The reverse tragedy of the commons: an exploratory account of incentives for under-exploitation in an open innovation environment

This paper presents an empirical account of a phenomenon that we refer to as the ‘reverse tragedy of the commons’ in open innovation. The name signifies the ‘under-exploitation’ of intellectual property (IP) under weak appropriability. The name is this graphic because the tragedy is costly, and can also render IP effectively worthless and block innovation in the short to medium term. We propose that the tragedy is borne out of the interaction between enterprise characteristics, a competitive setting and the framework that is set by the policy intervention. This finding is pertinent to policy-makers with regard to the design of research, development and innovation instruments, as well as managers who must determine how to implement open practices in innovation.
Designers as the Determinants of Aesthetic Innovations

Aesthetic innovations have become increasingly important appropriation mechanisms for firms. Since 2003, the number of design patent applications (to protect aesthetic innovations) has tripled compared to doubling in the numbers of both patent and trademark applications. However, despite the growing interest of firms in aesthetic innovations, knowledge on the ir determinants is limited. Work on labor mobility with in the innovation studies literature focuses mainly on discussion of scientists as crucial for creating technological innovations. This paper adds to work on labor mobility and innovation by examining whether this holds in the case of designers' mobility and aesthetic innovations. Does the hiring of a new designer generate more aesthetic innovations than in a matched firm, which does not hire a designer? What is the importance of prior experience with aesthetic innovation in the receiving firm for the firm's absorptive capacity linked to translating the hiring of a designer into aesthetic innovation? We use a unique dataset containing information on firms, their hiring of designers, and their aesthetic innovation activity measured by design applications (design patents). Our findings show that hiring a designer does increase the likelihood of producing an aesthetic innovation. Hence, designers re a determinant of aesthetic innovations. However, in order to benefit fully from hiring a designer the firm needs prior experience in aesthetic innovation.

From university research to innovation Detecting knowledge transfer via text mining

Knowledge transfer by universities is a top priority in innovation policy and a primary purpose for public research funding, due to being an important driver of technical change and innovation. Current empirical research on the impact of university research relies mainly on formal databases and indicators such as patents, collaborative publications and license agreements, to assess the contribution to the socioeconomic surrounding of universities. In this study, we present an extension of the current empirical framework by applying new computational methods, namely text mining and pattern recognition. Text samples for this purpose can include files containing social media contents, company websites and annual reports. The empirical focus in the present study is on the technical sciences and in particular on the case of the Technical University of Denmark (DTU). We generated two independent text collections (corpora) to identify correlations of university publications and company webpages. One corpus representing the company sites, serving as sample of the private economy and a second corpus, providing the reference to the university research, containing relevant publications.
We associated the former with the latter to obtain insights into possible text and semantic relatedness. The text mining methods are extrapolating the correlations, semantic patterns and content comparison of the two corpora to define the document relatedness. We expect the development of a novel tool using contemporary techniques for the measurement of public research impact. The approach aims to be applicable across universities and thus enable a more holistic comparable assessment. This rely less on formal databases, which is certainly beneficial in terms of the data reliability. We seek to provide a supplementary perspective for the detection of the dissemination of university research and hereby enable policy makers to gain additional insights of (informal) contributions of knowledge dissemination by universities.

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Organisations: Department of Management Engineering, Technology and Innovation Management, Department of Applied Mathematics and Computer Science, Statistics and Data Analysis
Authors: Woltmann, S. (Intern), Clemmensen, L. K. H. (Intern), Alkærsig, L. (Intern)
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**Orientations and outcome of interdisciplinary research: the case of research behaviour in translational medical science**
The importance of interdisciplinary research in accelerating the progress and commercialization of science is widely recognized, yet little is known about how academic research self-organizes towards interdisciplinarity. In this paper, we therefore explore the micro-level behavior of researchers as they venture into a promising space for interdisciplinary research, namely translational research—a bridge between basic and applied biomedical research. More specifically, we ask (1) whether the researchers who choose to engage in translational research have a strong scientific record, (2) how interdisciplinary research spanning basic and applied research influences the output of academic research, and (3) how different disciplinary distance in interdisciplinary research contributes to reputational benefits of researchers. We find that for some types of collaboration, interdisciplinarity results in more highly cited research, while in others it is not, and look for explanations for this difference. Our results show that translational research draws higher citations when it involves university researchers from the most basic end of the disciplinary spectrum, and when its issues are directed at basic (rather than applied) research.

