Establishing SME-university collaboration through innovation support programmes

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Abstract

Purpose – The research purpose is to analyse when and how innovation support programmes (ISPs) can affect collaboration between universities and established small and medium sized enterprises (SMEs). The paper specifically considers SME's absorptive capacity.

Design/methodology/approach – A Swedish research centre is studied in the context of innovation support and two of its SME-ISPs are examined with regards to industry—university collaboration and impact on firm innovation capabilities. Data collection and analysis are performed, using interviews, survey answers, document search and reflectional analysis to evaluate processes and effects of the centre and the programmes. Findings – A developed research centre, integrated into both academia and industry, can support translational collaboration and promote SME innovation absorptive capacity. The action learning elements and the organisational development approaches used when coaching in the ISPs contribute to the SMEs internal absorption capacity and collaborational skills. Organising collaboration into ISPs can provide a relational path to future collaboration with universities, which, for example start with student projects.

Research limitations/implications – The study, though limited to one Swedish region, adds to empirical innovation research as it connects industry—university collaboration and absorptive capacity to organisational learning.

Practical implications – The empirical results indicate possible long-term gains for industry and universities in building collaborative innovation into SME-ISPs.

Originality/value – The contribution of this study pertains to the practice of innovation support for established SMEs with the inclusion of absorption capacity and collaborative innovation development.

Keywords Innovation, SMEs, Industry–university collaboration, Organisational development, Production system management development

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Introduction

The mission of universities are to conduct academic research and to spread knowledge through education. Industrial firms benefit from this by recruiting educated staff and appropriating new knowledge by, for example reading scientific journals. Nowadays, C

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in the programmes contributed to innovation absorption capacity and collaboration capabilities of SMEs. For collaborative innovation with university to occur it needs to be integrated into, and promoted by, the ISPs. ISPs can then provide a relational path to the university where collaboration develops over time, becoming increasingly intricate and complex. Collaboration may start with SMEs participating in an ISP where they are introduced to working with students and education. Over time they take part in research projects and R&D agendas, co-production grows and becomes beneficial to both parties and to a wider part of society. However, many SMEs may need to mature into this advanced form of collaboration and increasingly build up their realised absorption capacity skills. The full effects of innovation and collaborative R&D requires realised absorption capacity to be developed inside firms before the benefits of collaboration research can be reaped. When this happens, SMEs may sooner realise their upcoming research and development challenges. This study shows that it is worthwhile for SMEs, as well as for the university, to put greater emphasis on industry—university collaboration when designing and running ISPs.

This study contributes with empirical research on SME industry—university collaboration generated by a research centre which runs ISPs. It showed that ISPs promotes innovation, collaboration and absorptive capacity through their coaching elements. Further research is needed into the performance of companies attending ISPs in relation to how the ISPs are managed and what type of organisation provides them. In addition, evaluation of the elements of absorptive capacity and the collaboration development of the ISPs is suggested.

References

- Alvesson, M. and Sköldberg, K. (2009), Reflexive Methodology: New Vistas for Qualitative Research, SAGE Publications, London.
- Appelbaum, S.H., Habashy, S., Malo, J.-L. and Shafiq, H. (2012), "Back to the future: revisiting Kotter's 1996 change model", *The Journal of Management Development*, Vol. 31 No. 8, pp. 764-782.
- Berglund, R. (2012), "Bestående effekter av Produktionslyftet [Long term effects of Produktionslyftet] (in Swedish)", available at: https://www.produktionslyftet.se/wp-content/uploads/2017/03/effektrespons_nov12.pdf (accessed 14 September 2018).
- Berne, E. (2011), Games People Play: The Basic Handbook of Transactional Analysis, Tantor eBooks, Old Saybrook, Conneticut.
- Bessant, J. and Rush, H. (1995), "Building bridges for innovation: the role of consultants in technology transfer", *Research Policy*, Vol. 24 No. 1, pp. 97-114.
- Bessant, J., Alexander, A., Tsekouras, G., Rush, H. and Lamming, R. (2012), "Developing innovation capability through learning networks", *Journal of Economic Geography*, Vol. 12 No. 5, pp. 1087-1112.
- Bierly, P.E. III, Damanpour, F. and Santoro, M.D. (2009), "The application of external knowledge: organizational conditions for exploration and exploitation", *Journal of Management Studies*, Vol. 46 No. 3, pp. 481-509.
- Brockbank, A. and McGill, I. (2012), Facilitating Reflective Learning: Coaching, Mentoring and Supervision, 2nd ed., Kogan Page Publishers, London.
- Castillo, E.A. and Trinh, M.P. (2019), "Catalyzing capacity: absorptive, adaptive, and generative leadership", Journal of Organizational Change Management, Vol. 32 No. 3, pp. 356-376.
- Chebbi, H., Yahiaoui, D., Sellami, M., Papasolomou, I. and Melanthiou, Y. (2019), "Focusing on internal stakeholders to enable the implementation of organizational change towards corporate entrepreneurship: a case study from France", *Journal of Business Research*. doi: 10.1016/j. jbusres.2019.06.003.
- Coughlan, P. and Coghlan, D. (2002), "Action research for operations management", *International Journal of Operations and Production Management*, Vol. 22 No. 2, pp. 220-240.

- DIVA-MDH (2018), "DiVA academic archive online database portal v. 2.35.2", available at: http://mdh.diva-portal.org/smash/search.jsf (accessed 14 September 2018).
- Dunbar, A. (2016), Clean Coaching: The Insider Guide to Making Change Happen, Routledge, London.
- Gullander, P., Kurdve, M. and Grahn, S. (2017), "Kartläggning av innovationsaktörers arbete och utmaningar för Smart industri i Östra Mellansverige [Mapping of innovation actors work and challenges for Smart industry in East Mid-Sweden] (in Swedish)", Swerea IVF report, Mölndal.
- Kaufmann, A. and Tödtling, F. (2002), "How effective is innovation support for SMEs? An analysis of the region of Upper Austria", Technovation, Vol. 22 No. 3, pp. 147-159.
- Kim, D.H. (1993), "The link between individual and organizational learning", Sloan Management Review, Vol. 35 No. 1, pp. 37-50.
- Laursen, K. and Salter, A. (2004), "Searching high and low: what types of firms use universities as a source of innovation?", *Research Policy*, Vol. 33 No. 8, pp. 1201-1215.
- Lind, F., Styhre, A. and Aaboen, L. (2013), "Exploring university-industry collaboration in research centres", *European Journal of Innovation Management*, Vol. 16 No. 1, pp. 70-91.
- Miles, M.B. and Huberman, A.M. (1994), *Qualitative Data Analysis*, Sage Publications, Thousand Oaks, CA.
- MITC (2018), MITC Mälardalen Industrial Technology Centre, Eskilstuna, available at: http://www.mitc.nu/ (accessed 14 September 2018).
- Olsson, M. and Hellsmark, H. (2012), "Effektutvärdering av Produktionslyftet: Fas1: 2007–2010", VINNOVA Rapport VR 2012: 13, p. 13, available at: https://www.produktionslyftet.se/wp-content/uploads/2017/03/vinnova_2012.pdf (accessed 14 September 2018).
- Parnaby, J. and Towill, D.R. (2010), "Exploiting the concept of a manufacturing system part III: practice and industrial impact of the managing-by-projects engineering change methodology", *Journal of Manufacturing Technology Management*, Vol. 21 No. 1, pp. 7-27.
- Produktionslyftet (2018), "Om Produktionslyftet [About Produktionslyftet] (in Swedish)", available at: https://www.produktionslyftet.se/om-oss/om-produktionslyftet/ (accessed 14 September 2018).
- Rother, M. (2010), Toyota Kata: Managing People for Improvement, Adaptiveness and Superior Results, McGrawHill Professional Publishing, New York.
- Sannö, A., Ericson Öberg, A. and Jackson, M. (2018), *How to Succeed with Co-production: Experiences from Industrial Researchers*, Mälardalen University, Eskilstuna.
- Serrano-Bedia, A.M., Concepción López-Fernández, M. and García-Piqueres, G. (2012), "Complementarity between innovation activities and innovation performance: evidence from Spanish innovative firms", *Journal of Manufacturing Technology Management*, Vol. 23 No. 5, pp. 557-577.
- Shani, A.B. and Coghlan, D. (2019), "Action research in business and management: a reflective review", *Action Research*, Vol. Online, pp. 1-24, doi: 10.1177/1476750319852147.
- Soosay, C., Nunes, B., Bennett, D.J., Sohal, A., Jabar, J. and Winroth, M. (2016), "Strategies for sustaining manufacturing competitiveness: comparative case studies in Australia and Sweden", Journal of Manufacturing Technology Management, Vol. 27 No. 1, pp. 6-37.
- SWECO (2017), "Produktionslyftet Analys av hållbara effekter från utvecklingsprogrammet och Chalmers kurs Lean produktion samt förutsättningar för framtida regional finansiering av produktionslyftet [Analysis of sustained effects from the development program and Chalmers University course in lean production, and conditions for future regional financing of Produktionslyftet] (in Swedish)", available at: https://www.produktionslyftet.se/wp-content/uploads/2018/08/170501 Rapport Produktionslyftet.pdf (accessed 14 September 2018).
- Taticchi, P., Cagnazzo, L., Beach, R. and Barber, K. (2012), "A management framework for organisational networks: a case study", *Journal of Manufacturing Technology Management*, Vol. 23 No. 5, pp. 593-614.
- Tödtling, F., Lehner, P. and Kaufmann, A. (2009), "Do different types of innovation rely on specific kinds of knowledge interactions?", *Technovation*, Vol. 29 No. 1, pp. 59-71.

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- Tödtling, F. and Kaufmann, A. (2001), "The role of the region for innovation activities of SMEs", European Urban and Regional Studies, Vol. 8 No. 3, pp. 203-215.
- Tuckman, B.W. and Jensen, M.A.C. (1977), "Stages of small-group development revisited", *Group and Organization Studies*, Vol. 2 No. 4, pp. 419-427.
- Villani, E., Rasmussen, E. and Grimaldi, R. (2017), "How intermediary organizations facilitate university-industry technology transfer: a proximity approach", *Technological Forecasting and Social Change*, Vol. 114, pp. 86-102.
- Wheelan, S.A. (2009), "Group size, group development, and group productivity", *Small Group Research*, Vol. 40 No. 2, pp. 247-262.
- Whitmore, J. (2004), "Something really has to change: 'change management' as an imperative rather than a topic", *Journal of Change Management*, Vol. 4 No. 1, pp. 5-14.
- Zahra, S.A. and George, G. (2002), "Absorptive capacity: a review, reconceptualization, and extension", Academy of Management Review, Vol. 27 No. 2, pp. 185-203.

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