perspective', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 4-6 December, Jecheon, Korea.
416. Li, Y.R. and Wang, L.H. (2011), 'Exploring the evolutionary roadmapping of technological trajectory: case study of Shimano', *4<sup>th</sup> International Conference on Interaction Sciences (ICIS)*, 16-18 August, Busan.
417. Li, X., Wang, L., Fu, Y. and Zeng, L. (2008), 'Roadmap on reliability: methodology and application in Guangdong's lead-free technology', *International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP)*, 28-31 July.
418. Li, M., Wang, L. and Kameoka, A. (2005), 'Making sense of roadmapping practices in dynamic contexts: a knowledge management perspective', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 1-4 August, Portland, OR.
419. Li, X., Zhou, Y., Huang, L., Wang, K. and Huang, Z. (2013), 'Research and development path of China's solar photovoltaic industry based on technology roadmapping and bibliometric', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 28 Jul – 1 Aug, San Jose.
420. Lichtenthaler, U. (2008), 'Integrated roadmaps for open innovation', *Research-Technology Management*, 51 (3), pp. 45-49.
421. Lichtenthaler, U. (2008), 'Opening up strategic technology planning: extending roadmaps and functional markets', *Management Decision*, 46 (1), pp. 77-91.
422. Lichtenthaler, U. (2010), 'Technology exploitation in the context of open innovation: finding the right 'job' for your technology', *Technovation*, 30, pp. 429-435.
423. Lipshutz, J.S. (2005), 'The court's implicit roadmap: charting the prudent course at the juncture of mandatory arbitration agreements and class action lawsuits', *Stanford Law Review*, 57 (5), pp. 1677-1719.
424. Lischka, J.-M. and Gemünden, H.G. (2008), 'Technology roadmapping for manufacturing: a case study at Siemens AG', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 201-214.
425. Liu, S. (2004), *Interactive planning for personal academic research roadmapping*, Thesis, School of Knowledge Science, Japan Advanced Institute of Science and Technology.
426. Liu, H. and Gallagher, K.S. (2010), 'Catalyzing strategic transformation to a low-carbon economy: a CCS roadmap for China', *Energy Policy*, 38, pp. 59-74.
427. Lizaso, F. and Reger, G. (2004), 'Scenario-based roadmapping - a conceptual view', *EU-US Scientific Seminar on New Technology Foresight, Forecasting & Assessment Methods*, 13-14 May, Seville, Spain.
428. Lizaso, F. and Reger, G. (2003), 'Linking roadmapping and scenarios for planning the development and deployment of technologies and applications towards shared visions', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
429. Lizaso, F. and Reger, G. (2004), 'Linking roadmapping and scenarios as an approach for strategic technology planning', *International Journal of Technology Intelligence and Planning*, 1 (1), pp. 68-86.
430. Londo, H.M., More, E., Phaal, R., Wütenberger, L. and Cameron, L. (2013), *Background paper on technology roadmaps (TRMs)*, Report for United Nations Framework Convention on Climate Change (UNFCCC).
431. Longini, P. (2004), 'Navigating pathways to the future – product roadmaps lead their readers in multiple directions', *Productmarketing*, 2 (4), pp. 4-6.
432. López-Ortega, E., Concepción, T.A. and Vilorio, S.B. (2006), 'Strategic planning, technology roadmaps and technology intelligence: an integrated approach', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 8-13 July, Istanbul.
433. Loureiro, A.M.V., Borschiver, S. and Coutinho, P.L.D. (2010), 'The technology roadmapping method and its usage in chemistry', *Journal of Technology Management and Innovation*, 5 (3), pp. 181-191.
434. Lu, K., Chen, L., He, T. and Yan, Q. (Eds) (2010), *Advanced materials science & technology in China: a roadmap to 2050*, Springer, Science Press Beijing.
435. Lu, W.-M. and Lo, S.-F. (2007), 'A benchmark-learning roadmap for regional sustainable development in China', *The Journal of the Operational Research Society*, 58 (7), pp. 841-849.

436. Luke, D.E., Dixon, B.W. and Murphy, J.A. (2002), 'Roadmapping – a tool for resolving science and technology issues relating to processing, packaging, and shipping nuclear materials and waste', *Institute of Nuclear Materials Management (INMM) Annual Meeting*, 23-27 June.
437. Luke, D.E., Dixon, B.W. and Murphy, J.A. (2003), '"Mini"-roadmapping – ensuring timely sites' cleanup/closure by resolving science and technology issues', *Waste Management Conference*, 23-27 February, Tucson.
438. Ma, T., Liu, S. and Nakamori, Y. (2004), 'Roadmapping for supporting scientific research', *17<sup>th</sup> International Conference on Multiple Criteria Decision Making (MCDM)*, Whistler, 6-11 August.
439. Ma, T., Liu, S. and Nakamori, Y. (2006), 'Roadmapping as a way of knowledge management for supporting scientific research in academia', *Systems Research and Behavioral Science*, 23, pp. 743-755.
440. Ma, T., Wierzbicki, A.P. and Nakamori, Y. (2007), 'Establish a creative environment for roadmapping in academy – from the perspective of *i*-system methodology', *Journal of Systems Science Engineering*, 16 (4), pp. 469-488.
441. Ma, T., Yan, H. and Nakamori, Y. (2007), 'Roadmapping and *i*-systems', *Lecture Notes in Computer Science*, 4490, pp. 1-8.
442. Ma, T., Yan, J., Nakamori, Y. and Wierzbicki, A.P. (2007), 'Creativity support for roadmapping', *Studies in Computational Intelligence*, Vol. 59, Springer, Berlin, pp. 155-189.
443. Ma, X. (2007), *Roadmapping digital broadcasting / mobile convergence – roadmapping workshop methodology*, EU ROADiBROM project IST-045437, 10<sup>th</sup> July.
444. Ma, X., Xiong, J., Gui, L., Liu, C. and Zhang, W. (2007), 'A joint EU-China roadmap for mobile multimedia industry: the preliminary results', *7<sup>th</sup> International Conference in Computational Science (ICCS)*, 27-30 May, Beijing, reprinted in *Lecture Notes in Computer Science*, Vol. 4490/2007, Springer, Berlin.
445. MacKenzie, D.R., Donald, S., Harrington, M., Heil, R., Helms, T.J. and Lund, D., (2002), 'Methods in science roadmapping – how to plan research priorities', *Science*, 280 (5365) Issue 8 (May), p. 803-827.
446. Macintosh, A., Filby, I. and Tate, A. (1998), 'Knowledge asset roadmaps', *2nd International Conference on Practical Aspects of Knowledge Management (PAKM98)*, Basel, Switzerland, 29-30 October.
447. Maltby, P., Dibb, S., Bellamy, E. and Knight, A. (2007), *You are what you sell – product roadmapping: driving sustainability*, UK Sustainable Development Commission.
448. Mankins, J.C. (2002), 'Approaches to strategic research and technology (R&T) analysis and road mapping', *Acta Astronautica*, 51 (1-9), pp. 3-21.
449. Manley, J. (2005), 'The future of North America: seeking a roadmap', *International Journal*, 60 (2), pp. 497-508.
450. Margherita, A. and Petti, C. (2010), 'ICT-enabled and process-based change: an integrative roadmap', *Business Process Management Journal*, 16 (3), pp. 473-491.
451. Martin, H. and Daim, T. (2007), 'Technology roadmapping through intelligence analysis: nanotechnology', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland, OR.
452. Martin, H. and Daim, T. (2008), 'Technology roadmapping through intelligence analysis: case of nanotechnology', *International Journal of Society Systems Science*, 1 (1), pp. 49-65.
453. Martin, H. and Daim, T.U. (2012), 'Technology roadmap development process (TRDP) for the service sector: a conceptual framework', *Technology in Society*, 34, pp. 94-105.
454. Martin, G. and Eggink, E. (2008), 'Creation of a thermal technology roadmap in a consumer electronics product environment', *24<sup>th</sup> IEEE Semiconductor Thermal Measurement and Management (SEMI-THERM) Symposium*, 16-20 March.
455. Martini, A., Corso, M. and Pellegrini, L. (2009), 'An empirical roadmap for intranet evolution', *International Journal of Information Management*, 29, pp. 295-308.
456. Masinde, M., Bagula, A. and Muthama, N. (2013), 'Implementation roadmap for downscaling drought forecasts in Mbeere using ITIKI', *ITU Kaleidoscope Conference: Building Sustainable Communities*, 22-24 April, Kyoto.
457. Mathuna, A.C.O., Ferreira, B. and van Wyk, D. (2005), 'Towards a roadmap for power electronics system integration', *11<sup>th</sup> European Conference on Power Electronics and Applications (EPE)*, Dresden, 11-14<sup>th</sup> September.
458. McCarthy, R.C. (2003), 'Linking technological change to business needs', *Research-Technology Management*, 42 (2), pp. 47-52.

459. McCarthy, J.J., Haley, D.J. and Dixon, B.W. (2001), 'Science and technology roadmapping to support project planning', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 29<sup>th</sup> July - 2<sup>nd</sup> August, pp. 637-649.
460. McDowall, W. (2012), 'Technology roadmaps for transition management: the case of hydrogen energy', *Technological Forecasting & Social Change*, 79, pp. 530-542.
461. McDowell, W. and Eames, M. (2006), 'Forecasts, scenarios, visions, backcasts and roadmaps to the hydrogen economy: a review of the hydrogen futures literature', *Energy Policy*, 34, pp. 1236-1250.
462. McKeen, J.D. and Smith, H.A. (2006), 'Developments in practice XXIII: creating and evolving a technology roadmap', *Communications of the Association for Information Systems*, 18, pp. 451-463.
463. McMillan, A. (2003), 'Roadmapping - agent of change', *Research-Technology Management*, 42 (2), pp. 40-47.
464. Meenual, T. (2010), 'Roadmapping the PEA smart grids', *PEA-AIT International Conference on Energy and Sustainable Development: Issues and Strategies (ESD 2010)*, Chiang Mai, 2-4 June.
465. Mieke, C. (2005), 'Kooperative technologiefrühaufklärung mittels szenariobasiertem technologie-roadmapping – entscheidungsmodelle, organisation, methodik, dissertation, Diplom-Wirtschaftingenieur, Technischen Universität Cottbus.
466. Möhrle, M.G. (2004), 'TRIZ-based technology-roadmapping', *International Journal of Technology Intelligence and Planning*, 1(1), pp. 87-99.
467. Möhrle, M.G. and Isenmann, R. (Ed.) (2005), *Technologie-Roadmapping: Zukunftsstrategien für Technologieunternehmen – 2. wesentlich erweiterte Auflage*, Springer-Verlag, Berlin.
468. Möhrle, M.G. and Isenmann, R. (Ed.) (2008), *Technologie-Roadmapping: Zukunftsstrategien für Technologieunternehmen – 3. new bearbeitete und erweiterte Auflage*, Springer-Verlag, Berlin.
469. Möhrle, M.G., Isenmann, R. and Phaal, R. (Ed.) (2013), *Technology roadmapping for strategy and innovation: charting the route to success*, Springer, Heidelberg, ISBN 978-3642339226.
470. More, E., Phaal, R. and Probert, D., (2014), 'Addressing resource over-exploitation via cooperative institutions: insights from sector level technology roadmapping', *12<sup>th</sup> Global Conference on Sustainable Manufacturing*, Johor Bahru, Malaysia, 22-24 September.
471. Moreau, S. (2007), *Visualization strategy for roadmaps – which conventions and attributes can facilitate the drawing, the reading and the understanding of temporal graphical roadmaps?*, MPhil thesis, University of Cambridge.
472. Motomura, H. (1995), 'The family and immigration: a roadmap for the Ruritanian lawmaker', *The American Journal of Comparative Law*, 43 (4), pp. 511-544.
473. Mulebeke, J.A.W. and Zheng, L. (2006), 'Incorporating integrated product development with technology road mapping for dynamism and innovation', *International Journal of Product Development*, 3 (1), pp. 56-76.
474. Muller, G. (2004), *CAFCR: a multi-view method for embedding systems architecting – balancing genericity and specificity*, PhD thesis, Technical University of Delft.
475. Muller, G. (2008), 'Roadmapping', 21<sup>st</sup> February, Embedded Systems Institute, Eindhoven.
476. Muller, G. (2008), 'The role of roadmapping in the strategy process', 21<sup>st</sup> January, Embedded Systems Institute, Eindhoven.
477. Mureddu, F., Osimo, D., Misuraca, G. and Armenia, S. (2012), 'A new roadmap for next-generation policy-making', *Proceedings of the 6<sup>th</sup> International Conference on Theory and Practice of Electronic Governance (ICEGOV)*, Guimarães, Portugal, 27-30 October.
478. Murphy, J.A. (2002), 'The subsurface contaminant focus area (SCFA) plans strategic objectives through roadmaps', *Waste Management Conference*, 24-28 February, Tucson.
479. Murphy, J. and Olson, A. (2001), 'Roadmapping process improvements by experience at the Idaho National Engineering Laboratory high level waste program and synergistic interfaces with decision-making', *Waste Management Symposium*, 25 February - 1 March, Tucson, AZ.
480. Myers, J. and Sandborn, P. (2007), 'Integration of technology roadmapping information and business case development into DMSMS-driven design refresh planning of the V-22 advanced mission computer', *Proceedings of the 2007 Aging Aircraft Conference*, Palm Springs, 16-19 April.
481. Nagahira, A., Probert, D., Fukuda, T., Chichibu, S.F., Kagamitani, Y. and Abe, A. (2010), 'A new approach to technology roadmapping of disruptive innovation', *R&D Management Conference*, 30 June – 2 July, Manchester, pp. 121-135.
482. NAHB (2000), 'PATH technology roadmapping', NAHB Research Center, Partnership for Advanced Technology in Housing (PATH), 6 January.

483. Nakamura, K., Aoki, T., Hosoya, M., Fukuzawa, Y. and Kameoka, A. (2006), 'A roadmapping practice for enhancing the Japanese engineering service towards advanced IT network age', *15<sup>th</sup> International Conference on Management of Technology (IAMOT)*, 22-26 May, Beijing.
484. Nakamura, K. and Kameoka, A. (2007), 'Service business planning towards shared service roadmapping – an application to RF-ID using service in the research activities of a Japanese industrial association', *International Journal of Innovation and Technology Management*, 4 (4), pp. 511-535.
485. Nakamura, K., Kameoka, A., Fujiwara, T. and Kamada, N. (2007), 'A service concept framework based on Maslow's needs hierarchy and its application to typical types of service: service value driven service roadmapping taking into account the dynamic service domain shift', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland, OR.
486. Nakamura, O., Ito, S., Matsuzaki, K., Adachi, H., Kado, T. and Oka, S. (2008), 'Using roadmaps for evaluating strategic research and development: lessons from Japan's Institute for Advanced Science and Technology', *Research Evaluation*, 17 (4), pp. 265-271.
487. Nauda, A. and Hall, D.L. (1991), 'Strategic technology planning - developing roadmaps for competitive advantage', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, pp. 745-748.
488. Neaga, I., Hassan, T. and Carter, C. (2007), 'A harmonised regulatory framework for supporting single European electronic market: achievements and perspectives', *eChallenges Conference*, The Hague, October, pp. 1045-1052.
489. Nyein, K.Z. (2007), *Organisational roadmapping framework: roadmapping process, approaches and interplay with other management tools*, MPhil thesis, University of Cambridge.
490. O'Conner, P. (2012), 'Strategizing, road mapping and executing the product line', Adept Group
491. OECD (2008), *Report on roadmapping of large research infrastructures*, Organisation for Economic Co-operation and Development (OECD) Global Science Forum, December.
492. Oka, S. (2008), 'Using roadmaps for evaluating strategic research and development: lessons from Japan's Institute for Advanced Industrial Science and Technology', *Research Evaluation*, 17 (4), pp. 265-271.
493. Okutsu, S. and Tatsuse, T. (2005), 'The elaboration of the academic technology roadmap (ATRM): three cases in academic material science laboratories', *International Federation for Systems Research (IFSR)*, Kobe, 14-17 November, pp. 38-40.
494. Okutsu, S., Tschirky, H. and Kijima, K. (2003), 'Bringing technology management into academic science and engineering laboratory - through the fusion of soft systems methodology and technology road mapping', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
495. Oliveira, M.G., Amaral, D.C., Rozenfeld, H. and Fonzi, W. (2009), 'Applying technology roadmapping (TRM) for strategic product planning of start-up high-tech companies', *Product: Management & Development*, 7 (2), pp. 103-110.
496. Oliveira, M.G. and Rozenfeld, H. (2009), 'Integration of technology roadmapping and project portfolio management to improve the front-end of NPD process', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
497. Oliveira, M.G. and Rozenfeld, H. (2010), 'Integrating technology roadmapping and portfolio management at the front-end of new product development', *Technological Forecasting & Social Change*, 77, 1339-1254.
498. Oliver, B., Cooper, A., Kamtsiou, V., Naeve, A., Hoel, T., Stergioulas, L., and Giogini, F. (2011), 'Conceptual framework for dynamic roadmapping', EU FP7 IST-257822 TELMap (technology enhanced learning).
499. Olof-Ors, A.L.P. (2012), *Roadmapping of emergent technologies*, MSc thesis, Chalmers University of Technology.
500. Öörni, R., Hautala, R., Hänninen, T. and Lumaiho, A. (2013), 'eCall implementation roadmap for Finland', *13<sup>th</sup> International Conference on ITS Telecommunications (ITST)*, Tampere, Finland, 5-7 November.
501. Orilski, S., Moll, T. and Schuh, G. (2010), 'Technology roadmapping – a dynamic, data based approach', *19<sup>th</sup> International Conference on Management of Technology (IAMOT)*, Cairo, 8-11 March.
502. Otubanjo, B.O., Lim, L.L.K., Melewar, T.C. and Cornelius, N. (2008), 'A corporate brand in the technology road-map: Sony', Working Paper, Social Science Research Network (SSRN), 11 November.
503. Paap, J. (1996), 'Customer focused technology roadmapping: an overview', Paap Associates.

504. Pagani, M. (2009), 'Roadmapping 3G mobile TV: strategic thinking and scenario planning through repeated cross-impact handling', *Technological Forecasting & Social Change*, 76, pp. 382-395.
505. Pageau, G., Huard, M., Bodner, M.A., Nimmo, G., Gray, M., Daoud, A. and Tremblay, E. (2010), 'Overview of the solider systems technology roadmap project and of the innovation collaboratiion and exchange environment (ICee) tool', *27<sup>th</sup> Army Science Conference*, 29 Nov – 2 Dec, Orlando.
506. Panapanaan, V.M., Linnanen, L., Karvonen, M.-M. and Tho Phan, V. (2003), 'Roadmapping corporate social responsibility in Finnish companies', *Journal of Business Ethics*, 44, pp. 133-148.
507. Park, B., Byun, D., Son, S., Chung, K. and Bark, P. (2004), 'Technology roadmapping as a national R&D planning - Korea's experience', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Seoul, 31st July - 4th August.
508. Park, G. and Jangdonghun, J.-H. (2003), 'A review on the literature survey of roadmap's presentation and roadmapping', *Proceedings of the Korea Society of Management*, 1 (1), pp. 976-979.
509. Parker, C.L., Barnett, D.L., Fews, A.L., Blodgett, D. and Links, J.M. (2005), 'The road map to preparedness: a competency-based approach to all-hazards emergency readiness training in for the public health workforce', *Public Health Reports*, 120, pp. 504-514.
510. Parker, M.C. and Walker, S.D. (2011), 'Roadmapping ICT: an absolute energy efficiency metric', *Journal of Optical Communications and Networking*, 3 (8), pp. A49-A58.
511. Passey, S.J., Goh, N. and Kil, P. (2006), 'Targeting the innovation roadmap event horizon: product concept visioning & scenario building', *IEEE International Conference on Management of Innovation and Technology*, 21-23 June.
512. Pataki, B., Biro-Szigeti, S. and Szalkai, Z. (2013), 'Company-level technology roadmapping', in *Contemporary Perspectives on Technological Innovation Management and Policy - Dark Side of Technological Innovation*, Information Age Publishing-IAP, Charlotte NC, pp. 883-109.
513. Pataki, B., Szalkai, Z. and Biro-Szigeti, S. (2010), 'Technology roadmapping in Hungary: some practical observations', *Perspectives of Innovations, Economics & Business*, 5 (2), pp. 20-23.
514. Pataki, B., Szalkai, Z. and Biro-Szigeti, S. (2011), 'Some organizational issues of technology roadmapping experienced in Hungary', *Social and Management Sciences*, 18(1), pp. 31-38.
515. Pataki, B., Szalkai, Z. and Biro-Szigeti, S. (2011), 'Some methodological issues of technology roadmapping experienced during consultancy', *Perspectives of Innovations, Economics & Business*, 9 (3), pp. 12-16.
516. Pauw, E.J. and Shapiro, A.C. (1998), 'Defamation, the free press, and Latin America: a roadmap for the inter-American Court of Human Rights and emerging democracies', *The University of Miami Inter-American Law Review*, 30 (1), pp. 203-241.
517. Peet, C.S. (1998), *Technology roadmapping: a tool for the formulation of technology strategy – a case study in British Nuclear Fuels plc*, MSc thesis, University of Manchester Institute of Science and Technology.
518. Perdicoulis, A., (2012), 'Roadmaps', *Systems Planner*, 4, pp. 1-4.
519. Perry, N. and Uys, W. (2010), 'Knowledge integration based on road mapping and conceptual framework approach to ease innovation management', *International Journal of Computer Applications in Technology*, 37(3-4), pp. 165-181.
520. Peters, E.A. (1963), 'Remedies for breach of contracts relating to the sale of goods under the uniform commercial code: a roadmap for Article Two', *The Yale Law Journal*, 73 (2), pp. 199-287.
521. Petrick, I.J. (2007?), 'Developing and implementing roadmaps – a reference guide. Part 1: Introduction to roadmapping', The Pennsylvania State University.
522. Petrick, I.J. (2010), 'How strategic roadmapping adds value', I.J. Petrick Consulting.
523. Petrick, I.J. and Echols, A.E. (2002), 'Technology choice and pooled investment among networks: supply chain roadmaps', *IEEE International Engineering Management Conference (IEMC)*, Cambridge, 18-20 August.
524. Petrick, I.J. and Echols, A.E. (2004), 'Technology roadmapping in review: a tool for making sustainable new product development decisions', *Technological Forecasting and Social Change*, 71, pp. 81-100.
525. Petrick, I.J., Guzman, R., John, B.P. and Thimmegowda, K. (2003), 'Translating paper based roadmaps to digital form', Final Report for US Department of Energy, June, Penn State University.



526. Petrick, I.J. and Martinelli, R. (2012), 'Driving disruptive innovation – problem finding and strategy setting in an uncertain world', *Research-Technology Management*, Nov-Dec, 55 (6), pp. 49-57.
527. Petrick, I.J. and Provance, M. (2005), 'Roadmapping as a mitigator of uncertainty in strategic technology choice', *International Journal of Technology Intelligence and Planning*, 1 (2), pp. 171-184.
528. Pfahl, R.C. and McElroy, J. (2005), 'The 2004 International Electronics Manufacturing Initiative (iNEMI) technology roadmaps', *2005 Conference on High Density Microsystem Design and Packaging and Component Failure Analysis*, 27-29 June.
529. Pfahl, B., Arnold, J. and O'Malley, G. (2009), 'Closing the technology knowledge gaps – projects arising from the iNEMI technology roadmap', *European Microelectronics & Packaging Conference (EMPC)*, Rimini, Italy, 15-17 June.
530. Phaal, R. (2004), 'Technology roadmapping', Chapter in *Foresight methodologies text book*, United Nations Industrial Development Organization (UNIDO) Technology ForeSight Initiative, pp. 129-151.
531. Phaal, R. (2006), 'Technology roadmapping', IET Management Key, Institute of Engineering and Technology.
532. Phaal, R. (2006), 'Strategic roadmapping: linking technology resources to business objectives', Pure Insight best practice case study, November.
533. Phaal, R. (2006). 'Technology and other (mostly sector-level published roadmaps', Centre for Technology Management, Institute for Manufacturing, University of Cambridge.
534. Phaal, R., Farrukh, C.J.P., Mills, J.F. and Probert, D.R. (2003), 'Customizing the technology roadmapping approach', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 20-24<sup>th</sup> July.
535. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2000), 'Fast-Start Technology Roadmapping', 9<sup>th</sup> *International Conference on Management of Technology (IAMOT 2000)*, 21-25<sup>th</sup> February 2000, Miami. Published in Khalil, T.M., Lefebvre, L.A. and Mason, R.M. (Ed.) (2001), *Management of technology: the key to prosperity in the third millennium*, Selected papers from IAMOT 2000, Pergamon Press, Amsterdam, pp. 275-284.
536. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2000), 'Practical frameworks for technology management and planning', *IEEE International Engineering Management Conference*, 13-15 August, Albuquerque.
537. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2001), *T-Plan: the fast-start to technology roadmapping - planning your route to success*, Institute for Manufacturing, University of Cambridge.
538. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2001), 'A framework for supporting the management of technological innovation', *The Future of Innovation Studies Conference (ECIS)*, Eindhoven, 20-23<sup>rd</sup> September.
539. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2001), 'Characterisation of technology roadmaps: purpose and format', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 29<sup>th</sup> July - 2<sup>nd</sup> August, pp. 367-374.
540. Phaal, R., Farrukh, C.J.P., Mitchell, R. and Probert, D.R. (2002), 'Starting up technology roadmapping fast', *Research-Technology Management*, 46(2), pp. 52-58. Republished in *IEEE Engineering Management Review* (2003), 31 (3).
541. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'Customizing roadmapping', *Research-Technology Management*, 47 (2), pp. 26-37.
542. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'Collaborative technology roadmapping: network development and research prioritisation', *International Journal of Technology Intelligence and Planning*, 1 (1), pp. 39-55.
543. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'Technology roadmapping - a planning framework for evolution and revolution', *Technological Forecasting & Social Change*, 71(1-2), pp. 5-26.
544. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'A framework for supporting the management of technological knowledge', *International Journal of Technology Management*, 27(1), pp. 1-15.
545. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'Technology in strategy and planning', in *Bringing technology and innovation into the boardroom – strategy, innovation and competences for business value*, Palgrave, pp. 99-123.
546. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2005), 'Developing a technology roadmapping system', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 31 July – 4 August.

547. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2006), 'Technology management tools: generalization, integration and configuration', *International Journal of Innovation and Technology Management*, 3 (3), pp. 1-19.
548. Phaal, R., Farrukh, C. and Probert, D. (2006), 'Strategic roadmapping: linking technology to markets', Cutter Consortium Business Technology Trends & Impacts Advisory Service Executive Update, Vol. 7, No. 6.
549. Phaal, R., Farrukh, C.J. and Probert, D.R. (2007), 'Strategisches roadmapping: die verknüpfung von technologie, management und markt', *OrganisationsEntwicklung*, Nr. 2, pp. 81-86.
550. Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2007), 'Strategic roadmapping: a workshop-based approach for identifying and exploring innovation issues and opportunities', *Engineering Management Journal*, 19 (1), pp. 16-24.
551. Phaal, R., Kerr, C., Oughton, D. and Probert, D. (2012), 'Towards a modular toolkit for strategic technology management', *International Journal of Technology Intelligence and Planning*, 8 (2), pp. 161-181.
552. Phaal, R., Mitchell, R. and Probert, D. (2008), 'T-Plan and S-Plan fast-start roadmapping approaches', *Introduction and application of roadmapping in R&D management*, Ed. S. Khotsuki, Technical Information Institute, Tokyo, pp. 73-89 (Japanese translation, pp. 90-105).
553. Phaal, R. and Muller, G. (2007), 'Towards visual strategy: an architectural framework for roadmapping', *Portland International Conference on Management of Engineering and Technology (PICMET)*, Portland, 5-9 August.
554. Phaal, R. and Muller, G. (2009), 'An architectural framework for roadmapping: towards visual strategy', *Technological Forecasting & Social Change*, 76 (1), pp. 39-49.
555. Phaal, R., O'Sullivan, E., Farrukh, C. and Probert, D. (2009), 'Developing a framework for mapping industrial emergence', *Portland International Conference on Management of Engineering and Technology (PICMET '09)*, Portland, 2-6 August.
556. Phaal, R., O'Sullivan, E., Routley, M., Ford, S. and Probert, D. (2010), 'A framework for mapping industrial emergence', *Technological Forecasting & Social Change*, doi:10.1016/j.techfore.2010.06.018.
557. Phaal, R., Routley, M., Athanassopoulou, N. and Probert, D. (2012), 'Charting exploitation strategies for emerging technology', *Research-Technology Management*, March-April, pp. 34-42.
558. Phaal, R., Shehabuddeen, N.T.M.H. and Assakul, P. (2002), 'Technology roadmapping: charting the route ahead for UK road transport', *IEEE International Engineering Management Conference*, Cambridge, 18-20 August.
559. Phaal, R., Simonse, L. and van Ouden, E. (2008), 'Next generation roadmapping for innovation planning', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 135-152.
560. Phaal, R. and Yoshida, S. (2014), 'Architecting strategy: visual form and function of roadmaps', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 27-31 July, Kanazawa.
561. Pham, T., Pham, D.K. and Pham, A.T. (2013), *From business strategy to information technology roadmap – a practical guide for executives and board members*, CRM Press, Boca Raton FL.
562. Peitz, C., Gausemeier, J. and Amshoff, B. (2013), 'Foresight-based lifecycle-oriented business models for intelligent technical systems', *22<sup>nd</sup> International Conference on Management of Technology (IAMOT)*, 14-18 April, Porto Alegre, Brazil.
563. Placet, M. and Clarke, J.F. (1999), 'Emerging technology road maps: the Battelle approach', Battelle.
564. Ployditikoon, P. and Daim, T.U. (), 'A roadmap of industrial cluster development: a case study of Thailand's HDD cluster', *International Journal of Foresight and Innovation Policy*, 5 (4), pp. 244-259.
565. Pollanen, M. (2007), 'Futures studies and roadmapping as part of organisation's strategy process – case ITS Finland', *EBRF Research Forum to Understand Business in Knowledge Society*, Jyväskylä, Finland, 25-27 September.
566. Poskela, J., Berg, P., Pihlajamaa, J., Seppala, J. and Feland, J.M. (2004), 'The role of roadmaps in fuzzy-front-end phase of innovation process', *13th International Conference on Management of Technology (IAMOT)*, Washington DC.
567. Price, S., Conway, P., Palmer, P. and Summers, R. (2004), 'Technology roadmapping – a new perspective', *EU-US Seminar: New Technology Foresight, Forecasting & Assessment Methods*, 13-14 May, Seville.
568. Price, S. and Summers, R. (2004), 'A technology roadmap for rehabilitation engineering', *26<sup>th</sup> Annual International Conference for the IEEE EMBS*, 1-5 September, San Francisco.

569. Probert, D.R., Farrukh, C.J.P. and Phaal, R. (2003), 'Technology roadmapping – developing a practical approach for linking resources to strategic goals', *Proceedings of the Institute of Mechanical Engineers*, Vol. 217, Part B: J. Engineering Manufacture.
570. Probert, D.R., Ford, S.J., Routley, M.J., O'Sullivan, E. and Phaal, R. (2013), 'Understanding and navigating industrial emergence', *Proceedings of the Institution of Mechanical Engineering*, 227 (6), pp. 781-793.
571. Probert, D.R. and Shehabuddeen, N. (1999), 'Technology road mapping: the issues of managing technology change', *International Journal of Technology Management*, 17 (6), pp. 646-661.
572. Propp, T. and Rip, A. (), 'Assessment tools for the management of new and emerging science and technology: state-of-the-art and research gaps', TA NanoNed Working Paper No. 1, Centre for Studies of Science, Technology and Society, University of Twente.
573. Pyon, C.U. and Park, S.C. (2010), 'Strategic exploring of emerging services by visualization of technology-service association for technology-based service providers', *Expert Systems with Applications*, 37, pp. 4301-4312.
574. Raczynski, C.M., Kirby, M.R. and Mavris, D. (2006), 'A dynamic process for strategic roadmapping and technology portfolio management', 6<sup>th</sup> *AIAA Aviation Technology, Integration and Operations Conference (ATIO)*, Wichita, 25-27 September.
575. Radnor, M. and Probert, D.R. (2004), 'Viewing the future', *Research-Technology Management*, 47 (2), pp. 25-26.
576. Rathore, A.S. (2009), 'Roadmap for implementation of quality by design (QbD) for biotechnology products', *Cell Press*, August, pp. 546-553.
577. Rauffet, P., da Cunha, C. and Bernard, A. (2009), 'Designing and managing organizational interoperability with organizational capabilities and roadmaps', *International Conference on Interoperability for Enterprise Software and Applications China (IESA)*, Beijing, 21-22 April.
578. Rautiainen, K., Lassenius, C., Vähäiitty, J., Phyäjärvi, M. and Vanhanen, J. (2002), 'A tentative framework for managing software product development in small companies', *IEEE International Conference on System Science*, 7-10 January, Hawaii.
579. Regnell, B., Svensson, R.B. and Olsson, T. (2008), 'Supporting roadmapping of quality requirements', *IEEE Software*, IEEE Computer Society, March-April, pp. 42-47.
580. Remo, R., Andrienko, G., Andrienko, N., Blackwell, A., Börner, K., Brodbeck, D., Dykes, J., Eppler, M., Fekete, J.-D., Grün, A., Herr, B., Huang, J., Kienreich, W., Koutamanis, A., Lang, S., Meagher, M., Perrin, D., Phaal, R., van de Moere, A. and Weber, W. (2007), 'Visualization Summit 2007: ten research goals for 2010', *Information Visualisation Journal*, 6 (3), pp. 169-188.
581. Ricard, L.M. (2013), *Roadmapping and strategy in science, technology and innovation*, PhD Thesis, DTU Management Engineering.
582. Ricard, L.M. and Borch, K. (2012), 'From future scenarios to roadmapping: a practical guide for exploring innovation and strategy', European Foresight Platform, EFP Brief No. 207.
583. Richey, J.M. and Grinnell, M. (2004), 'Evolution of roadmapping at Motorola', *Research-Technology Management*, March-April, pp. 37-41.
584. Ringland, G., Lustig, P. and Phaal, R. (2012), *Here be dragons: navigating an uncertain world*, The Choir Press, ISBN 978-0956219053.
585. Rinne, M. (2004), 'Technology roadmaps: infrastructure for innovation', *Technological Forecasting and Social Change*, 71, pp. 67-80.
586. Rinne M., and Gerdtsri, N. (2003), 'Unlocked technology roadmapping', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 20-24 July, Portland, OR.
587. Robinson, D.K.R. (2009), 'Co-evolutionary scenarios: an application to prospecting futures of the responsible development of nanotechnology', *Technological Forecasting & Social Change*, 76, pp. 1222-1239.
588. Robinson, D.K.R., Huang, L., Guo, Y. and Porter, A.L. (2013), 'Forecasting innovation pathways (FIP) for new and emerging science and technologies', *Technological Forecasting & Social Change*, 80(2), pp. 267-285.
589. Robinson, D.K.R., Huang, L., Guo, Y. and Porter, A.L. (2010), 'Capturing and exploring potential innovation avenues (CEPIA) within emerging fields of technoscience', *Transatlantic Workshop on Nanotechnology Innovation and Policy*, 24-26 March, Atlanta.
590. Robinson, D.K.R. and Propp, T. (2008), 'Multi-path mapping for alignment strategies in emerging science and technologies', *Technological Forecasting & Social Change*, 75, pp. 517-538.
591. Rodel, J., Kouniga, A.B.N., Weissenberger-Eibl, M., Koch, D., Bierwisch, A., Rossner, W., Hoffmann, M.J., Danzer, R. and Schneider, G. (2009), 'Development of a roadmap for advanced

- ceramics: 2010-2025', *Journal of the European Ceramic Society*, 29, pp. 1549-1560.
592. Rodríguez, J.A. and Maciá, J.L. (2010), 'Nueva guía metodológica de roadmapping para proyectos de innovación', *XIV Congreso Internacional de Proyectos de Ingeniería*, Madrid, 8 September, pp. 46-57.
  593. Rohrbeck, R., Heuer, J. and Arnold, H. (2006), 'The technology radar – an instrument of technology intelligence and innovation strategy', *3<sup>rd</sup> IEEE International Conference on Management of Innovation and Technology*, 21-23 June, Singapore, pp. 978-983.
  594. Rohrbeck, R., Schroder, A. and Heitmann, M. (2008), 'Does planning do any good for your new product development? Exploring the impact of roadmapping through three case studies', *17<sup>th</sup> International Conference on Management of Technology (IAMOT)*, 6-10 April, Dubai.
  595. Romanow, B., Gustafsson, M., Dinnetz, M.K. and Wright, E.H. (2012/2013), *Strategy definition and road mapping for industrial technologies to address grand challenges*, Oxford Research, Report for European Commission (EUR 25846 EN).
  596. Routley, M., Phaal, R., Ford, S., O'Sullivan, E., Athanassopoulou, N. and Probert, D. (2011), 'Tools to assist with navigating industrial emergence', *5<sup>th</sup> European Conference on Management of Technology (EuroMOT)*, 18-20 September, Tampere.
  597. Routley, M., Phaal, R., Athanassopoulou, N. and Probert D. (2013), 'Mapping experience in organizations: a learning process for strategic technology planning', *Engineering Management Journal*, 25 (1), pp.35-47.
  598. Routley, M., Phaal, R. and Probert, D. (2013), 'Exploring industry dynamics and interactions', *Technological Forecasting & Social Change*, 80(6), pp. 1147-1161.
  599. Ruch, P., Brunschweiler, T., Paredes, S., Meijer, I. and Michel, B. (2013), 'Roadmap towards ultimately-efficient zeta-scale datacenters', *Proceedings of the Conference on Design, Automation and Test in Europe (DATE)*, 18-22 March, Grenoble, pp. 1339-1344.
  600. Ruhe, G. and Momoh, J. (2005), 'Strategic release planning and evaluation of operational feasibility', *38<sup>th</sup> Hawaii International Conference on System Sciences*, 3-6 January, Big Island.
  601. Sala, D. and Smith, J.D., (2002), 'The nuclear material focus area roadmapping process utilizing environmental management complex-wide nuclear material disposition pathways', *Waste Management Conference*, 24-28 February, Tucson, AZ.
  602. Saritas, O. and Aylen, J. (2010), 'Using scenarios for roadmapping: the case of clean production', *Technological Forecasting & Social Change*, 77, pp. 1061-1075.
  603. Saritas, O. and Oner, M.A. (2004), 'Systematic analysis of UK foresight results – joint application of integrated management model and roadmapping', *Technology Forecasting & Social Change*, 71, pp. 27-65.
  604. Satangput, P., Gerd Sri, N. and Damrongchai, N. (2010), 'Scenario analysis for identifying the development areas of future technologies to combat emerging infectious diseases: APEC efforts', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 2-5 June, Singapore.
  605. Savolainen, J. and Kuusela, J. (2008), 'Scheduling product line features for effective roadmapping', *15<sup>th</sup> Asia-Pacific Software Engineering Conference*, 3-5 December.
  606. Schaller, R.R. (2004), *Technological innovation in the semiconductor industry: a case study of the International Technology Roadmap for Semiconductors (ITRS)*, PhD dissertation, George Mason University.
  607. Schmidt, C.W. (2004), 'NIH roadmap for medical research', *Environmental Health Perspectives*, 112 (3), pp. A165-A166.
  608. Schuh, G., Aghassi, S., Orilski, S., Schubert, J., Bamback, M., Freudenberg, R., Hinke, C. and Schiffer, M. (2011), 'Technology roadmapping for the production of high-wage countries', *Production Engineering Research and Development*, 5, pp. 463-473.
  609. Schubert, C. (2007), 'Technology roadmapping in der Halbleiterindustrie', Technical University Technology Studies Working Papers, TUTS-WP-2-2007, Technische Universität Berlin.
  610. Schubert, C., Sydow, J. and Windeler, A. (2013), 'The means of managing momentum: bridging technological paths and organisational fields', *Research Policy*, 42, pp. 1389-1405.
  611. Schwery, A. and Raurich, V.F. (2004), 'Supporting the technology-push of a discontinuous innovation in practice', *R&D Management*, 34 (5), pp. 539-552.
  612. Selen, W. (2000), 'Knowledge management in resource-based competitive environments: a roadmap for building learning organizations', *Journal of Knowledge Management*, 4 (4), pp. 346-353.
  613. Shan, T.C. and Hua, W.W. (2009), 'Service-oriented architecture roadmap', *2009 World Congress on Services*, Los Angeles, 6-10 July.
  614. Shan, T. and Hua, W. (2011), 'Fast route to cloudification', *IEEE 6<sup>th</sup> World Congress on Services*,

- 5-10 July, Miami.
615. Shengbin, H., Bo, Y. and Weiwei, W. (2008), 'Research on application of technology roadmap in technology selection decision', *Control and Decision Conference (CCDC)*, 2-4 July.
  616. Simonse, L., Buijs, J. and Hltink, E.J. (2012), 'Roadmap grounded as 'visual portray': reflecting on an artifact and metaphor', *European Group for Organizational Studies (EGOS) Sub-theme 09: (SWG) Artifacts in Art, Design, and Organization*, Helsinki, 2-7 July.
  617. Skulimowski, A.M.J. and Pukocz, P. (2012), 'Enhancing creativity of strategic decision processes by technological roadmapping and foresight', *7<sup>th</sup> International Conference on Knowledge, Information and Creativity Support Systems (KICSS)*, 8-10 November, Melbourne.
  618. Smith, A. (2007), *Technology roadmapping – an opportunity for the environment?*, Science Report – SC050016, UK Environment Agency.
  619. Smith, A., (2007), 'Roadmapping congestion?', Nanotechnology Industries Association, April.
  620. Smith, D. (1995), 'A call to action – a national technology roadmap for telecommunications', 3<sup>rd</sup> Quarter, *New Telecom Quarterly*, pp. 32-36.
  621. Smith, D. (2005), 'Strategic roadmaps', White paper, Technology Futures Inc.
  622. Sosa, G. (2007), *Industrial technology roadmapping – nanomedicine sector application*, MPhil thesis, University of Cambridge.
  623. Sparrow, B. and Whittaker, C.H. (2005), *Technology roadmap and resource allocation methodology for the Canadian Institute for Fuel Cell Innovation (IFCI)*, MBA Thesis, Simon Fraser University.
  624. Specht, D., Will, A. and Behrens, S. (2006), 'Integration of strategic business planning and technology planning in globally operating companies by means of roadmapping', *8<sup>th</sup> World Congress of the International Federation of Scholarly Associations of Management (IFSAM)*, 28-30 September, Berlin.
  625. Specht, D., Kadlubski, A. and Behrens, S. (2006), 'Integration of strategic business planning and technology planning in globally operating companies by means of roadmapping', *International Journal of Technology Intelligence and Planning*, 3(2), pp. 126-140.
  626. Spencer, W.J. and Seidel, T.E. (1995), 'National technology roadmaps: the U.S. semiconductor experience', *4<sup>th</sup> International Conference on Solid-State and Integrated Circuit Technology*, Beijing, 24-28 October.
  627. Spinardi, G. (2012), 'Road-mapping, disruptive technology, and semiconductor innovation: the case of gallium arsenide development in the UK', *Technology Analysis & Strategic Management*, 24 (3), pp. 239-251.
  628. Strand, J., Kalinowski, D., Volle, L. and Vitale, D. (2010), 'Practical guide on roadmapping – Report on the methodology to implement in-house roadmapping process by using PhotonicRoadSME results by SMEs in the field of photonics', PhotonicRoadSME Project, EU FP7.
  629. Strauss, J.D. and Radnor, M. (2004), 'Roadmapping for dynamic and uncertain environments', *Research-Technology Management*, 47 (2), pp. 51-57.
  630. Strauss, J.D., Radnor, M. and Peterson, J.W. (1998), 'Plotting and navigating a non-linear roadmap: knowledge-based roadmapping for emerging and dynamic environments', *Knowledge Creation and Management in Asia Conference*, Singapore, 6-7 March.
  631. Stopper, J.M. (2002), 'Roadmapping continuous innovation', The Learning Trust.
  632. Strand, J., Kalinowski, D., Volle, L. and Vitale, D. (2010), *Practical guide on roadmapping – report on the methodology to implement in-house roadmapping process by using PhotonicRoadSME results by SMEs in the field of photonics*, PhotonicRoadSME, EC FW7 Programme.
  633. Suarez-Nunez, c. (2009), *Strategic technology planning using roadmaps in the value system*, PhD thesis, University of Illinois at Urbana-Champaign.
  634. Sugihara, T., Fujinami, T., Phaal, R. and Ikawa, Y. (2015), 'A technology roadmap of assistive technologies for dementia care in Japan', *Dementia*, 14 (1), pp. 80-103.
  635. Suh, J.H. and Park, S.C. (2009), 'Service-oriented technology roadmap (SoTRM) using patent map for R&D strategy of service industry', *Expert Systems with Applications*, 36, pp. 6754-6772.
  636. Suharto, Y. (2013), 'Study of multi-scenario based technology roadmapping: Bayesian causal maps approach', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 28 Jul – 1 Aug, San Jose.
  637. Suomalainen, T., Salo, O., Abrahamsson, P. and Similä, J. (2011), 'Software product roadmapping in a volatile business environment', *The Journal of Systems and Software*, 84, pp. 958-975.
  638. Sun, J., Gao, J., Ma, Q. and Tan, R. (2010), 'Roadmapping the disruptive innovation based on

- technology system decomposition analysis', *IEEE International Conference on Management of Innovation and Technology (ICMIT)*, 2-5 June, Singapore.
639. Sun, J., Tan, R., Li, X. and Jiang, P. (2013), 'Methods for roadmapping mutational innovation based on technological evolution bifurcations', *Computer Integrated Manufacturing Systems*, 19 (2), pp. 253-262.
  640. Suomalainen, T., Salo, O., Abrahamsson, P. and Simila, J. (2011), 'Software product roadmapping in a volatile business environment', *The Journal of Systems and Software*, 84, pp. 958-975.
  641. Suomalainen, T., Tihinen, M. and Parviainen, P. (2009), 'Challenges for product roadmapping in inter-company collaboration', *3<sup>rd</sup> International Conference on Software Engineering Approaches for Offshore and Outsourced Development (SEAFOOD)*, Zurich, 2-3 July.
  642. Suresh, B.N. (2009), 'Roadmap for Indian space transportation', *Acta Astronautica*, 64, pp. 395-402.
  643. Suzuki, J. and Kodama, F. (2004), 'Technological diversity of persistent innovators in Japan – two case studies of large Japanese firms', *Research Policy*, 33, pp. 531-549.
  644. Talonen, T. and Hakkarainen, K. (2008), 'Strategies for driving R&D and technology development', *Research-Technology Management*, Sept-Oct., pp. 54-60.
  645. Tang, A., de Boer, T. and van Vliet, H. (2011), 'Building roadmaps: a knowledge sharing perspective', *6<sup>th</sup> Workshop on Sharing and Reusing Architectural Knowledge (SHARK)*, Waikiki, 24 May.
  646. Tang, Y., Li, C., Zeng, L., Wang, Z. and Hu, X. (2009), 'Technology road-mapping for local industrial value chain upgrading: a preliminary framework', *16<sup>th</sup> International Conference on Industrial Engineering and Engineering Management*, IEEE, Beijing, 21-23 October, pp. 945-949.
  647. Tate, D. and Nordlund, M. (1996), 'A design process roadmap as a general tool for structuring and supporting design activities', *Proceedings of the 2<sup>nd</sup> World Conference on Integrated Design and Process Technology (IDPT)*, Society for Design and Process Science, Austin, 1-4 December, pp. 97-104.
  648. Thomas, A.J. and Weichhardt, G. (2006), 'Roadmapping as a strategic manufacturing tool', *2<sup>nd</sup> International Conference on Intelligent Production Machines and Systems (I\*PROMS)*, Cardiff, July.
  649. Tierney, R., Hermina, W. and Walsh, S. (2013), 'The pharmaceutical technology landscape: a new form of technology roadmapping', *Technological Forecasting & Social Change*, 80(2), pp. 194-211.
  650. Tikly, L. (2011), 'A roadblock to social justice? An analysis and critique of the South African education roadmap', *International Journal of Education Development*, 31, pp. 86-94.
  651. Tolfree, D. and Smith, A. (2009), *Roadmapping emergent technologies – planning the future*, Matador, Leicester.
  652. Tom, M. (2010), *An initial technology roadmap for home automation: home and personal life management*, PhD dissertation, Queensland University of Technology.
  653. Tomei, J. (2009), *Planning for a transition to a hydrogen economy*, UKSHEC Working Paper No. 2, UCL Energy Institute.
  654. Tong, R. and Li, C. (2011), 'Industry technology road-mapping research based on complex system modeling', *18<sup>th</sup> International Conference on Industrial Engineering and Engineering Management*, Changchun, China, 3-5 September, pp. 1875-1879.
  655. Tong, R., Li C. and Tong, R. (2011), 'Industry technology roadmapping research based on consensus system emergence modeling', *International Conference on Management and Service Science (MASS)*, 12-14 August, Wuhan.
  656. Treacy, J. (2009), *Reaching a crossroads – a strategic roadmap for the small to medium size enterprise*, MSc dissertation, National University of Ireland, Galway.
  657. Tuominen, A. and Ahlqvist, T. (2010), 'Is the transport system becoming ubiquitous? Socio-technical roadmapping as a tool for integrating the development of transport policies and intelligent transport systems and services in Finland', *Technological Forecasting & Social Change*, 77, pp. 120-134.
  658. Tuominen, A., Ahlqvist, T., Rama, P., Rosenberg, M. and Rasanen, J. (2008), 'Research directions for future transport service assessments', *VTT Symposium on Service Science, Technology and Business*, Espoo, pp. 94-103.
  659. Ubertini, P., Gehrels, N., Corbett, I., de Bernardis, P., Machado, M., Griffin, M., Hauser, M., Manchanda, R.K., Kawai, N., Zhang, S.-N. and Pavlinsky, M. (2012), *Advances in Space Research*, 50 (1), pp. 1-55.

660. Uchihira, N. (2007), 'Future direction and roadmap of concurrent system technology', *Transactions of the Institute of Electronics, Information and Communication Engineers (IEICE)*, E90-A (11), pp. 2443-2448.
661. UK MoD (2006), MOD Roadmapping Guidance, Issue 1.1, 17 May, UK Ministry of Defence.
662. Vahaniitty, J., Lassenius, C. and Rautiainen, K. (2002), 'An approach to product roadmapping in small software product businesses', *Quality Connection - 7th European Conference on Software Quality (Qconn-7)*, 12 June.
663. Vahaniitty, J., Lassenius, C., Rautiainen, K. and Pekkanen, P. (2009), 'Long-term planning of development efforts by roadmapping – a model and experiences from small software companies', *35<sup>th</sup> Euromicro Software Engineering and Advanced Applications (SEAA) Conference*, Patas, Greece, 27-19 August.
664. van de Weerd, I. (2009), *Advancing in software product management: an incremental method engineering approach*, PhD thesis, University of Utrecht.
665. van de Weerd, I., Brinkkemper, S., Nieuwenhuis, R., Versendaal, J. and Bijlsma, L. (2006), 'A reference framework for software product management', *14<sup>th</sup> IEEE International Conference on Requirements Engineering*, 11-15 September.
666. van den Bosch, S.J.M., Brezet, J.C. and Vergragt, Ph.J. (2005), 'How to kick off system innovation: a Rotterdam case study of the transition to a fuel cell transport system', *Journal of Cleaner Production*, 13, pp. 1027-1035.
667. van der Horst, T.J.J., Vergragt, P. and Silvester, S. (1999), 'Sustainable roadmapping: new approaches for identifying radical product system innovations', *Greening of Industry Network Conference (GIN)*, 14-17 November, Chapell Hill, North Carolina.
668. van der Welle, A.J. and de Joode, J. (2011), 'Regulatory road maps for the integration of intermittent electricity generation: methodology development and the case of The Netherlands', *Energy Policy*, 39, pp. 5829-5839.
669. van Doorn, M. (2006), 'EMC technology roadmapping: a long-term strategy', *17<sup>th</sup> International Zurich Symposium on Electromagnetic Compatibility*, Zurich, 27 February – 3 March.
670. Vanette, R.C., Kriticos, D.J., Magarey, R.D., Koch, F.H., Baker, R.H.A., Worner, S.P., Raboteaux, N.N.G., McKenney, D.W., Dobesberger, E.J., Yemshanov, D., De Barro, P.J., Hutchison, W.D., Fowler, G., Kalaris, T.M. and Pedlar, J. (2010), 'Pest risk maps for invasive alien species: a roadmap for improvement', *BioScience*, 60 (5), pp. 349-362.
671. van Horn, D. and Young, G.H., (2000), 'Product-technology roadmapping: an emerging strategic planning tool', White Paper, 17 October.
672. van Lente, H. and van Til, J. (2007), 'A combined roadmapping-cluster approach for emerging technologies', *International Journal of Foresight and Innovation Policy*, 3 (2), pp. 121-138.
673. van Sambeek, E.J.W., Scheepers, M.J.J. and Wals, A.F. (2003), 'An outline for developing regulatory road maps', European Commission SUSTELNET project report (5<sup>th</sup> RTD Framework Programme).
674. Vatananan, R. (2013), *An analytical approach to determine the status of a roadmap*, PhD thesis, Mahidol University.
675. Vatananan, R.S. and Gertsri, N. (2010), 'The current state of technology roadmapping (TRM) research and practice', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 18-22 July, Phuket.
676. Vatananan, R.S. and Gertsri, N. (2011), 'An analytical approach to assess the current state of a roadmap', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
677. Vatananan, R. and Gertsri, N. (2013), 'Assessing the status of a roadmap: when is the time to review?', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 28 Jul – 1 Aug, San Jose.
678. Verhoef, E.V., van Houwelingen, J.A., Dijkema, G.P.J. and Reuter, M.A. (2006), 'Industrial ecology and waste infrastructure development: a roadmap for the Dutch waste management system', *Technological Forecasting & Social Change*, 73, pp. 302-315.
679. Vinkemeier, R. (2008), 'Long-term innovation management: the balanced innovation card in interplay with roadmaps', *International Journal of Technology Intelligence and Planning*, 4 (2), pp. 215-227.
680. Vishnevskiy, K., Karasev, O. and Meissner, D. (2012), 'Conception of integrated roadmaps for strategic management and planning', *R&D Management Conference*, 23-25 May, Grenoble.
681. Vishnevskiy, K., Karasev, O., Meissner, D. and Vetchinkina, E. (2012), 'Integrated roadmaps for foresight studies and application potential assessment – the case of applying nanotechnology to water treatment', *R&D Management Conference*, 23-25 May, Grenoble.

682. Vojak, B.A. and Chambers, F.A. (2004), 'Roadmapping disruptive technical threats and opportunities in complex, technology-based subsystems: the SAILS methodology', *Technological Forecasting and Social Change*, 71, pp. 121-139.
683. Wahid, F. (2013), 'Themes of research on eGovernment in developing countries: current map and future roadmap', *46<sup>th</sup> International Conference on System Sciences (HICSS)*, 7-10 January, Wailea.
684. Waldron, F., Foley, R., Slowey, J., Alderman, A.N., Narveson, B.C. and Ó Mathúna, S.C. (2013), 'Technology roadmapping for power supply in package (PSiP) and power supply on chip (PwrSoC)', *IEEE Transactions on Power Electronics*, 28 (9), 4137-4145.
685. Wall, B., Jagdev, H. and Browne, J. (2005), 'An approach to developing an eBusiness roadmap', *Production Planning & Control*, 16 (7), pp. 701-715.
686. Wall, M., Peter, S. and Gausemeier, J. (2013), 'Bridging the gap between technology push and market pull for emerging technologies', *22<sup>nd</sup> International Conference on Management of Technology (IAMOT)*, 14-18 April, Porto Alegre, Brazil.
687. Walrad, C., Lane, M., Walik, J. and Hirst, D. (2013), 'Architecting the profession of enterprise architecture: the roadmap journey', *IT Professional*, PP (99).
688. Walsh, S.T. (2004), 'Roadmapping a disruptive technology: a case study - the emerging Microsystems and top-down nanosystems industry', *Technological Forecasting and Social Change*, 71, pp. 161-185.
689. Walsh, S.T., Boylan, R.L., McDermott, C. and Paulson, A. (2005), 'The semiconductor silicon industry roadmap: epochs driven by the dynamics between disruptive technologies and core competences', *Technology Forecasting & Social Change*, 72, pp. 215-236.
690. Wancura, H., Montignac, F., Mazzucchi, C., Spirig, M. and Bona e Costa, J. (2013), 'Creating a solid base for technology road mapping using an integrated technology monitoring and assessment tool', *Procedia – Social and Behavioural Sciences*, 75, pp. 370-382.
691. Wang, L., Kameoka, A., Ikawa, Y. and Meng, L. (2004), 'Roadmapping – a promising practice for developing core competence through collective learning', *Japan Society for Science Policy and Research Management*, 19, pp. 634-637.
692. Wang, H. and Wu, C. (2006), 'Discontinuous innovation in technology-based start-ups from Chinese manufacturing industry', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 8-13 July, Istanbul.
693. Warnke, P., Weber, M. and Leitner, K.-H. (2008), 'Transition pathways towards user-centric innovation', *International Journal of Innovation Management*, 12(3), pp. 489-510.
694. Watanabe, M., Tsuchiya, H. and Yamane, M. (2006), 'Outline of strategic technology road map (METI) and expectation for the Japanese society for artificial intelligence – focus on the robot filed technology road map', *Annual Conference of the Japanese Society for Artificial Intelligence (JSAI)*, Tokyo.
695. Wegman, E.J. (2010), *Towards a technology roadmap for civil commercial unmanned aircraft systems in South Africa*, MTM thesis, University of Pretoria.
696. Wells, R., Phaal, R., Farrukh, C.J.P. and Probert, D.R. (2004), 'Technology roadmapping for a service organization', *Research-Technology Management*, 47 (2), pp. 46-51.
697. Wenzel, G. and Yuan, E. (2010), 'A roadmap-based framework for acquiring more agile and responsive C4I systems', *Armed Forces Communications and Electronics Association (AFCEA) Symposium*, George Mason University, Fairfax, Virginia, 18-19 May.
698. Wesselius, J., van den Beukel, J.W. and Pasman, W. (2007), *Software evolution and roadmapping: a "technology ecosystem" based approach to study software evolution patterns and drivers for software in medical equipment*, Philips Medical Systems, March.
699. Wesselius, J., van den Beukel, J.W., Pasman, W. and Rutgers, J. (2007), *Life cycle cohesion: roadmap-based software architecting for optimal software evolution*, Philips Medical Systems, December.
700. Whalen, P.J. (2007), 'Strategic and technology planning on a roadmapping foundation', *Research-Technology Management*, May-June, pp. 40-51.
701. Wilby, D. (2009), 'Roadmap transformation: from obstacle to catalyst', *Agile2009 Conference*, Chicago, 24-28 August.
702. Willyard, C.H. and McClees, C.W. (1987), 'Motorola's technology roadmapping process', *Research Management*, Sept.-Oct., pp. 13-19.
703. Winebrake, J.J., Ed. (2003), *Alternate energy: assessment and implementation reference book*, The Fairmont Press, Liburn GA.
704. Winebrake, J.J. (2004), 'Technology roadmaps as a tool for energy planning and policy decisions', *Energy Engineering*, 101(4), pp. 20-36.



705. Wong, J., Vargas, A., Chadha, K., Devdas, A., Lin, C. and Kuyee, J. (2010), 'Integrated design and implementation of Toronto's smart distribution grid', *IEEE International Conference on Smart Grid Communications*, Gaithersburg MD, 4-6 October.
706. Yamashita, Y., Nakamori, Y. and Wierzbicki, A.P. (2009), 'Knowledge synthesis in technology development', *International Journal of Systems of Systems Engineering*, 18(2), pp. 184-202.
707. Yan, J. (2007), *Study on data analysis methods for supporting road mapping approach in academia*, PhD thesis, Japan Advanced Institute of Science and Technology (JAIST).
708. Yan, J., Kobayashi, T. and Nakamori, Y. (2005), 'Study on a roadmapping system as a decision making process for supporting scientific research', *International Conference on Service Systems and Services Management (ICSSSM)*, 13-15 June, Chongqing University, China, pp. 1205-1209.
709. Yan, J., Kobayashi, T. and Nakamori, Y. (2005) 'Study on roadmapping process with integration methods for supporting scientific research', Research Paper, Japan Advanced Institute of Science and Technology (JAIST).
710. Yan, J., Ma, T. and Nakamori, Y. (2011), 'Exploring the triple helix of academia-industry-government for supporting roadmapping in academia', *International Journal of Management and Decision Making*, 11 (3-4), pp. 249-267.
711. Yang, C., Yu, M. and Liao, Y. (2005), 'Research on applying analytical hierarchical process approach to technology roadmapping', *The 8<sup>th</sup> International Symposium on the Analytical Hierarchy Process (ISAHP)*, Honolulu, 8-10 July.
712. Yasunaga, Y., Watanabe, M. and Korenaga, M. (2007), 'Outline of the strategic technology roadmap of METI (Ministry of Trade and Industry of Japan) and trial approach for technology convergence with the methodology of technology roadmapping', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 5-9 August, Portland OR.
713. Yasunaga, Y., Watanabe, M. and Korenaga, M. (2009), 'Application of technology roadmaps to governmental innovation policy for promoting technology convergence', *Technological Forecasting & Social Change*, 76, pp. 61-79.
714. Yasunaga, Y. and Yoon, T. (2004), 'Technology roadmapping with structuring knowledge and its advantages in R&D management', *International Engineering Management Conference (IEMC)*, 18-21 October, Singapore.
715. Yeager, K., Gehl, S., Barker, B. and Knight, R. (1998), 'Roadmapping the technological future of electricity', *The Electricity Journal*, December, pp. 17-31.
716. Yee, C.L. (2005), 'Technology roadmap management', *International Conference on Knowledge Management (ICKM)*, 7-9 July, Kuala Lumpur.
717. Yee, C.L. (2012), 'Roadmapping system for knowledge generation, storage, and sharing', *6<sup>th</sup> International Knowledge Management Conference (KMICE)*, 4-6 July, University of Utara, Malaysia.
718. Yoon, B. (2010), 'Strategic visualisation tools for managing technological information', *Technology Analysis & Strategic Management*, 22 (3), pp. 377-397.
719. Yoon, B. and Phaal, R. (2013), 'Structuring technological information for technology roadmapping: data mining approach', *Technology Analysis & Strategic Management*, 25 (9), pp. 1119-1137.
720. Yoon, B., Phaal, R. and Probert, D.R. (2008), 'Morphology analysis for technology roadmapping: application of text mining', *R&D Management*, 38 (1), pp. 51-68.
721. Yoon, B., Phaal, R. and Probert, D. (2008), 'Structuring technological information for technology roadmapping: data mining approach', *7<sup>th</sup> World Scientific and Engineering Academy and Society (WSEAS) International Conference on Artificial Intelligence, Knowledge Engineering and Data Bases (AIKED '08)*, Cambridge, 20-22<sup>nd</sup> February.
722. Yu, J. and Yu, M. (2006), 'A decision-support model for technology roadmapping', *IEEE International Conference on Service Operations and Logistics, and Informatics (SOLI)*, 21-23 June, Shanghai, pp. 1157-1162.
723. Zamberlan, D. (2014), 'A review of the technology roadmapping literature targeting strategic trends and patterns in the automotive and consumer wireless technologies', *1<sup>st</sup> European Doctorate in Industrial Management (EDIM) Conference*, Milan, 11-12 June.
724. Zarli, A., Decorme, R., Tommis, M., Mastrodonato, C. and Sepponen, M. (2012), 'The IREEN ICT roadmap for energy-efficient neighbourhoods', *eChallenges Conference*, 17-19 October, Lisbon.
725. Zeng, D. and Huang, L. (2007), 'Strategy for technology roadmap of membrane structure', *14<sup>th</sup> International Conference on Management Science & Engineering*, 20-22 August, Harbin.
726. Zerhouni, E. (2003), 'The NIH roadmap', *Science*, 302 (5642), pp. 63-64+72.

727. Zeitlin, N.P., Schaefer, S.J., Brown, B.L., Clemens, G.R. and Fawcett, M.K. (2012), 'NASA ground and launch systems processing technology area roadmap', *IEEE Aerospace Conference*, 3-10 March, Big Sky, MT.
728. Zhang, X., Fan, J.-L. and Wei, Y.-M. (2013), 'Technology roadmap study on carbon capture, utilization and storage in China', *Energy Policy*, 59, pp. 536-550.
729. Zhang, Y., Guo, Y., Wang, X., Zhu, D. and Porter, A.L. (2013), 'A hybrid visualisation method for technology roadmapping: bibliometrics, qualitative methodology and empirical study', *Technology Analysis & Strategic Management*, 25 (6), pp. 707-724.
730. Zhang, T., Hui, X., Jiang, P. and Zhang, H. (2010), 'A method of technology roadmapping based on TRIZ', *5<sup>th</sup> International Conference on Management of Innovation and Technology*, IEEE, 2-5 June, Singapore.
731. Zhang, Y., Porter, A., Gomila, J.M.V., Guo, Y. and Zhou, X. (2013), 'Discovering emerging technology trends: with TRIZ and technology roadmapping', *3<sup>rd</sup> Global TechMining Conference – Text-mining, Analysis, and Visualization*, 25 September, Atlanta.
732. Zhang, Y., Zhou, X., Porter, A.L., Gomila, J.M.V. Yan, A. (2014), 'Triple helix innovation in China's dye-sensitized solar cell industry: hybrid methods with semantic TRIZ and technology roadmapping', *Scientometrics*, DOI: 10.1007/s11192-013-1090-9.
733. Zhang, Y., Zhu, D., Wang, X., Guo, Y., Chen, H., Liu, C., Xu, J., Heng, X. and Lu, X. (2011), 'Composing technology roadmapping according to bibliometrics: hybrid model and empirical study', *International Conference on Computer Communication and Management (ICCCM)*, 2-4 May, Sydney.
734. Zhou, Y., Xu, G., Minshall, T. and Su, J. (2013), 'A policy dimension required for technology roadmapping: learning from the emergence of Chinese wind turbine industry', *International Journal of Environmental and Sustainable Development*, 21 (1), pp. 3-21.
735. Zhou, Y., Xu, G., Minshall, T., Su, J., Zhang, F. and Zhi, Q. (2011), 'A policy dimension required for technology roadmapping: learning from the development of emerging wind energy industry in China', *Portland International Conference on Management of Engineering and Technology (PICMET)*, 31 July - 4 August, Portland, OR.
736. Zhou, Y., Xu, G., Su, J., Minshall, T. and Zhi, Q. (2011) 'Roadmapping an Emerging Technology in Clean Energy Industry: A Case Study of Dimethyl Ether Development in China', *IEEE International Conference on Industrial Engineering and Engineering Management*, 6-9 December, Singapore.
737. Zulch, G. and Rottinger, S. (2007), 'Approach for personnel development planning based on the technology calendar concept', *International Journal of Production Economics*, 105, pp. 273-281.
738. Zurcher, R. and Kostoff, R.N. (1997), 'Modelling technology roadmaps', *Journal of Technology Transfer*, 22 (3), pp. 73-79.
739. Zweck, A. and Holtmannspotter, D. (2009), 'Technology roadmapping: turning hype into a systematic process', *International Journal of Technology Intelligence and Planning*, 5(1), pp. 55-72.