**General information**
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Organisations: Department of Management Engineering, Technology and Innovation Management, The Think Tank DEA
Authors: Valentin, F. (Ekstern), Norn, M. T. (Ekstern), Alkærsig, L. (Intern)
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Profile and Trends of FTA and Foresight

This chapter presents the profile and trends of the academic discipline of Future-oriented Technology Assessment (FTA) and its approaches. This chapter presents the profile and trends of the academic discipline of FTA and its approaches. This is achieved through analyses of the development, focus and scientific impact of FTA. As such, this chapter contributes to the discussion on the conceptual development and academic positioning of FTA (or Foresight). The chapter is based on bibliometric analyses of the special issues of five international journals published after the FTA conferences in 2004, 2006, 2008 and 2011: Technological Forecasting and Social Change, Futures, Technology Analysis and Strategic Management, Science and Public Policy, and Foresight. Methodologically, the paper draws on the principles of Elsevier’s Scopus and Thompson Reuter’s Web of Science. The chapter concludes that the field of FTA seems to have remained remarkably stable over the last decade. As an academic field, FTA has targeted a small number of journals for its publications, which has helped to further define and focus the field. Finally, the chapter concludes that publications in special issues of international journals resulting from the FTA conferences have a similar level of quality and scientific impact as articles published in standard issues of these journals.

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Organisations: Department of Management Engineering, Technology and Innovation Management
Authors: Andersen, P. D. (Intern), Alkærsig, L. (Intern)
Pages: 45-58
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Publisher: Springer
Regional foresight and dynamics of smart specialization: A typology of regional diversification patterns

The concept of smart specialization has attracted great interest and has been adopted widely in European regional and innovation policy. Foresight is an important part of creating smart specialization strategies. However, both the smart specialization concept and foresight have been criticized for lacking an empirical and theoretical foundation that can help guide their application in practice. This paper contributes to the theoretical foundation of smart specialization and regional foresight by drawing on the field of economic geography and elaborating a typology for patterns of smart specialization. We highlight that there are different paths to reaching smart specialization within the same industrial domain. The empirical research focuses on the offshore wind service sector in four regions around the North Sea. The findings corroborate a typology that offers four distinct patterns—diversification, transition, radical foundation, and modernization—all of which can enable the creation of new industrial activities where regions enter an emerging industry based on fundamentally different starting points.
The Impact of Educational Diversity and Horizontal Mismatch on Technical Innovation

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Organisations: Department of Management Engineering, Technology and Innovation Management
Authors: Alkærsig, L. (Intern), Cash, P. (Intern)
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Designers as Determinant for Aesthetic Innovations
The innovation literature states that scientists are core ingredients in creating technological innovations. This paper investigates whether the hiring of a designer generates aesthetic innovations by a firm. Further we investigate what the level of design knowledge of the receiving firm means for the firms’ absorptive capacity, in terms of turning the hiring of the designer into aesthetic innovations. We explore a unique dataset containing information on firms, their hiring of designers and aesthetic innovations measured by design applications (design patents). Our findings show that hiring a designer does increase firms’ likelihood of producing aesthetic innovations. Secondly, firms with prior experience of generating aesthetic innovations are more likely to apply for design registrations. Thirdly, there is a positive moderating effect of firms with prior experience of generating aesthetic innovations on the effect of hiring a designer on aesthetic innovation outcome.

General information
State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management, Copenhagen Business School
Authors: Fjællegaard, C. B. (Forskerdatabase), Beukel, K. (Ekstern), Alkærsig, L. (Intern)
Number of pages: 35
Publication date: 2015
Intellectual Property Rights Management: Rookies, Dealers and Strategists

Intellectual Property Rights Management explores how the entire toolbox of intellectual property (IP) protection and management are successfully combined and how firms generate value from IP. In particular, this book provides a framework of archetypes which firms will be able to self-identify with and which will allow companies to focus on the IP and IP Management issues most relevant to them. By doing so, the authors offer further insights as to the use of IP and IP management practices across firms. By looking at empirical data covering the population of firms, the findings not only pertain to large organization but also reflect the practices and operations that reside in SMEs. This volume also utilizes labor market and firm data to determine whether there is a definitive relationship between IP and economic performance on the firm level.

Profile and trends in FTA approaches: a bibliometric analysis of special issues of international journals from four FTA conferences

The aim of this paper is to present the profile and trends of the academic discipline of Future-oriented Technology Assessment (FTA) and its approaches. As such the paper contributes to the discussion on the concept and positioning of FTA. The paper is based on bibliometric analyses of the special issues of five international journals published after the FTA conferences in 2004, 2006, 2008 and 2011: TFSC, Fu-tures, TASM, SSP and Foresight. Methodologically the paper draws on the facilities of Elsevier’s Scopus and Thompson Reuter’s Web of Science. The paper concludes that the field of FTA or foresight seems to be remarkable stable over the latest decade. As an academic field FTA has focussed its publications in a small number of journals, and that helps define and focus the field further. Finally, the paper concludes, that special issue publications resulting from the FTA conferences have the same level of quality and impact as articles published in ordinary issues of these journals.
Smart Specialisation: ‘All roads lead to Rome’

General information
State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management
Authors: Tanner, A. N. (Intern), Piirainen, K. (Intern), Alkærsig, L. (Intern)
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Projects:
Smart Specialisation: ‘All roads lead to Rome’
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Publication: Research › Poster – Annual report year: 2014

Smart Specialization and Capabilities for Offshore Wind Services around the North Sea
This paper addresses a growing gap between the policy practice of “Smart Specialization strategies” and its theoretical base. The concept of Smart specialization has attracted a high level of policy interest and has been adopted widely in policy circles in Europe. However, Smart Specialization lacks an empirical and theoretical foundation that can help guide its application in practice. This paper develops a framework based on two strings of literature, namely the fields of evolutionary economic geography and innovation systems. Subsequently the framework is applied on a regional mapping exercise conducted in an EU funded ‘Regions of Knowledge’-project that focuses on the Offshore Wind Service sector in four regions around the North Sea. The purpose is to illustrate how a strategy-making process can be guided by a few theory based principles in pursuing the goals of smart specialization. The findings support that regions differ in terms of knowledge assets, capabilities and capacity in different parts of the value chain and consequently build on different starting points for Smart Specialization strategies.

General information
State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management
Authors: Piirainen, K. (Intern), Tanner, A. N. (Intern), Alkærsig, L. (Intern), Andersen, P. D. (Intern)
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Smart Specialization and Capabilities for Offshore Wind Services around the North Sea
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Publication: Research - peer-review › Article in proceedings – Annual report year: 2014
Technological competence mapping in the North Sea region

General information
State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management
Authors: Alkærsig, L. (Intern), Piirainen, K. (Intern)
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The effect of rarity and uncertainty on innovation value
This paper addresses the core notions of the Resource Based View, that rarity provides superior performance. We examine the limits of rarity as a driver of performance in the process of innovation. We also claim that uncertainty affects this process, both directly and moderating the effect of rarity. Using patent data relative to hydrocracking – a mature technology experiencing periods of stable and unpredictable development – we find that rarity has a U-shaped effect on innovation value, as both rare and non-rare inventions are valuable. Uncertainty has an inverted U-shaped effect on innovation value, as in conditions of low uncertainty incremental innovation tends to prevail, while high uncertainty leads to imitation of successful practices. Low, but not high, uncertainty moderates the relationship between rarity and innovation value.

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State: Published
Organisations: Department of Management Engineering, Technology and Innovation Management, University of Udine, University of Copenhagen
Authors: Alkærsig, L. (Intern), Beukel, K. (Ekstern), Lauto, G. (Ekstern)
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The enabling effect of interaction with clinical researchers in life sciences

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Organisations: Department of Management Engineering, Technology and Innovation Management, Copenhagen Business School
Authors: Alkærsig, L. (Intern), Valentin, F. (Ekstern)
Types of learning in complex technological innovations

General information
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Organisations: Department of Management Engineering, Technology and Innovation Management, Copenhagen Business School, University of Udine
Authors: Alkærsig, L. (Intern), Beukel, K. (Ekstern), Lauto, G. (Ekstern), Valentin, F. (Ekstern)
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Projects:

Impact Assessment of University Research
Department of Management Engineering
Period: 01/09/2015 → 31/08/2018
Number of participants: 3
Phd Student:
Woltmann, Sabrina (Intern)
Supervisor:
Ersbøll, Bjarne Kjær (Intern)
Main Supervisor:
Alkærsig, Lars ( Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD

The search for sustainable development and its relation to the dynamic of sectoral innovation systems: An empirical analysis in selected sectors
Department of Management Engineering
Period: 15/12/2012 → 04/07/2016
Number of participants: 6
Phd Student:
Faria, Lourenco (Intern)
Supervisor:
Alkærsig, Lars (Intern)
Main Supervisor:
Andersen, Maj Munch (Intern)
Examiner:
Andersen, Per Dannemand (Intern)
Jean, Maïder Saint (Ekstern)
Mazzanti, Massimiliano (Ekstern)

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Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD