

国内外の特許情報サービスに活用可能な研究・技術の調査結果

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
The exercise of patent rights through multiple exclusive field-of-use licensing	Journal of Product Innovation Management	Volume 4, Issue 1	Pages 73-74	1987	S. Leslie Mirock, Brian D. Coggio, and Norman C. Dulak	n/a	n/a
From experience: Perspectives of a trademark attorney on the branding of innovative products	Journal of Product Innovation Management	Volume 4, Issue 3	Pages 217-224	1987	Thomas M.S. Hernnes	https://doi.org/10.1016/0737-6782(87)90006-3	Abstract: One of the most important decisions facing new products managers is the selection of a brand name. For too often, this decision is postponed or treated casually, leading to a myriad of later problems. Thomas Hernnes, a practicing trademark attorney, discusses these problems. He notes the importance of the choice of both the trademark and generic names for the new product and also provides helpful guidance. In addition, he discusses particular needs for documentation and record keeping, linked to both trademark selection and trademark maintenance. Finally, he draws important distinctions between trademark and patent registration, closing with a discussion of differences between practices in the United States and elsewhere in the world.
The exercise of patent rights through multiple exclusive field-of-use licensing: Rutgers Computer & Technology Law Journal (Issue 2 1985), pp. 383-406	Journal of Product Innovation Management	Volume 4, Issue 1	Pages 73-74	1987	S. Leslie Mirock, Brian D. Coggio, and Norman C. Dulak	n/a	n/a
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Experimental use or fair use as a defense to patent infringement	Journal of Product Innovation Management	Volume 7, Issue 4	Page 335	1990	Steven J. Grossman	https://doi.org/10.1016/0737-6782(90)90094-U	n/a
Experimental use or fair use as a defense to patent infringement: IDEA (30, no.4), pp. 243-264	Journal of Product Innovation Management	Volume 7, Issue 4	Page 335	1990	Steven J. Grossman	https://doi.org/10.1016/0737-6782(90)90094-U	n/a
Organizational behavior in the R&D process based on patent analysis:: Strategic R&D management in a Japanese electronics firm	Technovation	Volume 22, Issue 7	Pages 417-425	2002	Youichirou S Tsuji	https://doi.org/10.1016/S0166-4972(01)00032-3	Abstract: In the previous study [Tsuji, Org. Sci. 33 (2000) 62], the author showed that Canon's patent acquisition strategy effectively promotes their research and development (R&D). In the present study, the author investigated Canon's R&D process from the viewpoint of organizational behavior, paying particular attention to researchers' behavioral patterns, the significance of their patent acquisition strategy, and the role of the Patent Section. Patent application data reflecting performance of researchers in R&D activity relating to inkjet printers were analyzed. The results show that: first, Canon's R&D practice is mainly carried out by teams of researchers; second, each team usually focuses its research effort on a single specified element of technology or device; finally, at times, several teams combine to form larger groups, corresponding to certain stages of product development. Such flexible team behavior exemplifies a new type of unification/regulation system that effectively promotes the R&D process. The author also discusses the useful method of selecting key patents from medley patent gathering for organizational studies.
A study of R&D, innovation, and business performance in the Canadian biotechnology industry	Technovation	Volume 22, Issue 4	Pages 231-244	2002	Linda A Hall, Sharmistha Bagchi-Sen	https://doi.org/10.1016/S0166-4972(01)00016-5	Abstract: This study examines the relationships among R&D intensity, innovation measures, and business performance in the Canadian biotechnology industry, which experienced rapid growth in the number of firms and revenues between 1994 and 1997. A sample of 74 biotechnology companies in Canada is used for the analysis (the response rate of the postal questionnaire survey was 23.8%). In addition, geographic variations in barriers affecting innovation and factors influencing the business performance of biotechnology firms are analyzed. Results of the study show that R&D intensity correlates with patent measures, while innovation measured in terms of new product introductions is associated with business performance. Canadian firms attribute their business performance to internal advantages to a greater extent than external factors. The Canadian regulatory process is the greatest barrier to innovation. This study shows that while R&D and scientific breakthroughs drive innovation in the biotechnology industry, market demand plays a critical role in business performance of firms.
Growth of embedded software related patents	Technovation	Volume 23, Issue 6	Pages 533-544	2003	D.H. McQueen, H. Olsson	https://doi.org/10.1016/S0166-4972(02)00011-1	Abstract: The distribution of embedded software related patent applications across 118 IPC patent classes has been determined for 1988, 1993 and 1998 using a bibliometric technique. The patent applications were identified using search words based on patent claims concerning various aspects of embedded software. The number of these patent application assignments each year increased at an annual rate of about 17% while the distribution over IPC patent classes narrowed only slightly. In terms of patent classification sections, in 1998 over 41% of all embedded software related patent application assignments were in section G (Physics) while section H (Electricity) contained another 36% of them. In terms of patent classes, the most important patent classes are H04 (Electric communication technique) and G06 (Computing, calculating, counting) accounting for a little more than 40% of all embedded software patent application assignments. In only two patent classes, H04 and G06, is there a majority of embedded software related patent applications. Since patent application assignments are mainly according to the character of the problem to be solved and its solution, rather than the field of the application of the solution found, these statistics relate to the technical problems solved by the inventions. This is in contrast to economic statistics on the distribution of embedded software over branches of industry that characterizes the application of the problem solutions.
Does New Zealand have an innovation system for biotechnology?	Technovation	Volume 23, Issue 2	Pages 103-112	2003	D. Marsh	https://doi.org/10.1016/S0166-4972(02)00153-0	Abstract: While there is a large and growing international literature on economic aspects of biotechnology innovation (e.g. work by Carlsson, McKelvey, Orsenigo, Zucker and Darby) these studies concentrate on US and Europe. The New Zealand biotechnology industry may be expected to develop along a different trajectory as a consequence of a markedly different set of initial and framework conditions. This paper presents the results of an ongoing study that aims to fill some of the gaps in our knowledge of innovation processes in New Zealand while using the international literature as a benchmark. The size and structure of modern biotech activity in New Zealand is described and compared to other OECD countries using biotech patent data and results from the New Zealand and Canadian biotechnology surveys. The paper then focusses on factors affecting innovation in biotechnology; framework conditions, government policy R&D funding and the role of networks and other linkages.
The exploitation of complementarities in scientific production process at the laboratory level	Technovation	Volume 24, Issue 6	Pages 455-465	2004	Nicolas Carayol, Mireille Matt	https://doi.org/10.1016/j.tech-novation.2004.03.007	Abstract: The paper analyses the scientific research production of more than 80 laboratories belonging to Louis Pasteur University, a large and well-ranked European research university. We study research organisation of the labs focusing on the structure of research personnel and outcomes. The paper proposes a typology of laboratories, which enables us to stress different design for research organisation. The main results show how appropriate combinations of research personnel may strongly influence the publication and patent productivity.
Innovation spells in the multinational agri-food sector	Technovation	Volume 24, Issue 8	Pages 599-614	2004	Oscar Alfranca, Ruth Rama, Nicholas von Tunzelmann	https://doi.org/10.1016/S0166-4972(02)00129-3	Abstract: This paper examines the innovative history of a number of multinational agri-food companies using a database for utility patents and design patents. The first hypothesis to be tested is whether firms that innovate, usually do it persistently. We analyse a sample of 16,698 patents granted in the US over the period 1977:1994 to 103 F&B firms selected from the world's largest food and beverage multinationals (FBMs). The main conclusion that stems from these series is that only a small number of spells last for more than 4 yr. That is, only 6% of all utility patenting spells are ongoing after 4 yr, and only 1.6% of all design patenting spells are ongoing after 4 yr. Nevertheless, it is significant that there are 22 utility patents spells of the longest duration (18 yr). This frequency is only comparable to 3 yr long spells in utility patents and it is completely different from the design patents (there is only one 18 yr spell). However, this myriad of short-term projects coexist with long-run innovation. There is a small nucleus of persistent patentors who contribute around 80% of the total number of patents granted to the multinational agri-food sector. Persistent patentors are also heavy patentors since length of spells and average number of patents per year are statistically associated. Length of innovative spells is not associated, by contrast, with size of the company or specific agri-food subsector. Companies remaining innovative in the technical field tend also to remain innovative in design for long periods of time.
Technology portfolio alignment as an indicator of commercialisation: an investigation of fuel cell patenting	Technovation	Volume 24, Issue 10	Pages 761-771	2004	A. Pilkington	https://doi.org/10.1016/S0166-4972(03)00004-X	Abstract: We are gradually exploring the limits and potential of patents as a source of information in plotting technological development and competitive insight. However, their value in predicting commercialisation and emerging technologies is an area where tools have yet to be fully developed. This paper introduces a statistically driven patent-based method that identifies the technological portfolios in industry players. The method is tested using the case of fuel cell technology development, a technology that despite a succession of failed predictions appears to be nearing commercial introduction. The close alignment between the technology portfolios of the firms developing fuel cell technology is identified as a precursor and indicator of commercialisation.

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Technological foresight—the use of biotechnology in the development of new drugs against breast cancer	Technovation	Volume 24, Issue 4	Pages 299-309	2004	Claudia Canongia, Adelaide Antunes, Maria de Nazare Freitas Pereira	https://doi.org/10.1016/j.technovation.2003.10.001	Abstract: The aim of the study is to demonstrate knowledge and information management as a mechanism for developing technological foresight regarding the use of biotechnology in drugs for breast cancer. The methodology applies competitive intelligence (CI) tools to identify international trends concerning drugs for treatment and/or diagnosis, and to identify leading institutions. The study was performed by collecting, treating and analyzing information extracted from specialized databases and patent databases. Subsequently, knowledge maps were generated, which could serve to guide the development of the health sector that works in the area of breast cancer, supplying a basis for decision-making and for the construction of a vision of the future. The article shows the results of data mining in specialized medical and patent databases with regard to the use of biotechnology in the treatment of breast cancer, identifying the most frequently cited new drugs and drug combinations, as well as the authors of research (articles) and the creators of new technology (patents) at the beginning of the 21st century.
Useful science is good science: empirical evidence from the Italian National Research Council	Technovation	Volume 25, Issue 5	Pages 505-512	2005	Fabrizio Tuzi	https://doi.org/10.1016/j.technovation.2003.10.003	Abstract: Useful science is good science. According to Pavitt's claim (Research Policy 27 (1998) 793), the aim of this paper is to show that the differences in innovation intensity of the scientific bodies (institutes) belonging to the largest public research institution in Italy (National Research Council, CNR) are affected rather by the carrying out of basic scientific activities than the development of research activities suitable to the innovation needs of firms. CNR has remarkable records of scientific achievements, mainly in basic science, medicine, biology, computer science and engineering, performed by 108 institutes spread over all Italian regions. Regarding its mission, a novel framework of CNR technology production has been introduced, in order to guide an empirical analysis into the determinants of the differences in technology production of CNR institutes. This framework relates the CNR patenting data and a selected set of scientific indicators, in order to single out the kind of link between technological production and scientific activities. The analysis shows the following results: There is a positive correlation between scientific activity, measured by bibliometric analysis, and technological production; The collaboration with other public or private institution and market oriented activity do not affect the innovation intensity of the CNR institutes.
Explaining the propensity to patent computer software	Technovation	Volume 25, Issue 9	Pages 971-978	2005	Norhene Chabchoub, Jorge Niosi	https://doi.org/10.1016/j.technovation.2004.02.015	Abstract: Several studies have explained the propensity to patent in industrial corporations. Larger companies are supposed to have a stronger tendency to protect their intellectual property through patents. Also, patents are related to industry, with chemicals and pharmaceuticals using them more frequently, and services industries less so. In the last 20 years, the rapidly growing software industry has greatly increased its tendency to patent. This study presents a statistical explanation of patenting in the US and Canadian (over 1700) publicly quoted computer software-producing companies, representing half of the world industry. We found that firm size, geographical clustering, and the mix of software products and services at firm level explain most of the propensity to patent.
Growth of software related patents in different countries	Technovation	Volume 25, Issue 6	Pages 657-671	2005	Douglas H. McQueen	https://doi.org/10.1016/j.technovation.2003.10.005	Abstract: The distribution of software related patent applications in fifteen European countries, the United States and Japan has been determined for 1987, 1990, 1993, 1996 and 1999 using a bibliometric technique. The results were used for extrapolation to 2002 and 2005. The patent applications were identified using search words extracted from patent claims concerning various aspects of computer software. World-wide, the annual growth in the number of these patent applications is about 19%. In Europe and the United States there are signs of saturation in the growth rate while in Japan the growth continues to be exponential. The largest numbers of applications are assigned to IPC patent section G (Physics), in particular to classes G11, G09, G01, G06, G05 and G08. The next most populous class is H (Electricity) represented most strongly by classes H01, H03 and H04. Growth in the number of software related patent applications is especially strong in section C (Chemistry), represented most strongly by class C07 followed by classes C12 and C08, which may overtake section H in the near future. Most applications assigned to section B (Performing operations; transporting) are in class B60 while in section A (Human necessities) the most important class is A61. In Europe, Germany dominates patenting in general and software related patenting in particular. The number of European software related patent applications slackened considerably in 1999. This slackening is observable over the whole spectrum of patent sections and classes in which software related patents are significantly present. Since there was no corresponding slump in patenting in general, this slackening is interpreted as related to conditions in the software sector in particular rather than to general economic conditions or the like. The importance of the EPO as a receiving office for software related patent applications (priority establishing applications) has increased relative to national receiving offices during the nineties.
R&D productivity and firm size: a nonlinear examination	Technovation	Volume 25, Issue 7	Pages 795-803	2005	Kuen-Hung Tsai	https://doi.org/10.1016/j.technovation.2003.12.004	Abstract: Controversial arguments abound in the previous research on the relationship between R&D output and firm size, with these arguments implying the existence of a nonlinear relationship between the two. However, such a relationship has never been seriously examined. This study therefore aims to examine the nonlinear relationship between R&D productivity and firm size using a longitudinal dataset. In this article, the Taiwanese electronics industry is taken as the analytical sample since this industry has been viewed as the most R&D-intensive and prominent 'high-tech sector'. Another, more practical consideration for choosing this sector is the relative abundance of data available for variables for a longitudinal investigation. In contrast to the prior research, this study measures R&D productivity as R&D output elasticity, rather than patent counts or the ratio of patents to R&D expenditure, and treats firm size as a moderator rather than an independent variable. In addition, in estimating R&D output elasticity, the rate of obsolescence of R&D is also considered in this study. The empirical results show that there is an approximating 'U-type' relationship between R&D productivity and firm size, a finding which implies that both large and small firms have higher competitive advantage, in terms of R&D productivity, than moderate sized firms. The findings neither support that greater size offers no advantage in terms of R&D output nor completely confirm the Schumpeterian hypothesis. This study also presents evidence on the importance of R&D as a determinant of the growth of firm total factor productivity. Obviously, this article contributes a starting point in examining a nonlinear relationship between innovative output and firm size.
Financial success in biotechnology: company age versus company science	Technovation	Volume 25, Issue 5	Pages 463-468	2005	G. Steven McMillan, Patrick Thomas	https://doi.org/10.1016/j.technovation.2004.10.009	Abstract: The purpose of this research effort is to use the tenets of institutional theory to explore the relative stock market success of biotechnology companies. Previous research (Deng, Z., Lev, B., Narin, F., 1999. Science and technology as predictors of stock performance. Financial Analysts Journal 55(3), 20732.) has highlighted the relationship between the quality of companies' technology, as measured using quantitative patent indicators, and their stock market valuation. Institutional theory (DiMaggio, P.J., Powell, W.W., 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. American Sociological Review 48, 1471160.) might suggest that there are many institutional outcomes that are decoupled from the actual activities of the organization. From this view, much of a firm's effort might involve signalling components, including the age of the company and other similar activities. Our results are that older companies have significantly higher stock market valuations, and that those companies had fewer PhD's as their Chief Executive Officers (CEOs). These findings suggest that the stock market often looks favourably upon older established biotechnology companies that are run by professional managers rather than pioneering scientists.
R&D networks and product innovation patterns—academic and non-academic new technology-based firms on Science Parks	Technovation	Volume 25, Issue 9	Pages 1025-1037	2005	Hans Lofsten, Peter Lindelof	https://doi.org/10.1016/j.technovation.2004.02.007	Abstract: This research has explored the R&D networks and product innovation patterns made by the NTBFs (University spin offs, USOs and corporate spin-offs, CSOs) located on Science Parks. It seems reasonable to believe that firms established by those with an academic background might be expected both to perform differently and respond to different incentives from those founded by personnel from the industry. The two research propositions were empirically tested on the basis of 134 new technology-based firms (NTBFs) on Science Parks in Sweden, USOs from the academy (74 small firms) and CSOs from the private sector (60 small firms). There were no significant differences regarding growth (sales) and profitability (profit margin) between the two groups. In order to separate the performance due to the firms capability and the impact of the environment, a control variable was created. This paper, building on the resource-based theory and empirical evidence, argues that NTBFs have an interest in co-operation between the university and the Science Park firms. The survey makes it clear that the proportion of USOs and CSOs on Science Parks with links with universities is comparatively high. Seventy percent of USOs co-operates with universities and 59 percent of the CSOs. This is surprisingly high percentages of the CSOs. One finding from this research is that USOs are not able to channel investments into greater R&D outputs (Patents) than comparable firms.
Patents for genetic inventions: a tool to promote technological advance or a limitation for upstream inventions?	Technovation	Volume 25, Issue 12	Pages 1410-1417	2005	Nikolaus Thumm	https://doi.org/10.1016/j.technovation.2004.07.009	Abstract: Today's conventional wisdom among economists and lawyers is heavily weighted toward the proposition that strong and broad patent rights are conducive to economic progress. Concerns have been raised as to the extent to which strong patent rights could build up barriers to follow-up research and thus hinder technological advance. This poses a number of difficulties particularly in the area of genetics with respect to the scope of protection and the definition of what is patentable. This article considers the problems of 'anti-commons', limitations for upstream inventions, patent thickets and royalty stacking with licenses for genetic inventions. A survey of 53 biotechnology companies in Switzerland builds the empirical basis of the investigation. The survey results confirm that the concepts of 'anti-commons', 'patent thickets' and 'royalty stacking' are indeed relevant. However, they are not highly relevant for the Swiss biotechnology industry from an economic point of view. A broad research exemption combined with a protection limited to concrete disclosure functions of DNA patents and compulsory licensing arrangements are considered as feasible remedies for overcoming certain difficulties with gene patents.

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A new dimension of potential resources in innovation: A wider scope of patent claims can lead to new functionality development	Technovation	Volume 26, Issue 7	Pages 796-806	2006	Tomoko Saiki, Yuji Akano, Chihiro Watanabe, Yuji Tou	https://doi.org/10.1016/j.technovation.2005.06.002	Abstract: Notwithstanding a significant expectation to increase the contribution of technology to productivity in megacompetition, the productivity of technology in Japan's high-technology industry has been declining, resulting in a decrease in competitiveness. The only solution to this twisted trap is to shift the current vicious cycle between R&D, technology stock and production to a virtuous cycle. Given strong constraints in fiscal investment, a practical solution to achieving a virtuous cycle is effective utilization of potential resources in innovation. A wider scope for patent claims can be an ingenious trigger leading to a virtuous cycle involving new functionality development, increased productivity of technology, production increases, greater R&D investment and a sustainable wider scope of patent claims. Japan's Patent Office introduced the Revised Examination Guideline (June 1993 Examination Guideline), including description requirements for patent applications. This induced leading high-technology firms to broaden their scope relative to claiming patents and succeeded in constructing the foregoing virtuous cycle, thereby demonstrating the significance of a new dimension of potential resources in innovation. On the basis of an empirical analysis focusing on techno-managerial efforts by Japan's pharmaceutical firms with both indigenous and the US capital, this paper attempts to demonstrate the foregoing hypothetical view. A noteworthy implication obtained from the research is that while leading pharmaceutical firms with indigenous capital have constructed a virtuous cycle by means of a wider scope of patent claims and have achieved new functionality development as a result, firms with the US capital have demonstrated a higher level of performance.
Regional systems of innovation and the knowledge production function: the Spanish case	Technovation	Volume 26, Issue 4	Pages 463-472	2006	Mikel Buesa, Joost Heijs, Monica Martinez Pelintero, Thomas Baumert	https://doi.org/10.1016/j.technovation.2004.11.007	Abstract: This working document is based on a broad multivariate data analysis of the regions conforming the Spanish R&D system, with the purpose of establishing a typology of the regional innovation systems. The paper consists of four parts. It begins with a brief introduction reviewing the main theoretical approaches. In the second part, we use a factorial analysis, which allows us to differentiate between four main factors that have an impact on the regional innovation capacity: The Regional Production and Innovation Environment, the University, the Public Administration and Private Enterprise. In the third part, we determine a typology of the Spanish R&D system using the cluster analysis with the four factors detected before. The regions that stand out are Madrid (Public Administration), Catalonia (Environment), Basque Country (Enterprises) and Navarra (University), the rest of regions showing the heterogeneity of the regional R+D system in Spain. Finally, we use patents as a measure of the innovative capacity of the Spanish regions, calculating a regression with the four factors explained before. We confirm the importance of the Regional Production and Innovation Environment more than other factors on this kind of output.
There's a new man in town: the paradigm shift in optical technology	Technovation	Volume 26, Issue 1	Pages 13-29	2006	Rainer Frietsch, Hariolf Grupp	https://doi.org/10.1016/j.technovation.2004.07.007	Abstract: The contribution gives a short introduction into the enabling character of modern optical technology and tries to trace the paradigm shift from bulbs to opto-electronics and photonics in quantitative terms using science and technology indicators. As an example of the economic potential of the new optical technology, the impact on foreign trade is investigated and discussed. As it turns out, there seem to be different strategies of nations concerning adoption of modern optical technology. Most of the countries considered follow the strategy to start from their own strength in their homebase and differentiate from there to the prosperous new product lines. But also newcomers are observed which do not follow this traditional path. Overall, the contribution adds evidence to the notion that the evolution in changing areas of technology is nation-specific.
Reconceptualizing innovation policy. The case of France	Technovation	Volume 26, Issue 4	Pages 444-462	2006	Blanka Vavakova	https://doi.org/10.1016/j.technovation.2004.09.002	Abstract: In March 2004, French researchers from the public research sector staged a protest movement unprecedented in its scope and length. The paper situates this conflict within the evolution of French innovation policies, notably with regard to the public research sector and its relationship to industry. Since the crisis of the 1970s it had become evident that French firms invested little in research and development when compared to their competitors. Since 1982, a succession of innovation policies were thus put in place to deal with this problem by enhancing the contribution of public sector research to the innovative performance of national industry. This paper analyzes these shifts in policy and the unexpected and often contradictory results that they have produced over time. These have included a rise in contract research but a decline in patenting activity by public sector research institutes, conflicts over the direct appropriation of benefits by research institutions and the holding of roles and functions concurrently across public and private sectors by researchers in these institutions and throughout, the continued underperformance of French firms in R&D.
A method based on patent analysis for the investigation of technological innovation strategies: The European medical prostheses industry	Technovation	Volume 26, Issue 8	Pages 932-942	2006	Corrado Io Storto	https://doi.org/10.1016/j.technovation.2005.10.005	Abstract: In this article, a methodology based on the analysis of granted patents useful to investigate strategies of technological innovation implemented by innovative firms is presented. This methodology adopts a conceptualization which considers technological innovation as an outcome of a change of either the technological components or a diverse combination of the components themselves. The methodology is applied to analyze the characters of the strategies of technological innovation pursued by 12 European firms in the human prosthesis industry. Undoubtedly, the complexity of this industry offers interesting hints to study the implementation of technology strategies adopting the search concept. Furthermore, there is a lack of empirical studies that considered this industry. Even though the methodology and the study presented have still an explorative nature, the results of the empirical analysis suggest several reasons to carry on a further investigation for a deeper comprehension of the innovation process in high-tech industries.
Are world-first innovations conditional on economic performance?	Technovation	Volume 26, Issue 9	Pages 1017-1028	2006	Brian P. Cuzzarin	https://doi.org/10.1016/j.technovation.2005.10.007	Abstract: The objective of the research is to determine whether past economic performance has an impact on a firm's ability to innovate. Specifically, the concern is with producing a world-first innovation, a Canada-first innovation and a first-to-the-firm innovation taking prior performance into consideration. Ordered logistic regression coefficients for market share, labour productivity and profit are statistically significant for seven out of 12 industries. However, when compared to other firm level characteristics such as strategies, competitive environment, information sources, R&D and use of patents the importance of economic performance fades quite drastically. Across all industries this study found that internal information was a very important factor for innovation. In three of the 12 industries (clothing and textiles, metal, and electric and computer) internal, external and general information were utilized by managers extensively. Managers in the wood and paper, furniture, vehicles, and miscellaneous industries utilize internal and general information. While the plastics and machinery industries rely on internal and external information sources. The remaining industries food, non-metal, and petrochemicals, rely on internal sources of information exclusively.
Intellectual property rights business management practices: A survey of the literature	Technovation	Volume 26, Issue 8	Pages 895-931	2006	Petr Hanel	https://doi.org/10.1016/j.technovation.2005.12.001	Abstract: The survey focuses on the empirical literature regarding the use and management of intellectual property rights (IPRs). It overviews policy changes regarding intellectual property (IP) protection in the US that led, according to some commentators, to patent friendly era in the US. Then it looks at the IPRs use and strategies in the US, Canada, EU, Japan and Australia and at the protection of IP in specific industry groups. Also reviewed is the relationship between the use of IPRs and the size of firm and its ownership (national vs. multinational). Numerous articles show that management of knowledge assets in general and IPRs in particular are increasingly important. The value of firms in knowledge intensive activities is determined by the value of its IP. IP is used as a financial asset. Firms allocate more human resources to management of IPRs and their training, but there remain important international differences. The recent literature on the impact of IP on the value of the firm, its assessment, valuation, accounting and management of IP are reviewed. The last section of the paper deals with enforcement of IPRs, infringement and dispute resolution. A special attention is given to internet and computer infringement of IP and to insurance as a protection for legal costs.
Creating new technology through alliances: An empirical investigation of joint patents	Technovation	Volume 27, Issue 8	Pages 461-470	2007	Changsu Kim, Jaeyong Song	https://doi.org/10.1016/j.technovation.2007.02.007	Abstract: Why are some alliances more productive than others in terms of creating new technology? Using a novel measure of alliance performance, that is, joint patents, this study aims to tackle this question. Our results from the global pharmaceutical industry show that joint invention has an inverted U-shape relationship with a path-dependent technology base, with the level of joint patents initially increasing and then decreasing beyond a certain level of path dependence. The results also show that joint patents are more numerous when the alliance partners have had prior ties with each other. Overall, the finding suggests that creating new technology through alliances can be facilitated by ensuring the positive side of absorptive capacity, while avoiding its downside.
Technological variety and the size of economies	Technovation	Volume 27, Issue 11	Pages 650-660	2007	Andrea Mangani	https://doi.org/10.1016/j.technovation.2007.04.005	Abstract: Several empirical studies show that the size of an economy affects the number of fields where it is technologically active (technological variety). In this paper I "quantify" the relationship between the countries' economic size and technological variety by using European patent data. Thus, technological variety can be distinguished from technological intensity. I find that technological variety accounts for about 40% of the higher number of patent applications made by larger and richer economies. However, the size/variety relationship is more robust than the wealth/variety relationship. The empirical results regarding technological activity resemble those on international trade and may be interpreted combining different theories.
The Janus face of the appropriability regime in the protection of innovations: Theoretical re-appraisal and empirical analysis	Technovation	Volume 27, Issue 3	Pages 133-144	2007	Pia Hurlmelina, Kalevi Kylläheiko, Tiina Jauhainen	https://doi.org/10.1016/j.technovation.2005.09.011	Abstract: Profiting from rapid innovations plays a central role in the knowledge-based economy, and establishing an effective appropriability regime can crucially facilitate this endeavor. It is not an easy task for strategic management, however. The basic elements of appropriability, i.e., the very nature of knowledge (tacit vs. codified) as well as the legal means (such as patents, copyrights, trademarks) could be seen as a double-edged sword: they both increase the protection of intellectual capital, but on the other hand they also make learning and the utilization of intangibles more challenging by decreasing the transferability of knowledge within the company and the network to which it belongs. This also makes it hard to utilize knowledge-related positive externalities. Additionally, the difficulty of transferring knowledge diminishes the probability of creating profit-generating standards. In turn, managers' discretionary decisions to emphasize either protection or knowledge sharing affect the boundaries of the appropriability regime. The purpose of our study was to analyze the characteristics of the Janus-faced nature of the appropriability regime and to focus on issues that have been overlooked so far by reviewing previous research and providing empirical evidence from Finnish industry. The data collected among 299 companies reveals that the different mechanisms within the appropriability regime have different effects on knowledge flows within companies, on the benefits derived from positive network externalities, and on standardization.

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Appropriability of innovation results: An empirical study in Spanish manufacturing firms	Technovation	Volume 27, Issue 5	Pages 280-295	2007	Nuria Gonzalez-Alvarez, Mariano Nieto-Antolin	https://doi.org/10.1016/j.technovation.2006.12.004 .	Abstract: This study is intended to analyse several mechanisms available to companies in order to appropriate the results of their innovative activities. These mechanisms include patents, industrial secret, cost and time of imitation and continuous innovation. Specifically, this paper focuses on studying the factors that determine the choice of one appropriation method over another. To this end, we propose a specific model of analysis, which includes various hypotheses to be tested in a sample of 258 Spanish manufacturing companies. The results confirm that companies that mostly use explicit knowledge chose the patenting system as a defence mechanism, while those companies in which tacit type knowledge predominates tend to opt for industrial secret. We could also prove that larger companies tend to choose the patenting system as a protection mechanism. Finally, the hypothesis that companies that use high-commitment human resources practices use continuous innovation or technological leadership as a protection mechanism could also be tested.
Delay from patent filing to technology transfer: A statistical study at a major public research organization	Technovation	Volume 27, Issue 8	Pages 446-460	2007	Antoine Llor	https://doi.org/10.1016/j.technovation.2006.12.002 .	Abstract: An analysis is given of the statistical distribution of the delays between patent filings and their corresponding transfer agreements in a major public research organization, the Commissariat l'Energie Atomique (CEA) in France, over the 1985?2004 period. These "patenting to transfer delays" (PTDs) display four main features: (i) for agreements on isolated patents, the (truncated) log-normal distribution of PTDs has a geometric mean of 3.7 years±14% with a standard deviation defined by a factor 2.6 above and below mean; (ii) the mean geometric PTD increases with the number of patents involved in the agreements; (iii) more surprisingly, mean geometric PTDs appear independent of the originating divisions of CEA, covering very diverse technical fields, and also display insignificant evolutions over 20 years, despite the advent of several major technological shifts; (iv) at variance with unsupported claims found in the literature, license revenues appear uncorrelated to the corresponding PTDs. Implications of the observed trends on innovation management at micro- and macro-economic level are also considered. The quasi-invariance of mean PTDs over 20 years may be due to the dominance of external human and economic factors during patent to transfer. It is conjectured that similar conclusions could be reached in other public research organizations in the world, the factors affecting this incubation delay being "universal."
Industry work experience and inventive capacity of South African academic researchers	Technovation	Volume 27, Issue 12	Pages 788-796	2007	Louis Mitondo Lubango, Anastassios Pours	https://doi.org/10.1016/j.technovation.2007.05.013 .	Abstract: The inventive capacity of South African universities and researchers is investigated through analysis of university patent applications. Patent applications to the South African Patent office from 1996 to 2006 are used as an indicator of inventive capacity. The investigation determines, for the first time, patenting activities of local universities at the South African Patent Office for the past 10 years and it identifies the performance of faculties and departments. We suggest that patent analysis of local patent offices in developing countries provides a more comprehensive picture of inventive activity than the analyses in the main patent offices in USA and Europe. The assertion that industrial experience affects the inventiveness of academic staff is also investigated. The study finds that most inventors or co-inventors held at least one position in industry, or in some cases, specialized parastatals (non-university institutions) prior to patent application. The study supports the idea that experience and the professional trajectory of scientists through migration from industry to university leads to an increase of researchers' scientific and technical human capital which is convertible into high performance or inventive capacity. We argue that this linkage is valid equally in developed and developing countries (like South Africa) and that universities internationally wishing to improve their entrepreneurial character should aim to employ academic with industrial prior experience.
Beyond the stars: The impact of affiliation with university biotechnology centers on the industrial involvement of university scientists	Technovation	Volume 28, Issue 5	Pages 291-297	2008	P. Craig Boardman	https://doi.org/10.1016/j.technovation.2007.06.001 .	Abstract: Most study of university?industry interactions in biotechnology emphasizes the productivity (e.g., patents, spin-off firms) of a relative few number of "star" university scientists. This study uses a national survey of university scientists to assess the industry involvement of university scientists who affiliate with university research centers focused on biotechnology. The results demonstrate such affiliation to correlate positively with informal interactions with industry, such as knowledge exchange, but not with reports of the production of economic and bibliometric outputs. Implications for policy and centers programs are discussed.
Patent application and technological collaboration in inventive activities: 1980-2005	Technovation	Volume 28, Issue 6	Pages 379-390	2008	Zhenzhong Ma, Yender Lee	https://doi.org/10.1016/j.technovation.2007.07.011 .	Abstract: Patent application encompasses valuable information about inventive activities. This study examines the pattern of international collaboration across countries in inventive activities using the information about inventors and assignees as defined by the United States Patent and Trademark Office (USPTO). This study first develops a series of indices and then uses the patent information from the USPTO databases on the fields of inventors and assignees to evaluate these indices, with the data from the eight most inventive OECD countries and two Asian economic entities (South Korea and Taiwan) for a span of 1980?2005. The results reveal a pattern of increasing collaboration in inventive activities across the world over the past two decades, which may suggest that the world has begun to embrace the incipient stage of "Techno-globalism."
Intellectual property rights for developing countries: Lessons from Iran	Technovation	Volume 28, Issue 11	Pages 786-798	2008	Alfred Sarkissian	https://doi.org/10.1016/j.technovation.2008.04.001 .	Abstract: Recent years have witnessed a heated debate about the need to overhaul the Iranian intellectual property system. On both academic and policymaking circles. However, a close scrutiny of the debates reveals that a study offering a coherent account of the big pictures of the intellectual property (IP) system is still missing. This paper draws on various sources of information?textant literature, legislations, policy documents, official statements, expert commentaries, and interviews with officials?to craft a coherent account of the main features of the Iranian IP system. Emphasis will also be given to highlighting idiosyncrasies of the IP system and taking stock of the latest debates. Issues raised in this paper can hold important lessons for comparable developing countries.
Factors affecting the choice of technology acquisition mode: An empirical analysis of the electronic firms of Japan, Korea and Taiwan	Technovation	Volume 28, Issue 9	Pages 551-563	2008	Shiu-Wan Hung, Ruei-Hung Tang	https://doi.org/10.1016/j.technovation.2007.10.005 .	Abstract: In today's globalized economy, enterprises are facing ever increasing competitive pressures. A commonly adopted strategy for gaining new technologies and remaining competitive is to acquire needed technology from external sources. The goal of this paper is to identify influential factors and their impact using a multi-factorial analysis of the choice of technology acquisition mode. The effect of various factors on these modes was studied by examining a sampling of the electronic industries of Japan, Korea and Taiwan. A patent analysis combined with Logit Regression is made and tested using data of these electronic firms. The results indicate that among the factors analyzed in this study, the technological capability (including technological level, technological innovation and research and development (R&D) activities) of a firm is the most significant factor in influencing the determination of the mode of technology acquisition. Finally, we discuss the significance of results based on resource theory and present our conclusions and their implications. By highlighting the important links between a firm's technological capability, size, previous experience and relevance of its core technology to the mode of technology acquisition in these technology-based firms, we hope to shed light on the contribution of various influential factors on the decision making of these modes for firms in these countries.
Managing intellectual property in the financial services industry sector: Learning from Swiss Re	Technovation	Volume 28, Issue 4	Pages 196-207	2008	Martin A. Bader	https://doi.org/10.1016/j.technovation.2007.05.007 .	Abstract: Legal protection strategies are still a relatively new phenomenon in emerging business fields like the service industry sector. Especially patents are considered novel as intellectual property means for protecting service innovations, which particularly accounts for the Knowledge Intensive Business Services (KIBS) sector. This contribution focuses on the opportunities and risks of managing intellectual property in the financial services industry sector by empirically analysing the leading reinsurance company Swiss Re. Swiss Re is considered to be one of the first (re-) insurance organizations worldwide that created its own patent department and today carries out a consistent legal protection strategy. The in-depth single-case study design is based on a triple iterative research process. The paper concludes with a success factor model for managing intellectual property to protect service innovations in the financial services industry sector.
The innovative activity of foreign subsidiaries in the Spanish Innovation System: An evaluation of their impact from a sectoral taxonomy approach	Technovation	Volume 28, Issue 11	Pages 739-757	2008	Jose Molero, Antonio Garcia	https://doi.org/10.1016/j.technovation.2008.03.005 .	Abstract: The aim of this paper is to contribute to a better understanding of the impact multinational enterprises (MNEs) innovative strategies have on the countries they localised their activities, particularly the so-called "intermediate countries". By using micro-data of the 2003 Spanish Innovation Survey we investigate the situation in the manufacturing sector. A new perspective of that impact arises from the elaboration of a sectoral taxonomy of sectors by combining their revealed technological advantage with the evolution of their technological position in the world during 1993?2003, using for both purposes data of patents granted by the USPTO. We found MNEs subsidiaries show noticeable coincidences with domestic enterprises, after controlling most important fixed effects, in the way they organise their innovative activities. The importance of belonging to a group is absolutely clear and discriminates sharply between the relationships of the firms with the system and the impact they produce. As far as factors are concerned, the crucial role of size and some related aspects (notably, capability of integrating inner and outer sources of knowledge and human resources and funds availability) must be underlined. However, factors, which have to do more with the organisation of innovation more directly are less significant to differentiate the possible impact for the innovation system. The importance of sectoral categories reach in many estimations validate the taxonomy proposed as a way of better understanding the relationships of MNEs with the Spanish Innovation System.
Do different types of innovation rely on specific kinds of knowledge interactions?	Technovation	Volume 29, Issue 1	Pages 59-71	2009	Franz Todtling, Patrick Lehner, Alexander Kaufmann	https://doi.org/10.1016/j.technovation.2008.05.002 .	Abstract: It is commonly accepted nowadays that innovations are brought forward in an interactive process of knowledge generation and application. The business sector, the science sector, and policy actors are involved in this process as has been stressed in concepts such as innovation systems and the network approach. It is still unclear, however, as to what extent different kinds of innovation rely on specific knowledge sources and links. More advanced innovations on the one hand might draw more on scientific knowledge, generated in universities and research organizations. Such knowledge is often exchanged in personal interactions at a local or regional level. Incremental innovations and the adoption of new technologies, on the other hand, seem to occur often in interaction with partners from the business sector; also, to a higher spatial level. In this paper, we analyse such patterns of knowledge links. After dealing with knowledge interactions from a conceptual view and reviewing the relevant literature, we present an empirical analysis for Austria. The findings show that firms introducing more advanced innovations are relying to a higher extent on R&D and patents, and that they are cooperating more often with universities and research organizations. Firms having introduced less advanced innovations rely more on knowledge links with business services. Furthermore, the employment of researchers was identified as a key factor enhancing knowledge interactions of firms with universities.

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The technological roadmap of Cisco's business ecosystem	Technovation	Volume 29, Issue 5	Pages 379-386	2009	Yan-Ru Li	https://doi.org/10.1016/j.technovation.2009.01.007	Abstract: A business ecosystem provides a new perspective for repositioning a company's strategy in order to aggressively further its own interests and to promote its overall ecosystem health. Analyzing a business ecosystem is not an easy task, and therefore only a few studies have been made, even though some scholars and managers accept this concept from ecology since value creation is achieved by establishing a platform that other members of the ecosystem can use to enhance their performance. This paper presents a case study based on both qualitative and quantitative data, by explaining how Cisco Systems has been so successful in utilizing its strategy of mergers and acquisitions (M&A) for corporate growth based on a business ecosystem, especially from a technological perspective. We use US patent data from 1993 to 2005 to illustrate Cisco's technological roadmap. Finally, implications of symbiosis, platform, and co-evolution are provided for managers to challenge the contemporary business environment.
An approach to discovering new technology opportunities: Keyword-based patent map approach	Technovation	Volume 29, Issues 6-7	Pages 481-497	2009	Sungjoo Lee, Byungun Yoon, Yongtae Park	https://doi.org/10.1016/j.technovation.2008.10.006	Abstract: This paper proposes an approach for creating and utilizing keyword-based patent maps for use in new technology creation activity. The proposed approach comprises the following sub-modules. First, text mining is used to transform patent documents into structured data to identify keyword vectors. Second, principal component analysis is employed to reduce the numbers of keyword vectors to make suitable for use on a two-dimensional map. Third, patent 'vacancies', defined as blank areas in the map that are sparse in patent density but large in size, are identified. The validity of the vacancy is then tested against such criteria as technological criticality and technological trends. If a vacancy is judged as meaningful, its technological features are investigated in detail to identify the potential for new technology creation. The procedure of the proposed approach is described in detail by employing an illustrative patent database and is implemented into an expert system for new technology creation.
Changes in the technology spillover structure due to economic paradigm shifts: A driver of the economic revival in Japan's material industry beyond the year 2000	Technovation	Volume 29, Issue 1	Pages 5-22	2009	Masahiro Nakagawa, Chihiro Watanabe, Charla Griffy-Brown	https://doi.org/10.1016/j.technovation.2008.08.003	Abstract: Innovation is believed to be a driver of the economy in the 21st century. Above all, innovation in services and devices are essential to a post-information society. Importantly, materials continue to play a significant role in innovation, particularly in incorporating new functions in new devices. Now, Japan's economy is starting a significant recovery from the 'lost decade'. Therefore, it is an appropriate time to review and elucidate the dynamics of material innovation before, during and after this time in order to better understand the process of innovation throughout this economic paradigm shift. In the context of innovation and economic paradigm, compound semiconductor materials lend themselves to understanding the dynamics involved because they play a critical role in introducing new functions and subsequently innovation to information communication technology. In this paper, patent applications filed by Sumitomo Electric Industries, Ltd., the world's largest firm of compound semiconductor material were investigated. Its patent applications for compound semiconductor substrates from 1980 to 2004 were examined in detail. Through this analysis, the following relationship between technology spillover and economic paradigm shift can be observed. In an industrial society, intra-technology spillover successfully led innovation. In contrast, in an information society, opportunities for both intra- and inter-technology spillovers decreased, partly because of economic stagnation, but also because of organizational inertia in business strategy. However, in a post-information society, simultaneously with the renewal of national science and technology policy and reformation of business management, inter-technology spillover emerged across industries, and the economy revived.
Effects of different dimensions of social capital on innovative activity: Evidence from Europe at the regional level	Technovation	Volume 29, Issue 3	Pages 218-233	2009	Anneli Kaasa	https://doi.org/10.1016/j.technovation.2008.01.003	Abstract: This exploratory study investigates how different dimensions of social capital influence a region's innovative activity measured by patent applications. Human capital and R&D are also included in the analysis as factors of innovative activity. The novelty of the paper lies in the fact that for measuring social capital, instead of an overall index, six factors are constructed of 20 indicators using principal components analysis. Unlike many previous studies, this one uses the structural equation modeling approach instead of regression analysis in order to take into account the relationships between the factors of innovative activity. Regional-level data from Eurostat Regio and the European Social Survey are analysed. The findings provide strong support for the argument that social capital indeed influences innovative activity and furthermore, that different dimensions of social capital have dissimilar effects on innovative activity.
Determinants of licensing activities of local public technology centers in Japan	Technovation	Volume 29, Issue 12	Pages 885-892	2009	Nobuya Fukugawa	https://doi.org/10.1016/j.technovation.2009.05.017	Abstract: Local public technology centers are publicly managed institutions that facilitate technology transfer to small local firms. As well as providing small local firms with various technological services, local public technology centers conduct their own research and patent inventions. This study examines factors facilitating licensing activities and finds that the determinants vary according to the phase of technology transfer. Employing more Ph.D. scientists tends to promote the licensing of patents, while organizational efforts that encourage scientists to better understand the technological needs of small local firms tend to increase royalty revenue. The theoretical and practical implications of the results are discussed.
University researchers working with private companies	Technovation	Volume 29, Issue 2	Pages 142-153	2009	P. Craig Boardman, Branco L. Ponomarev	https://doi.org/10.1016/j.technovation.2008.03.008	Abstract: Despite the growing interest in university-industry interactions, there has been little systematic assessment of the university scientists who work with private companies. This study uses a national survey of tenured and tenure-track scientists in the US to identify personal and professional characteristics that affect whether university scientists interact with private companies and, if so, the ways in which they interact. We account for a broad range of professional and personal predictors of scientists' interactions with the private sector, including funding sources, institutional affiliations, tenure status, support of students, scientific values, and demographic attributes. The motivation for this broad-based analysis is similar to that which has motivated studies of the 'entrepreneurial university' (emphasizing a slew of factors including unique histories, traditions, and organizational structures shape universities' approaches to knowledge exchanges and technology transfers with industry [Bercovitz, J.E.L., Feldman, M.P., Feller, I., Burton, R.M., 2001. Organizational structure as a determinant of academic patent and licensing behavior: an exploratory study of Duke, Johns Hopkins, and Pennsylvania State Universities. Journal of Technology Transfer 26, 21735; O'Shea, R.P., Allen, T.J., Chevalier, A., Roche, F., 2005. Entrepreneurial orientation, technology transfer and spinoff performance of U.S. universities. Research Policy 34 (7), 99471009]. Similarly, we start with the premise that there is substantial individual-level variation amongst university scientists that governs whether and how they may interact with private companies.
Research note: Intellectual property in the services sector: Innovation and technology management implications	Technovation	Volume 29, Issue 5	Pages 387-393	2009	Daniel Berg, Norman G. Einspruch	https://doi.org/10.1016/j.technovation.2008.10.005	Abstract: Corporate innovation is the subject of several recent articles in the business press and of discussion in academic circles and international conferences. Recently, Business Week reported a study that identified "The World's Most Innovative Companies." Ocean Tomo, an investment banking firm, developed a list of 300 companies that had major value in their patent portfolios, a surrogate for innovation. Using a technique called "Data Surface Mining" (DSM), these previously published data were further analyzed to characterize the similarities and differences between the Goods and Services Sectors; the results of these analyses are presented here. In addition, the issues of technology management especially relevant to the Services Sector are presented. These issues are of critical importance in light of the fact that the Services Sector represents 80% (Gross Domestic Product and/or employment) of the United States economy and is of increasing importance in the global economy. It is also important to note that technology management in the Services Sector has not been given proportionate attention in the academic literature.
Breadth-of-impact frontier: How firm-level decisions and selection environment dynamics generate boundary-spanning inventions	Technovation	Volume 30, Issues 7-8	Pages 411-419	2010	Preeti M. Banerjee, Benjamin M. Cole	https://doi.org/10.1016/j.technovation.2010.03.001	Abstract: In this paper, we provide an ex-ante explanation for why some technologies such as James Watt's steam engine move successfully across broad technological fields, while other technologies do not. Using a sample of VC-backed biotechnology firms, we examine firm knowledge exploration choices along three dimensions: the decision to build from technologies across broad fields, the decision to explore application domains that are new to the firm, and the decision to mix these two options at the same time. We argue that firm-level invention decisions find differing responses when received by the selection environment. We find evidence of a "breadth-of-impact frontier" for technologies, wherein the choice of whether a firm should enter into a new application domain than those of the past should be informed by the degree to which the technology is citing prior work narrowly or broadly. The findings suggest that the belief that broad sourcing diversity will always result in greater citation diversity requires some caveats. The results contribute to the understanding of not only how entrepreneurial firms evolve but also how individual firms contribute to collective progress.
How does knowledge depth moderate the performance of internal and external knowledge sourcing strategies?	Technovation	Volume 30, Issues 11-12	Pages 582-589	2010	Bou-Wen Lin, Chia-Hung Wu	https://doi.org/10.1016/j.technovation.2010.07.001	Abstract: Management literature has consistently shown that knowledge is the most important source of competitive advantage for a firm. However, it is still not clear how knowledge can lead to competitive advantage, and how firms can find strategies to leverage their knowledge bases. This study considers the strategic implications of knowledge depth and three knowledge-sourcing strategies: R&D, strategic alliances and acquisitions. The main and interaction effects of these factors were tested in the context of the US technology firms. The results confirmed the strategic role of knowledge and external leveraging strategies. We also found that technology firms with weak knowledge depth should focus on internal R&D to accumulate knowledge in core technology areas, while those with strong knowledge depth should lower internal R&D intensity and shift their strategic resources to inter-firm alliances and acquisitions.
Determinants of industrial innovation in China: Evidence from its recent economic census	Technovation	Volume 30, Issues 9-10	Pages 540-550	2010	Yifei Sun, Debin Du	https://doi.org/10.1016/j.technovation.2010.05.003	Abstract: This study examines the sources of technological innovation in Chinese industries using the 2004 economic census data. On the one hand, it analyzes the relationships between patent grants and new product sales. On the other hand, it analyzes the relationships among in-house R&D, technology transfer from foreign and Chinese domestic technology markets, spillover effects of foreign investment, as well as export. The study reveals that in-house R&D has become the most important source for industrial innovation in China. In-house technological efforts are critical for developing original innovations as well as for absorbing the technologies transferred from external agencies. However, neither technologies transferred from foreign countries nor those from the domestic technology market are playing significant roles in China's industrial innovation. The spillover effect of foreign investment on patent grants is strong and significant, though its impact on new product sales is insignificant. Export shows negative, though insignificant, impact on patent grants, but positive, strong, and significant effects on new product development. Overall, the results of this study demonstrate the critical role of in-house R&D in China's industrial innovation.

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An empirical enquiry into co-patent networks and their stars: The case of cardiac pacemaker technology	Technovation	Volume 30, Issues 7-8	Pages 436-446	2010	Christiane Goetze	https://doi.org/10.1016/j.technovation.2010.03.003	Abstract: Scientific research concerning R&D staff structures has already been based on networks as they are mapped by co-patent data. The present paper combines the method of patent analysis with network analysis techniques and shows by means of a patent sample from cardiac pacemaker technology, that the different communication functions a star inventor accomplishes in their network are mirrored not only by quantity, but also by quality of patents. The mere patent quantity has a significant positive impact on the size of an inventors' personal network and the number of inventors they can directly pass information to. But more importantly, there is significant empirical evidence that high technical specialisation has a positive impact on an inventor's potential to mediate between others as well as on the efficacy to reach them on short notice. For the latter, likewise the number of citations received is a positive predictor. Thus, we characterise stars as industrious, well-known technical specialists and contradict the general assumption that generalists would be the ideal gatekeeper in an R&D network.
An analysis of the effect of software intellectual property rights on the performance of software firms in South Korea	Technovation	Volume 30, Issues 5-6	Pages 376-385	2010	Dukrok Suh, Junseok Hwang	https://doi.org/10.1016/j.technovation.2009.08.005	Abstract: This paper explores the effect of software intellectual property rights (IPRs) on the performance of software firms in South Korea using the statistics of software copyright registrations and patent applications along with the financial statements of firms. According to our empirical results, R&D and software R&D input has a strong positive effect on the production of software copyrights and patents, and large firms exploit software IPRs better than small firms. We also found that there are quite different trends in the selection of the legal means of protection; firms in the software industry prefer to copyrighting, whereas firms in the manufacturing industry prefer to patenting. In addition, software copyrighting has a positive effect on software revenue and total revenue of firms, but software patenting fails to show a positive effect on software revenue. Consequently, in contrast to the prevailing consensus indicating a high preference for patenting, it is obvious in our analysis that software copyrighting is more beneficial for software firms.
A system dynamics model to analyze technology districts' evolution in a knowledge-based perspective	Technovation	Volume 30, Issue 2	Pages 142-153	2010	Rosa Maria Dangelico, Achille Claudio Garavelli, Antonio Messeni Petruzzelli	https://doi.org/10.1016/j.technovation.2009.09.006	Abstract: The current economic scenario is more and more characterised by knowledge as a key element to enhance and foster firms and regions innovation and competitiveness, such as in the case of technology districts. In fact, they represent typical economic systems constituted by economic actors whose success and survival depend on their capability to create new knowledge and, then, innovation. Proximity dimensions (such as geographical, cognitive, and organizational) have been recognized as an important means to increase knowledge creation and diffusion among districts' actors. In this paper, the complex dynamics generated by knowledge, proximity, and firms agglomeration process inside a technology district are described and formalized adopting a system dynamics model. The model analyses the district evolution according to a knowledge-based perspective ceteris paribus, i.e. given other dimensions such as institutional, economical, and social issues. For each model variable, suitable proxies, mainly based on the notion of patents, are identified. Finally, simulations are provided in order to show how different values of organizational and cognitive proximities can affect the knowledge sharing and the agglomeration process of an actual high-technology district, represented by the aerospace district of Seattle. Results show that as cognitive and organizational proximities increase, district actors can fully exploit the benefits of agglomeration, in terms of knowledge sharing and creation, so favouring the district growth and development.
Do royalties really foster university patenting activity? An answer from Italy	Technovation	Volume 30, Issue 2	Pages 109-116	2010	Nicola Baldini	https://doi.org/10.1016/j.technovation.2009.07.007	Abstract: Even though universities routinely share revenues with the inventors and their departments to foster patenting activities, royalties' incentive effect is largely unexplored, especially using panel data. Using a unique dataset of Italian universities' patents between 1988 and 2002, I fill this gap, using estimators that account for the potential endogeneity in the data. Both the royalties shared with the inventors and their departments are associated with greater patenting activity. Several other organisational arrangements have significant positive impact, from the use of prompt administrative procedures, to the university's commitment to exploit the inventions, to the availability of a technology transfer office.
Forcing technological change: A case of automobile emissions control technology development in the US	Technovation	Volume 30, Issue 4	Pages 249-264	2010	Jaegul Lee, Francisco M. Veloso, David A. Hounshell, Edward S. Roubin	https://doi.org/10.1016/j.technovation.2009.12.003	Abstract: This article investigates how regulated automakers and upstream component suppliers comply with "technology-forcing" regulations, or laws that set performance standards beyond their usual technological capabilities. In particular, this article examines how firms manage and organize their research and development (R&D) processes concerning automobile emissions control technologies amid the uncertainties resulting from the issuance of new regulations. This study involves the analyses of patents, interviews with experts, references to technical papers published for conferences of the Society of Automotive Engineers (SAE), and use of learning curves. The results of this study show that the high regulatory standards under the technology-forcing regulation played an important role in forcing technological innovations and determining subsequent direction of technological change. Component suppliers were important sources of innovation in the 1970s, but over the course of technological evolution, automakers gradually emerged as the locus of innovators. This study also shows that firms strategically manage architectural and component knowledge in the presence of uncertainties about their technological capacity to meet new auto emissions control standards.
Dynamics between patent latent variables and patent price	Technovation	Volume 31, Issue 12	Pages 648-654	2011	Shyam Sreekumaran Nair, Mary Mathew, Dipanjan Nag	https://doi.org/10.1016/j.technovation.2011.07.002	Abstract: This paper focuses on studying the relationship between patent latent variables and patent price. From the existing literature, seven patent latent variables, namely age, generality, originality, foreign filings, technology field, forward citations, and backward citations were identified as having an influence on patent value. We used Ocean Tomo's patent auction price data in this study. We transformed the price and the predictor variables (excluding the dummy variables) to its logarithmic value. The OLS estimates revealed that forward citations and foreign filings were positively correlated to price. Both the variables jointly explained 14.79% of the variance in patent pricing. We did not find sufficient evidence to come up with any definite conclusions on the relationship between price and the variables such as age, technology field, generality, backward citations and originality. The Heckman two-stage sample selection model was used to test for selection bias.
Capability reconfiguration of incumbent firms: Nintendo in the video game industry	Technovation	Volume 31, Issues 5-6	Pages 228-239	2011	Annapoomima M. Subramanian, Kah-Hin Chai, Shifeng Mu	https://doi.org/10.1016/j.technovation.2011.01.003	Abstract: The importance of incumbent firms' ability to transform themselves according to the changing technological environment has been underlined by several scholars and practitioners. Yet, how incumbents leverage on commercial capabilities in order to develop such technological reconfiguration abilities in the midst of fierce competition from new entrants has not gained enough attention. To address the above research issue, our study investigated the case of Nintendo, an incumbent firm in the video game industry, using the dynamic capability perspective. Our study relied on primary and secondary data collected from diverse sources such as interviews, web contents, magazines, the US Patent and Trademark Office and Wikipedia. Three component factors that reflect the common features of dynamic capabilities across past studies emerged as the basis of Nintendo's reconfiguration ability. Underlining the significance of these commercial capabilities in the technological reconfiguration of an incumbent, our paper helps to synthesize this stream of literature and extends guidelines for future empirical studies to develop the dynamic capability construct. In addition, the findings also help managers devise strategies for an adaptive organization.
The impact of technological relatedness, prior ties, and geographical distance on university/industry collaborations: A joint-patent analysis	Technovation	Volume 31, Issue 7	Pages 309-319	2011	Antonio Messeni Petruzzelli	https://doi.org/10.1016/j.technovation.2011.04.008	Abstract: Empirical studies on R&D collaborations between universities and firms have mainly centered their attention on universities and firms' characteristics that favor the establishment of collaborative agreements. In this paper, I extend the current research framework investigating the role that specific technological and relational attributes may play on the relevance of such collaborations. Specifically, I focus on the effects exerted by three relevant factors, namely technological relatedness, prior collaboration ties, and geographical distance, on university/industry joint innovation value. I develop testable hypotheses about their impact on the innovative performance of R&D university/industry collaborations, and test them on a sample of 796 university/industry joint patents, developed by 33 universities located in 12 different European countries. Our results suggest that partners' technological relatedness has an inverted U-shaped relationship with innovation value. In addition, prior ties and geographical distance between universities and firms are both positively related to the achievement of higher innovative outcomes.
Firms' linkages with public research organisations in Argentina: Drivers, perceptions and behaviours	Technovation	Volume 31, Issue 8	Pages 384-400	2011	Valeria Arza, Andres Lopez	https://doi.org/10.1016/j.technovation.2011.04.004	Abstract: This paper analyses firms' drivers for linking to public research organisations (PRO) (first goal) and compares perceptions and behaviours of linked vs. unlinked firms (second goal). We used an original firm database constructed from a representative survey with information for linked and unlinked firms for year 2005 in Argentina. Drivers were estimated using a Probit model, while differences in perceptions and behaviours between linked and unlinked firms were assessed with propensity score matching techniques. For our first goal we found that (i) firms' knowledge bases were not drivers for linking to PRO and (ii) networking capabilities matter but there is a substitution effect between interacting with PRO and interacting with other economic agents in the market when firms aim at exchanging information rather than doing joint research. These findings may imply that current strategies are not exploiting properly their knowledge potential; it may be worth designing a division of labour among PRO in their functions in PRO/industry interactions. For our second goal: we found that (i) linked firms invest more in innovative activities; (ii) they are more prone to patenting; (iii) both groups of firms value similarly PRO research outputs available at arm length (i.e. without direct linking). Given the asymmetric development on appropriability tools between PRO and firms and the fact that all firms benefit from PRO research outputs, the higher predisposition of linked firms towards patenting, suggests that special attention should be placed at analysing the risks of a private appropriation of publicly created knowledge.
Commercializing inventions resulting from university research: Analyzing the impact of technology characteristics on subsequent business models	Technovation	Volume 31, Issue 4	Pages 151-160	2011	Fred Pries, Paul Guild	https://doi.org/10.1016/j.technovation.2010.05.002	Abstract: One of the key challenges in commercializing inventions arising from academic research is deciding on an appropriate business model for transferring the invention from the academic world to the commercial world. However, there is little empirical evidence to suggest which model to choose. This study attempts to address this gap by examining how characteristics of technologies affect the selection of business models. We consider four characteristics of technology: patent or other legal protection, specialized complementary assets, commercial uncertainty and technological dynamism. We relate these characteristics to the choice of three basic business models for commercializing inventions. Data for this study were gathered for 42 commercialized inventions. We found evidence that greater patent or other legal protection for the technology was associated with a greater likelihood that the technology was commercialized by transferring limited rights to the technology to existing firms. We also found evidence that greater commercial uncertainty was associated with a greater likelihood that the technology was commercialized by creation of a new firm or transfer of the rights to the technology to an existing firm. We did not find evidence of a relationship between the importance of specialized complementary assets or technological dynamism and the business model used.

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Intellectual property rights in innovation management research: A review	Technovation	Volume 32, Issues 9-10	Pages 502-512	2012	Hanni Candelin-Palmqvist, Birgitta Sandberg, Ulla-Majja Myly	https://doi.org/10.1016/j.technovation.2012.01.005	Abstract: The issue of intellectual property rights (IPRs) is assuming increasing importance, especially for innovative firms seeking international growth. This leads to an increasing need for IPR research. Nevertheless, so far it is not known how well the current research answers to this emerging need. Hence, this study finds out how IPR research has evolved in the literature on innovation management and identifies the current trends. In order to do this we analysed articles published in the years 1970/2009 in the seven leading innovation management journals. We found 111 articles focusing on IPR issues for our systematic content analysis. The results indicate that IPRs are a fast-growing research field in innovation management, but there is a need to develop coherent constructs and conceptual frameworks that would strengthen the theoretical basis of the research. Most of the studies emphasise patents, rely on secondary data, and focus on North American and European contexts. The article concludes with suggestions for future research.
Exploring the relationship between technology diffusion and new material diffusion: the example of advanced ceramic powders	Technovation	Volume 32, Issues 3-4	Pages 163-167	2012	An-Chin Cheng	https://doi.org/10.1016/j.technovation.2011.10.008	Abstract: New technologies have been recognized as key drivers for corporate profitability and growth in today's fast changing environments, especially in new materials field. However, little has been done in discussing the technology diffusion on the topic of new materials. In this study, we investigate the diffusion of advanced ceramic powders technology using patent citation data. We also adopt the sales data of the advanced ceramic powders for measuring the new material diffusion. At last we analyze the relationship between "technology diffusion" and "material diffusion" through the Bass diffusion model. The results show that the diffusion of technology through patent citation could be successfully explained by empirical analysis for which the Bass diffusion model was adopted. Furthermore, we can find out if technology diffusion can be the leading indicator of a new material's diffusion before its launching which is before the commercialization of the patent.
The use of patents and informal appropriation mechanisms/Differences between sectors and among companies	Technovation	Volume 32, Issue 12	Pages 681-693	2012	Peter Neuhauser	https://doi.org/10.1016/j.technovation.2012.07.004	Abstract: Against the background of the rise in patent applications during the 1990s, the present article tries to explain how different kinds of firms act to appropriate their investments in innovation activities under the newly evolving conditions. Thereby, not only the patent activities of firms, but also their preferences for different formal and informal appropriation mechanisms are analyzed. Firms are differentiated by several characteristics, e.g. size, sector and internationalization, to answer the question whether special firm characteristics can influence what is the best appropriation option for the firm. For the empirical testing, a large-scale survey of patenting companies in Germany ? complemented with information from patent and company databases ? is employed. The results show that only a very small percentage (7.4%) of firms in the sample stress the importance of formal appropriation methods while at the same time evaluating informal appropriation methods as being of low importance. Especially internationalized firms, which file significantly more patents than their counterparts, seem to use patents rather for strategic purposes than as a mechanism to protect their inventions from being imitated. Patents could therefore be seen as a basic requirement to enter foreign markets, with a need to defend market positions by strategic patenting.
Patent-based investment funds as innovation intermediaries for SMEs: In-depth analysis of reciprocal interactions, motives and fallacies	Technovation	Volume 32, Issues 9-10	Pages 536-549	2012	Daniel Gredel, Matthias Kramer, Boris Bend	https://doi.org/10.1016/j.technovation.2011.09.008	Abstract: SMEs and academic spin-offs play an important role in generating innovations but face resource and competency constraints that have implications for commercializing their technologies. In two in-depth case studies we analyze how patent-based investment funds (PBIFFs), operating as innovation intermediaries, help overcome these constraints. In contrast to other patent intermediaries, PBIFFs acquire patents and patentable inventions at an early stage of technology development when access to capital is particularly critical. They invest in the technological and legal advancement of their portfolio, which is mostly conducted in close interaction with the technology-providing SMEs and their original inventors. These PBIFFs not only provide high added-value in the course of technology commercialization but also operate international networks to facilitate the commercialization of SMEs' technologies at an international scale. Although PBIFFs are a promising new agent in the heterogeneous field of innovation intermediaries, their commercialization results and the actual rate of returns are not yet well established.
Markets for standardized technologies: Patent licensing with principle of proportionality	Technovation	Volume 32, Issues 9-10	Pages 523-535	2012	Henri Hytonen, Toni Jarimo, Ahti Salo, Erkki Yli-Juuti	https://doi.org/10.1016/j.technovation.2011.08.002	Abstract: In this paper, we study the licensing of standard-related patents among companies that employ a two-level licensing model where (i) the aggregated value of technology in the end product is divided among the integrated technologies in the product, and (ii) the value of each technology is then shared among the patent owners in proportion to the strengths of their patent portfolios in these technologies. Specifically, we develop a system dynamics simulation model for analyzing the effects of licensing costs on product and technology markets. This model is based on the modeling of three types of companies whose interactions are analyzed using non-cooperative game theory. The numerical results suggest that none of the three companies benefit from very low or very high royalty rates. In this setting, our model for two-level proportional sharing of licensing payments helps identify royalty rates which benefit all types of companies and which provide incentives for technology development and innovation.
Inventors and entrepreneurs in academia: What types of skills and experience matter?	Technovation	Volume 32, Issue 5	Pages 293-303	2012	Pablo D'Este, Surya Mahdi, Andy Neely, Francesco Rentocchini	https://doi.org/10.1016/j.technovation.2011.12.005	Abstract: This paper aims to improve our understanding of the attributes of academic researchers that influence the capacity to contribute to technical advance, by adding to the pool of technological opportunities available to industry or engaging in the exploitation of entrepreneurial opportunities. We investigate a number of factors associated with the skills developed by academic researchers. We find that contributors to the pool of technological opportunities and exploitation of entrepreneurial opportunities involve different sets of skills and expertise of scientists. Our results show that the former is driven by academic scientists' research excellence and discovery of earlier technological opportunities and the latter is driven by previous collaboration with industry partners, scientific breadth and experience of technological discovery.
Contributing to markets for technology? A comparison of patent filing motives of individual inventors, small companies and universities	Technovation	Volume 32, Issues 9-10	Pages 513-522	2012	Theresa Veer, Florian Jell	https://doi.org/10.1016/j.technovation.2012.03.002	Abstract: We compare patenting motives of individual inventors, small firms, and universities to those of large firms. We use data from a survey (641 responses) among applicants at the European Patent Office. Our results from regression and factor analyses confirm significant differences among applicant types. The generation of licensing opportunities is rated as being more important if the applicant is a university, individual inventor or small firm. Blocking and prevention of imitation is rated as being less important if the applicant is a university. We interpret that this finding results from the universities' willingness to license under adequate conditions and their tendency not to use their patents for preventing the diffusion of their technology and its usage by others. Individual inventors and small firms place a higher importance on using patents as signals to investors, suggesting that patents are perceived as useful to secure access to the capital necessary to start or grow a business. Among all applicant groups, individual inventors attribute the most importance to blocking as a patent filing motive. This gives cause for concern because individuals who do not manufacture products on their own but, rather, use their patents to block others from production act as patent trolls.
A study of biotechnology start-ups undergoing leadership change: Antecedents of change and endogenous performance consequences	Technovation	Volume 32, Issues 9-10	Pages 568-578	2012	Preeti M. Banerjee, Benjamin M. Cole	https://doi.org/10.1016/j.technovation.2012.05.003	Abstract: One of the most important decisions that a new biotechnology firm faces is whether to replace its founding CEO, who often has been involved with the invention of the firm's core technology, with a more professional manager, who has broader commercialization skills to help the firm to grow into a viable business. In this paper, we argue that leadership change away from the founding CEO is influenced strongly by the interests of key stakeholders and that the endogeneity inherent in the change (or non-change) influences firm performance. As the context surrounding decision-making changes from pre-patent to post-IPO, key stakeholders often may not view what is best for the firm and best for self-interest in the same way. Using data on change in leadership at 135 U.S. biotechnology equipment firms, we find evidence that the context in which decisions are being made influences which of the various competing interests will take precedence. The results further confirm the importance of controlling for endogeneity in decision-making when examining firm performance.
The alliance innovation performance of R&D alliances—the absorptive capacity perspective	Technovation	Volume 32, Issue 5	Pages 282-292	2012	Chinho Lin, Ya-Jung Wu, ChiaChi Chang, Weihan Wang, Cheng-Yu Lee	https://doi.org/10.1016/j.technovation.2012.01.004	Abstract: In this work we explore the role of interfirm R&D alliances as a vital mechanism for creating new technological knowledge. Drawing on the absorptive capacity perspective, we argue that firms with a high level of such capacity seem to benefit more from their alliances. Specifically, three indicators of technology strategy relevant to absorptive capacity, including proportion of R&D alliances in an alliance portfolio, technological distance, and R&D intensity are explored to examine their impacts on innovation performance. Using alliance data from the Securities Data Company (SDC), patent data from the United States Patent and Trademark Office (USPTO), firm data from S&P COMPUSTAT, and co-patents granted as a proxy for the alliance innovation performance, these results show that while alliance networks potentially provide a firm with access to various benefits that can help in creating new technologies, R&D alliances in particular are more suitable than other types of partnerships to achieve this aim. Furthermore, given that information transfer and learning are key benefits of R&D alliances, moderate technological distance is needed if such alliances are to be successful. In particular, the innovation performance peaks at the moderate level of technological distance with alliance partners when this interacts with the proportion of R&D alliances in a firm's alliance portfolio. Finally, R&D alliances should be regarded as a complement to rather than a substitute for a firm's internal R&D.
What drives innovation output from subsidized R&D cooperation?—Project-level evidence from Germany	Technovation	Volume 32, Issue 6	Pages 358-369	2012	Michael Schwartz, Francois Peglow, Michael Fritsch, Jutta Gunther	https://doi.org/10.1016/j.technovation.2012.03.004	Abstract: Using a large dataset of 406 subsidized R&D cooperation projects, we provide detailed insights into the relationship between project characteristics and innovation output. Patent applications and publications are used as measures for the innovation output of an R&D project. We find that large-firm involvement is strongly positively related with the number of patent applications, but not with the number of publications. Conversely, university involvement has positive effects on projects' innovation output in terms of the number of publications but not in terms of patent applications. In general, projects' funding as measure of projects' size is an important predictor of the innovation output of R&D cooperation projects. No significant effects are found for the number of partners as (an alternative) measure of projects' size, for spatial proximity between cooperation partners, for the involvement of a public institute for applied research, and for prior cooperation experiences. We derive conclusions for the design of R&D cooperation support schemes.

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Identifying and evaluating strategic partners for collaborative R&D: Index-based approach using patents and publications	Technovation	Volume 33, Issues 6-7	Pages 211-224	2013	Youngjung Geum, Sungjoo Lee, Byungun Yoon, Yongtae Park	https://doi.org/10.1016/j.technovation.2013.03.012	Abstract: Identifying and selecting appropriate strategic partners have been the subject of many previous studies; but most have dealt with partner selection that has relied heavily on experts' judgements: the value of a literature-based quantitative approach as a source of technology intelligence has seldom been addressed. This paper therefore aims to develop a systematic framework to guide strategic partner selection, taking a literature-based approach. Reviewing the factors that can lead to successful R&D partnerships to develop partner selection criteria, we designed 14 indexes grouped into four major categories 7 to reflect desirable partner characteristics, and used the literature data to suggest a framework for prioritising potential partners. As data sources, the United States Patent and Trademark Office (USPTO) and the ISI Web of Science databases are adopted for patent analysis and publication analysis, respectively. This research applied the framework to identify strategic R&D partners for Korean firms and found that the use of literature data enabled a wide ranging search for potential partners and the quick analysis of their characteristics, with results that provided objective evidence for selection decisions. It also investigated the relative importance of literature databases and that of the four decision criteria by industry, and examined the relationships between the indexes to improve the application of the framework. The suggested framework is expected to be valuable as a complementary tool for decision-making about R&D collaboration.
Looking beyond the focal industry and existing technologies for radical innovations	Technovation	Volume 33, Issues 10-11	Pages 355-367	2013	Avimanyu Datta, Leonard M. Jessup	https://doi.org/10.1016/j.technovation.2013.05.001	Abstract: The "radicalness" of an innovation is often contingent upon access to distinct technologies which arise from sourcing innovation outside a firms' focal industry (exterior sourcing). We posit that exterior sourcing leads to technology distinctness and that the presence of technology distinctness significantly affects the relationship between exterior sourcing and radicalness. In addition, we assert that high technology distinctness results in a stronger association with radicalness irrespective of the levels of exterior sourcing. Further, at lower levels of exterior sourcing, technology distinctness will have a stronger relationship with radicalness than at higher levels of exterior sourcing. We also argue that high technology distinctness and low exterior sourcing will have the strongest relationship with radicalness. We used patent filings from 1996 through 2009 from the IT industry from within the S&P-500 database to test our assertions. The empirical evidence validated our affirmations. Our findings suggest that to maximize the chance of radical innovations, firms must obtain highly distinct technologies from minimum possible contacts outside their focal industry. We conclude the paper by summarizing the key findings, discussing implications for theory and practice, and suggesting avenues for future research.
Valuing academic patents and intellectual properties: Different perspectives of willingness to pay and sell	Technovation	Volume 33, Issue 1	Pages 13-24	2013	So Young Sohn, Won Sang Lee, Yong Han Ju	https://doi.org/10.1016/j.technovation.2012.10.003	Abstract: Academic inventors tend to lack the ability of valuing technologies in their areas. We apply classification tree analysis to discover different perspectives of Willingness to Pay (WTP) and Sell (WTS) of academic inventors when valuing their patents and technologies. Predictor factors considered are development environment, technology characteristics, ownership and patenting policy, and technology transfer characteristics. According to the result of Korean student data, WTS and WTP are differently perceived for the same technology: WTP is higher than WTS for the low valued technologies. The ownership policy, scalability and degree of innovation of technology, among the discovery of significant factors on WTS and WTP, are mainly considered as the important factors on WTS and WTP. From the finding of this research, we provide the policy implication on academic patenting and its ownership for further development of academic patents.
Does the nano-patent 'Gold rush' lead to entrepreneurial-driven growth? Some policy lessons from China and Japan	Technovation	Volume 34, Issue 12	Pages 746-761	2014	Daniela Baglieri, Fabrizio Cesaroni, Luigi Orsi	https://doi.org/10.1016/j.technovation.2014.07.009	Abstract: In this study we compare the nano-patent landscapes of China and Japan in order to assess how their structures (type, fragmentation and concentration of patent ownership) affect the organization of the nanotechnology industry. We also analyze technology policy in order to assess how these interventions support technology transfer and nano-exploitation through university/industry collaboration and technology entrepreneurship. Drawing upon 20,365 patent families related to carbon nanotubes from 1994 to present, we found that two dissimilar technology policies boosting national innovation system emerged: China is more focused on forging an anchor-tenant model, while Japan exhibits a more industry-oriented model through demand-side policy intervention. Implications for firms' strategies and policy makers are discussed.
Epigenetic Economic Dynamics: The evolution of big internet business ecosystems, evidence for patents	Technovation	Volume 34, Issue 3	Pages 177-189	2014	Mikel Gomez-Uranga, Juan Carlos Miguel, Jon Mikel Zabala-Iturrigogitia	https://doi.org/10.1016/j.technovation.2013.12.004	Abstract: The aim of this article is to contribute to literature with new findings from biogenetics that are becoming increasingly important. In particular, we will discuss the new analytic frameworks that may open as a result of the incorporation of epigenetics in evolutionary economic thinking. This new approach is illustrated by studying the evolution of big Internet industry groups such as Apple, Google, Microsoft, Facebook, Amazon and Samsung. With it we shed light on the dynamics of business groups, which we approach as 'business ecosystems'. We introduce the concept of Epigenetic Economic Dynamics, which is defined as the study of the epigenetic dynamics generated as a result of the adaptation of organisations to major changes in their respective environments. First of all, this concept enables us to understand how the dynamics of the business groups mentioned address changes in their environments. Secondly, it is also useful when analysing the results of these dynamics. Abnormalities, malfunctions or obstacles to innovation, and/or blockage to developing competition at certain levels (i.e. intellectual property rights, abuse of monopoly power, etc.) may arise as a result of the influence of epigenetic dynamics. Acquisition of patent portfolios and patent lawsuits for infringements and violations are quite common, for example in the field of mobile telephony, which clearly shows the fierce competition between business groups. Essential patents licensing is particularly at the core of legal disputes between the business groups.
Innovation policy within private collectives: Evidence on 3GPs regulation mechanisms to facilitate collective innovation	Technovation	Volume 34, Issue 12	Pages 734-745	2014	David Lopez-Berzosa, Annabelle Gawer	https://doi.org/10.1016/j.technovation.2014.07.005	Abstract: This article provides insights on how to manage collective innovation in the digital economy, an innovation regime which is riddled with complex regulatory challenges and increasing litigation over intellectual property rights. Private collective organizations face two main challenges: (1) to promote collective innovation while preserving the private interests of the firms within the collective, and (2) to ensure that collective innovation does not weaken healthy competition. Through a case study of the Third Generation Partnership Project (3GPP), an exemplary private collective federation of organizations composed of standardization bodies, industry consortia and technology producers, we identify organizational solutions to these challenges. We find that a combination of specific IP rights instruments is key to manage these trade-offs. We also find that the combined policies of essential patenting, FRAND, and maximum royalty rate help overcome the specific challenges associated with collective innovation within competitive contexts. Finally we discuss the implications of our findings for managers and for policy.
Patent indicators for macroeconomic growth—the value of patents estimated by export volume	Technovation	Volume 34, Issue 9	Pages 546-558	2014	Rainer Frietsch, Peter Neuhauser, Taehyun Jung, Bart Van Looy	https://doi.org/10.1016/j.technovation.2014.05.007	Abstract: This paper examines the linkage between patenting and export performance for selected countries at the level of technology fields. Some empirical studies show considerable correlation between the patenting behavior of countries and their economic success in international markets. Adding to the existing literature, the aim of this analysis is to assess whether the indicators that are supposed to reflect patent value—such as patent citations or family size—have any explanatory power in estimating the export value of countries by technology fields. For this study, a panel dataset was compiled consisting of annual data (1988-2007) on international trade from the UN-COMTRADE database and patent data from the EPO Worldwide Patent Statistical Database (PATSTAT). The results show that exports are a very useful way of placing a valuation on patents. Patents and exports are strongly correlated, although there are visible deviations from this parallelism. IPC classes and inventor counts prove not to be relevant in predicting the export value of patents, while family size has restricted predictive power. When analyzing patent applications, forward citations, in particular, are more promising than granted patents.
The coincidence of patent thickets?A comparative analysis	Technovation	Volume 38	Pages 42-49	2015	Timo Fischer, Philipp Ringle	https://doi.org/10.1016/j.technovation.2014.11.004	Abstract: The growth of patent thickets?technology fields that are characterized by a large overlap of rights between different right holders?poses a challenge for innovators. Patent thickets are argued to create strong friction in innovation due to a pronounced potential for holdup. So far, we do not know whether patent thickets coincide in all patent systems or if differences exist that policy makers and managers must take into account when aiming to disentangle and to navigate patent thickets, respectively. To address this gap, we measure patent density of technology fields in the patent systems of the United States, the German patent system governed by the German Patent and Trademark Office (DPMA), and the European patent system governed by the European Patent Office (EPO). Our comparisons reveal both interesting differences and similarities between the analyzed patent systems. Although the United States and the EPO patent system show similar relative patent density patterns across technology fields, the German patent system strongly differs from the previous two. This implies that such deviations need to be taken into account by policy makers when considering regulatory measures as well as by companies in their intellectual property strategy.
Outbound open innovation in bio-pharmaceutical out-licensing	Technovation	Volume 35	Pages 46-58	2015	Yansong Hu, Peter McNamara, Damien McLoughlin	https://doi.org/10.1016/j.technovation.2014.07.004	Abstract: Our study investigates the outbound open innovation of firms engaged in technological venturing. Leveraging insights from the sociology theory and innovation literatures, we clarify whether social status helps entrepreneurial ventures overcome market imperfection and information asymmetry in out-licensing and illustrate the importance of specific aspects of social status building in this context. We also examine the effect of failure experiences on out-licensing. We take a dynamic view of desorptive capacity by studying an entrepreneurial venture's learning process, both internally, in terms of its own technology trajectory, and externally, through inter-organizational alliances. We apply a negative binomial model to our novel panel of 180 firms studied over an 18-year period with controls for stocks of critical development activities, patenting and prior licensing activities. Empirical analysis enables us to observe the impact which the firms' technological and development status, reputation and desorptive capacity exert upon out-licensing volume. Prior outbound open innovation studies do not account for the heterogeneity of technology and R&D success and failure experiences observed in our study. We also demonstrate the contingency effect of external learning from alliances during the building-up of a firm's desorptive capacity, or the way in which the number of co-authoring partners in scientific publications negatively moderates the positive effect of the number of commercial alliances on the volume of its out-licensing deals. Our findings contribute to the understanding of external knowledge exploitation and complement important aspects of the literatures on outbound open innovation and desorptive capacity, offering empirically rich insights for bio-pharmaceutical firms into the drivers behind volumes of out-licensing deals.

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Exploring the use of patents in a weak institutional environment: The effects of innovation partnerships, firm ownership, and new management practices	Technovation	Volumes 45–46	Pages 63–77	2015	Henrique M. Barros	https://doi.org/10.1016/j.technovation.2015.05.003	Abstract: Most observations of the patent behavior of firms are derived from institutional environments in which relatively strong protection can be obtained, even if patents per se are imperfect protection mechanisms. As a result, the determinants of a firm's propensity to patent in a weak appropriability regime are still unclear. This paper advances our current understanding of patent behavior by exploring the effects of manufacturing firms' innovation partnerships, foreign ownership, and adoption of new management practices on the likelihood of patenting. Our analysis is based on the responses of firms to questions in the Brazilian Industrial Survey of Technological Innovation (Printec). The findings presented here indicate that, despite the weaknesses of the patent system, firms engaged in innovation-oriented collaborations are more likely to patent than firms not involved in these partnerships. Additionally, the results reveal that domestic and foreign firms in a weak institutional environment are similar in their inclination to patent. Finally, the empirical exercise shows that when a patent system is characterized by high levels of formalism and low levels of safeguarding against infringements of property rights firms adopt novel management practices as substitutes for patents.
The organizational advantage in early inventing and patenting: Empirical evidence from interference proceedings	Technovation	Volumes 43–44	Pages 40–48	2015	Andre O. Laplume, Emanuel Xavier-Oliveira, Parshotam Dass, Ramesh Thakur	https://doi.org/10.1016/j.technovation.2015.03.005	Abstract: Recent research suggests that individual inventors produce less valuable inventions than those operating within organizational boundaries. The current study demonstrates that organizations invent and file for patents earlier than individuals. Analyses of priority contests between competing agents reveal that public and private corporations invent faster than individual inventors, whereas public and private corporations, universities, and research institutes patent their inventions earlier than do individuals. We examine the outcomes of patent interference proceedings involving about 650 U.S. patents and patent applications occurring between 2005 and 2013. We theorize that individual inventors lack resources as well as functional and integrative capabilities needed to invent and patent as quickly as organizations. The paper offers policy-making insights and contributes quantitative-based grounds for further research into more efficient and effective intellectual property regimes.
Development of patent roadmap based on technology roadmap by analyzing patterns of patent development	Technovation	Volumes 39–40	Pages 37–52	2015	Yujin Jeong, Byungun Yoon	https://doi.org/10.1016/j.technovation.2014.03.001	Abstract: Recently, patent forecasting and planning has been emphasized as an essential process in the strategic management of technology because well-planned patents will make larger profits and occupy dominant positions first. Thus, this paper aims to suggest the concept and process of a patent roadmap based on a technology roadmap and patterns of patent development. For this, first, ontology of technology is generated to structure the characteristics of technology based on the existing technology roadmap and then patents are collected from a patent database. Second, collected patents are grouped by similarities based on vectors of extracted keywords and grouping results are classified by TEMPEST. In this step, keywords extracted from the previous phase are matched with TEMPEST individually and patent groups are categorized in accordance with high relevance between representative keywords in patent groups and core keywords in each category of TEMPEST. Third, the patterns of patent development are identified for each patent group and categorized by two types ? structural and temporal patterns. Consequently, extracted patterns serve as evidence of patent planning, and the patent roadmap is drawn with the technology layer composed of the technology roadmap and the patent layer that each group is mapped on. The proposed approach is illustrated by the case of the transparent AMOLED display. The patent roadmap will enable managers to establish patenting strategies in order to achieve a valuable core patent that has the potential to become a business model, yielding good returns in the long term.
Commercialization of university inventions: Individual and institutional factors affecting licensing of university patents	Technovation	Volumes 36–37+G105	Pages 12–25	2015	Yonghong Wu, Eric W. Welch, Wan-Ling Huang	https://doi.org/10.1016/j.technovation.2014.09.004	Abstract: This paper conducts a unique study using the university patent as the unit of analysis to determine how individual and institutional factors affect the likelihood that a patent will be licensed. Using a 2010 national survey of academic scientists in the United States in which respondents were asked specific questions about 2006 patents for which they were listed as inventors, we find that the likelihood of licensing is significantly determined by individual factors including inventors' attitude towards commercialization of research, additional research conducted during patent review, and collaboration with industry scientists on the underlying research. Among institutional factors, university Technology Transfer Office's cost-saving measures positively influence licensing, but industry funding and TTO service effectiveness do not. We also identify two types of inventions: opportunity-based inventions are discoveries that are not foreseen patentable at the outset of projects; intention-based inventions occur on research projects that anticipate commercial outcomes before the start of research. Findings demonstrate that different individual and institutional factors contribute to licensing of these two different inventions. This study provides new insights into the process of commercialization of university inventions.
International technology sourcing between a developing country and the rest of the world. A case study of China	Technovation	Volume 35	Pages 12–21	2015	Daniel Nepelski, Giuditta De Prato	https://doi.org/10.1016/j.technovation.2014.07.007	Abstract: Developing countries are increasingly seen as competitors in knowledge intensive activities. However, their rapidly growing innovation potential suggests that they will become important producers of technology demanded by other countries, and at the same time, they will increase their demand for technology produced elsewhere. To study the evolution, composition and drivers of international technology sourcing between a developing country and the rest of the world, we look at the case of China. To quantify these technology flows we use patent-based measures of cross-border ownership of inventions and a patent database providing worldwide coverage of patents. We show that although China has a large deficit in international technology sourcing, the flow of technology from abroad to China and vice versa is intensifying. In both directions of technology sourcing, we observe strong concentration in terms of partners and technological fields. While geographic distance hinders the technology flow from China to other countries, it does not impede Chinese entities from acquiring property rights over inventions developed by inventors from distant countries. China maintains intensive linkages with a number of relatively small and developing countries. This way it accelerates the process of South-South interactions in international technology sourcing.
Effects of intellectual property rights and patented knowledge in innovation and industry value added: A multinational empirical analysis of different industries	Technovation	Volumes 43–44	Pages 49–63	2015	Seokkyun Woo, Pilseong Jang, Yeonbae Kim	https://doi.org/10.1016/j.technovation.2015.03.003	Abstract: Technological innovation drives long-term economic growth, so most countries attempt to provide an innovation-friendly environment that includes tightening protection of intellectual property rights (IPR). However, debate continues on whether strengthened IPR lead to technological development and economic growth: patents promote innovation by protecting appropriation from invention and disclosing knowledge to the public, but they also create excessive monopoly power that may impede further innovation. Using simultaneous equations with cross-country panel data from 12 countries and 3 industries (chemical, electronic, machinery), we estimated the direct effect of IPR on industry value added and the indirect effect of it through enhanced research and development (R&D). The bilateral role of IPR, as measured by patented knowledge, was used to distinguish different characteristics of industries as well as the positive and negative effects of IPR on innovation. Results suggest that IPR generally enhance industry value added, but the positive effect is mitigated with increased enforcement of IPR. Also, IPR enhanced R&D but showed a negative relationship with patented knowledge, suggesting that excessive privatization of knowledge may hinder sequential innovation. The positive role of IPR on R&D predominated in the chemical (discrete) industry and exerted negative effects in the electronic and machinery (complex) industries.
Does working with industry come at a price? A study of doctoral candidates' performance in collaborative vs. non-collaborative Ph.D. projects	Technovation	Volumes 41–42	Pages 51–61	2015	Negin Salimi, Rudi Bekkers, Koen Frenken	https://doi.org/10.1016/j.technovation.2015.03.007	Abstract: Collaborative Ph.D. projects between university and industry constitute an important aspect of university/industry collaboration, yet has remained under-researched thus far. The specific question this paper asks is how collaborative Ph.D. projects perform compared to non-collaborative Ph.D. projects. Conducting an empirical study on 448 Ph.D. projects at Eindhoven University of Technology, it is observed that collaborative Ph.D. projects outperform non-collaborative Ph.D. projects both in terms of industrial performance (number of patents and patent citations) and academic performance (number of publications and publication citations). A further investigation indicates that the high performance of collaborative Ph.D. projects is specific to the university's collaborations with Philips and with Public Research Organisations. When measuring academic performance is a more restricted manner by looking at top-publications only, it is observed that collaborative Ph.D. projects no longer outperform non-collaborative Ph.D. projects. One of the policy implications of this study is that there seems to be no reasons for universities to be reserved to enter into collaborative Ph.D. projects, when such opportunities arise.
Distant recombination and the creation of basic inventions: An analysis of the diffusion of public and private sector nanotechnology patents in Canada	Technovation	Volumes 36–37	Pages 39–52	2015	Ahmad Barirani, Catherine Beaudry, Bruno Agard	https://doi.org/10.1016/j.technovation.2014.10.002	Abstract: This article explores whether the relationship between the breadth of technological integration (recombination distance) and the breadth of an invention's subsequent application (basicness) is moderated by the sector of activity (private or public), science-linkage strength and industry characteristics. Our analysis of Canadian nanotechnology patents granted between 1990 and 1997 shows that although private organizations generally yield smaller rates of basic inventions than public organizations, increases to recombination distance by the former increases invention basicness at a higher rate; increasing reliance upon basic science moderates the relationship between recombination distance and basicness, and increases to recombination distance in emerging science-based industries increases invention basicness at a higher rate. These findings have implications regarding the debate around the efficiency of the academic enterprise model.
Technology fusion: Identification and analysis of the drivers of technology convergence using patent data	Technovation	Volumes 55–56	Pages 22–32	2016	Federico Caviggioni	https://doi.org/10.1016/j.technovation.2016.04.003	Abstract: The concepts of technology convergence or technology fusion describe the phenomenon of technology overlap. Despite evidence of the higher value associated to interdisciplinary research and cross-industry innovation, few studies have investigated the characteristics of technology fusion based on patent data. This study identifies new cases of convergence relying on the International Patent Classification (IPC) of patents filed at the European Patent Office between 1991 and 2007: the first occurrence of a patent incorporating a combination of IPC subclasses signals a new instance of fusion. Duration models are employed to investigate the impact of field level characteristics derived from patent bibliometrics on the likelihood of identifying a new fusion. The results show that merges are more frequent if the focal technology fields are closely related (based on a higher number of cross citations), are characterized by wide technological scope, and are the result of an inter-firm collaboration. In contrast to previous findings, the results show that the more complex the technologies involved, the less the likelihood of their convergence or fusion. The correlation between fusion likelihood and the characteristics of the merging fields could help managers and policymakers to predict the emergence of new technology areas.

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When patents matter: The impact of competition and patent age on the performance contribution of intellectual property rights protection	Technovation	Volumes 57–58	Pages 14–20	2016	Daniela Maresch, Matthias Fink, Rainer Harms	https://doi.org/10.1016/j.technovation.2015.11.009	Abstract: The question whether patenting impacts patenting firms' subsequent financial performance is important for technology-oriented companies. However, relevant research has led to contradictory results. We strive to overcome this impasse by introducing innovation competition and patent age as moderators of patents' performance contribution into the discourse. Based on a sample of 975 cases from diverse industries, we find strong support for our arguments. In line with our expectations, the results show that the number of patents granted, the degree of patent competition, and the timeliness of a patent contribute positively to financial performance. Moderation analysis nuances our findings by showing that the impact of patent protection on financial performance is stronger when the patent competition is stronger and the patents are younger. These findings provide insights into the conditions under which patenting leads to higher financial performance. Our findings highlight the importance of innovation competition and patent age for innovation research. The empirical results show firms that patenting pays and that, in order to tap the full potential of patents, they need to focus on emerging competing industries and reduce the time to market. Policy makers learn that patenting is a successful approach to foster innovation at limited social costs.
Patents, trademarks, and their complementarity in venture capital funding	Technovation	Volume 47	Pages 14–22	2016	Haibo Zhou, Philipp G. Sander, Simon Luca Martinelli, Joern H. Block	https://doi.org/10.1016/j.technovation.2015.11.005	Abstract: This paper analyzes the effects of patents and trademarks in the financing of start-ups through venture capitalists (VCs). Patents and trademarks signal a start-up's technological and marketing capabilities. We find that patents and trademarks not only have direct effects on venture capital financing but also have complementary effects. Start-ups that apply for both patents and trademarks yield higher VC funding than do those firms that apply for only one of the two IP rights. Furthermore, we find that the complementarity between patents and trademarks exists only in initial VC funding rounds. Our results suggest that early-phase start-ups seeking their initial VC funding do best when stressing both their technology and marketing capabilities. Accordingly, entrepreneurship policy should encourage start-ups to build both technological and marketing capabilities.
A new intellectual property metric for standardization activities	Technovation	Volumes 48–49	Pages 87–98	2016	Suguru Tamura	https://doi.org/10.1016/j.technovation.2016.01.007	Abstract: This study formulates a method to measure the effects of standardization to assist in evaluating innovation and R&D policies. Its main purpose is to examine standardization activities within R&D organizations. This allows for a more appropriate policy evaluation framework than examining such activities within standard development organizations does. The study also redefines the conventional notion of intellectual property (IP) normatively and introduces the term "integrated IP" to reflect our new conceptualization of innovation and standardization activities. Our new conceptualization captures the "fuzzy" impact of standardization on R&D to improve innovation management. The study presents a vector equation expressing the new IP definition and uses it to model revenues arising from a standard-essential patent for strategic IP management with standardization. The model indicates the importance of patents commercially required for product differentiation for the purpose of innovation with standards.
Innovation and de facto standardization: The influence of dominant design on innovative performance, radical innovation, and process innovation	Technovation	Volumes 50–51	Pages 79–88	2016	Alexander Brem, Petra A. Nylund, Gerd Schuster	https://doi.org/10.1016/j.technovation.2015.11.002	Abstract: Setting technology standards is the route to market growth and to potentially influencing the performance of a whole industry. When a market accepts a particular technology as one that defines the specifications for products in the entire industry, a dominant design is set. In this article, we investigate how the existence of a dominant design affects subsequent innovation in an industry. In particular, we study the influence on innovative performance, radical innovation, and process innovation. Analyzing longitudinal, cross-sectional patent data for more than 2.6 million patents filed from 1978 to 2013, we find support for our hypotheses that an industry's innovative performance and degree of radical innovation are negatively influenced by dominant design in that industry, and that process innovation is fostered by the occurrence of a dominant design. We discuss the findings in the light of the increasing speed of technological development and standardization. Additionally, results from a sensitivity analysis for different threshold values of dominant design call for adjusting a binary definition of dominant design with different threshold values depending on the effects under study.
Formal and informal appropriation mechanisms: The role of openness and innovativeness	Technovation	Volume 59	Pages 44–54	2017	Ann-Kristin Zobel, Boris Lokshin, John Hagedoorn	https://doi.org/10.1016/j.technovation.2016.01.001	Abstract: This paper analyses how firms' degree of openness and innovativeness influence their use of formal and informal appropriation mechanisms. Patents, trademarks, copyrights, and design rights are formal appropriation mechanisms. Secrecy, lead-time, and complexity are examples of informal appropriation mechanisms. Both external search breadth and depth are positively associated with firms' use of informal appropriation mechanisms, while only external search breadth is positively associated with formal appropriation mechanisms. Firms' degree of radical (incremental) innovation orientation is negatively (positively) associated with their use of formal appropriation mechanisms. Analysis of the joint impact of openness and innovativeness, suggests that for radical innovators it is external search breadth (rather than depth) that has a positive association with the use of informal appropriation mechanisms. In contrast, for radical innovators external search depth (rather than breadth) is associated with the use of formal appropriation mechanisms. For incremental innovators, external search breadth (rather than depth) is associated with the use of both formal and informal appropriation mechanisms.
Discovering new technology opportunities based on patents: Text-mining and F-term analysis	Technovation	Volumes 60–61	Pages 1–14	2017	Kisik Song, Karp Soo Kim, Sungjoo Lee	https://doi.org/10.1016/j.technovation.2017.03.001	Abstract: Discovering new technology opportunities has long been a significant issue in both practice and academia. Among various approaches to search for opportunities, one of the most frequently used is to identify emerging or vacant technologies from patent documents. In line with it, this study aims to suggest a novel approach for the development of new technology ideas based on the F-term, which classifies patent documents according to the technical attributes of the inventions described within them. Since the technical attributes are analyzed according to various perspectives through the application of the F-term, which generates detailed and systematic information about technologies, the F-term can provide effective guidelines for generating new technology ideas, if utilized well. In the approach, we first choose a target technology for seeking new opportunities. Then, from the text-mining results of the F-term data, we identify other technologies with technical attributes similar to the target technology, called reference technologies. The next step is to extract technical attributes that are commonly used in the reference technologies but have not been used in the target technology. Finally, we can obtain new technology ideas by applying these technical attributes to the target technologies. This is one of the earliest attempts to adopt the F-term for patent analysis; the proposed methodology can show how to best take advantage of the F-term and the wealth of available technical information in patents, and also can be useful in the idea-creation process for major and minor innovation.
The timing of trademark application in innovation processes	Technovation	Volumes 72–73	Pages 34–45	2018	Marcel Seip, Carolina Castaldi, Meindert Filkkema, Ard-Pieter De Man	https://doi.org/10.1016/j.technovation.2018.02.001	Abstract: An emerging stream of literature is studying the extent to which trademarks can be used to measure innovation. The picture of the usefulness of trademarks for innovation studies, however, is far from complete. Starting with cues from the patent literature, this paper studies the relationship between the timing of trademark applications and innovation. The trademark literature provides competing predictions on whether companies apply for trademarks early or late in the innovation process. Using a large sample of trademarks referring to innovation, we undertake a first empirical test of these predictions. Our findings suggest that in many instances reality is not as clear cut as the predictions suggest. However, when trademark data is combined with data on firm age, sector and size it is possible to predict whether a trademark refers to early or late-stage innovation.
Numerical labor flexibility and innovation outcomes of start-up firms: A panel data analysis	Technovation	Volume 69	Pages 15–27	2018	Masatoshi Kato, Haibo Zhou	https://doi.org/10.1016/j.technovation.2017.10.002	Abstract: Using a panel data set based on repeated questionnaire surveys of Japanese start-up firms, this study examines the effects of numerical labor flexibility on the innovation outcomes of start-up firms, a topic on which there is currently insufficient research. Here, numerical labor flexibility is defined as the external labor turnover of regular employees and the proportion of non-regular employees, and innovation outcomes include product innovation and patent applications. The estimation results of a random-effects probit model indicate that an inverted U-shaped relationship exists between the external labor turnover of regular employees and the probability of patent applications. Moreover, a similar U-shaped relationship exists between the proportion of non-regular employees and the probability of product innovation. These results are interpreted in light of the organizational characteristics of start-up firms. The implications of the findings are discussed.
Using web mining to explore Triple Helix influences on growth in small and mid-size firms	Technovation	Volumes 76–77	Pages 3–14	2018	Yin Li, Sanjay Arora, Jan Youtie, Philip Shapira	https://doi.org/10.1016/j.technovation.2016.01.002	Abstract: While broad "Triple Helix" frameworks of industry, government and university collaborations have the potential to enhance innovation and economic development at macro levels, at the micro-level of the firm it should not be assumed that such relationships are uniform in character or outcomes. Each firm will negotiate and develop its own set of relationships with other innovation system actors based on its capabilities and strategies. To better understand these dynamics, particularly from the perspective of small and medium-sized enterprises, this study probes the micro-level characteristics and impacts of external enterprise relationships. Novel website-based Triple Helix measures are introduced that extend the analytical scope beyond customary indicators (such as patent analysis or entropy measures) to include communication and coordination among all three helices at the micro-level of individual firms. This approach is used to explore the micro-level characteristics and impacts of industry, government and university relations for small and medium-sized enterprises by analyzing a subset of 271 U.S. green goods small and medium-sized manufacturing enterprises. We compare the website-based measures with case study results to authenticate the method. A panel data regression model is then employed to analyze the simultaneous impacts of various combinations of industry, government and university links on firm sales growth (2008?2011), with controls for region, scale, and application domains. The ability of website-based indicators to distinguish the impacts of different mixes of Triple Helix relations is demonstrated. While relationships with all three helices have a positive total marginal effect on firm sales growth, local relationships and relationships that emphasize links with government and industry make particularly notable contributions to growth in the sample green goods enterprises. The implications of these findings are discussed.
Innovation in cultural and creative industries firms with an academic origin (CCI-USOs): The role of regional context	Technovation	n/a	n/a	2018	Maria Jesus Rodriguez-Gulas, Sara Fernandez-Lopez, David Rodeiro-Pazos	https://doi.org/10.1016/j.technovation.2018.06.007	Abstract: Previous literature has focused on either the direct or indirect contribution of cultural and creative industries (CCI) firms to the innovation capability of the wider economy, while the reverse approach, that is, the effect of region on CCI firms' innovation, has been completely neglected. In this paper, it is argued that the innovative performance of CCI firms with an academic origin (CCI-USOs) may be influenced by the regional context where they operate. In so doing, it is defended that the study of innovation in CCI firms can be advanced through the development of a more integrative framework. Relying on a sample of 92 Spanish CCI-USOs over the period 2001?2010 and applying multilevel modeling, this study sheds light on how regional and firm level factors simultaneously impact on CCI-USOs' innovation. The findings show that the regional context determines the innovative performance of CCI-USOs. In addition, firm age has a negative effect on the probability of having patent activity, while firm size and venture capital exerts a positive influence on innovative performance. On the basis of these results, some policies for fostering innovation in CCI are proposed.

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Market share and firms' patent exploitation	Technovation	Volumes 72-73	Pages 13-23	2018	Donghyuk Choi, Yeonbae Kim	https://doi.org/10.1016/j.technovation.2017.12.001 .	Abstract: As the current patent policy encourages the early stage of innovation but imposes hardly any regulations on how patent holders use their patents, an understanding of how firms use their patents is largely lacking. In this study, we seek to determine whether differences exist in firms' strategies for utilizing patents depending on their market share. Using a discrete choice model, the repeated multinomial logit model, we analyzed Korean firms' choices of patent use. Market share is found to positively influence three patent exploitation modes: own use, simultaneous exploitation of own use and licensing, and blocking. And the blocking use of patents is the most significant mode that is positively associated with market share. Our results provide a basis for understanding the effects of patent policy from the industrial perspective, such as industrial organization or competition policy. We discussed the implications for various actors related to patent systems, including researchers, policy-makers, and practitioners.
New approach to the innovation process in emerging economies: The manufacturing sector case in Chile and Peru	Technovation	Volume 79	Pages 35-55	2019	Jorge A. Heredia Perez, Cristian Geldes, Martin H. Kunc, Alejandro Flores	https://doi.org/10.1016/j.technovation.2018.02.012 .	Abstract: This paper focuses on paths towards innovation and considers different types of innovation. It develops a new framework to analyze the internal and external factors that influence the types of innovation and their relationships with business performance in the manufacturing sector. A proposed theoretical model is tested and used to evaluate the process of innovation by country (Peru and Chile) and companies by size, type of industry, financial aspects and level of patenting. In Chile, the driver is technological innovation in processes, whereas in Peru, it is innovation in technological innovation. Companies with high perceptions of financial constraints exhibit a preference for the development of marketing innovations to substantially improve production performance; if a company perceives few financial barriers, it increases innovation resources and process innovation to significantly improve market performance. Small businesses increase non-technological innovation by investing in staff to manage the social networks. Moreover, the participation of foreign capital may overcome the institutional voids and lack of support systems. Furthermore, the combination of process and organizational innovation increases export performance, and the effect of the cooperation depends on the type of industry. Finally, we note the limitations and propose future research.
An enforced loop-out knowledge flow facilitates industry competition: Learning from the pharmaceutical and genetically modified seed industries	Technovation	Volume 79	Pages 11-24	2019	Ching-Wen Chang, Takayuki Yamanaka, Shingo Kano	https://doi.org/10.1016/j.technovation.2018.06.004 .	Abstract: Maintaining industry diversity and avoiding oligopolistic market structures are important issues for governments. To facilitate launching generic products, the US government has established special policies for the country's pharmaceutical industry, namely, the Orange Book, the Bolar Amendment, and the ANDA procedure, which this study regards as an essential policy package. The three policies are functionally generalized and combined with a corporate knowledge cycle to construct a "policy-enforced loop-out knowledge flow model," which fuses corporate knowledge management and policy intervention, to explain how the policies have facilitated knowledge utilization. This model explains the synergy effect of these policies as a combination of knowledge confirmation, fast knowledge utilization, and reduced additional knowledge from the knowledge perspective. The model is applied to the oligopolistic genetically modified (GM) seed industry, in which no generic GM seeds have appeared in the market after main patents expiry. We find that policies to facilitate the loop-out knowledge flow are lacking in the GM seed industry and that a policy package could be used to solve the industry's oligopoly. Product patent linkage monitoring is especially key for governments, and its disclosure could facilitate the knowledge loop-out from the originator's knowledge cycle to other competitors in highly concentrated markets.
Anticipating technological convergence: Link prediction using Wikipedia hyperlinks	Technovation	Volume 79	Pages 25-34	2019	Juram Kim, Seunggho Kim, Changyong Lee	https://doi.org/10.1016/j.technovation.2018.06.008 .	Abstract: Technological convergence has been the subject of many previous studies, but most have focused on ex post evaluation using patent information. The value of predictive analysis and new data sources has thus seldom been addressed. This study proposes a systematic approach to anticipating technological convergence that can be used to guide organisations towards reacting in a timely manner to challenges posed by increasingly permeable technology boundaries. For this, a technological ecology network is constructed using direct and indirect hyperlinks extracted from the Wikipedia database, and link prediction methods are employed to develop three predictive indicators of technological convergence. A case of 3D printing technology confirms, with statistically significant outcomes, that the proposed approach enables a wide-ranging search for future converging technologies. The systematic process and quantitative outcomes of the proposed approach are expected to be valuable as a complementary tool for strategic decision making regarding emerging technologies in the era of open innovation.
Technology transfer to the private sector: A field study of manufacturer buying behavior	Journal of Product Innovation Management	Volume 9, Issue 1	Pages 26-43	1992	David W. Large, Donald W. Barclay	https://doi.org/10.1016/0737-6782(92)90059-L .	Abstract: Public sector R&D is an important source of new product technologies and concepts. If the transfer of these technologies to private sector manufacturers is viewed from a marketing perspective, manufacturing organizations can be analyzed as industrial "buyers". David Large and Donald Barclay report on case-based research that explores this technology buying process. Findings are induced that suggest: user value, patent/proprietary position, prototype efficacy, and strategic fit are the most important attributes of the transfer proposal; and business empathy and credibility are the most important attributes of the transfer agent. The R&D director is identified as a key influencer in the transfer decision and represented by a model of the director's attitude toward technology transfer proposals. The authors develop implications for public sector managers/ agents and suggest opportunities for further research.
Technology transfer to the private sector: A field study of manufacturer buying behavior	Journal of Product Innovation Management	Volume 9, Issue 1	Pages 26-43	1992	David W. Large, Donald W. Barclay	https://doi.org/10.1016/0737-6782(92)90059-L .	Abstract: Public sector R&D is an important source of new product technologies and concepts. If the transfer of these technologies to private sector manufacturers is viewed from a marketing perspective, manufacturing organizations can be analyzed as industrial "buyers". David Large and Donald Barclay report on case-based research that explores this technology buying process. Findings are induced that suggest: user value, patent/proprietary position, prototype efficacy, and strategic fit are the most important attributes of the transfer proposal; and business empathy and credibility are the most important attributes of the transfer agent. The R&D director is identified as a key influencer in the transfer decision and represented by a model of the director's attitude toward technology transfer proposals. The authors develop implications for public sector managers/ agents and suggest opportunities for further research.
Patents: A managerial perspective: Journal of Product and Brand Management	Journal of Product Innovation Management	Volume 12, Issue 3	Pages 252-253	1995	Tim Hufker and Frank Alpert	https://doi.org/10.1016/0737-6782(95)90891-K .	n/a
Patents: A managerial perspective: Journal of Product and Brand Management (Volume 3, Number 2, 1994), pp. 33-54 (GPL)	Journal of Product Innovation Management	Volume 12, Issue 3	Pages 252-253	1995	Tim Hufker and Frank Alpert	https://doi.org/10.1016/0737-6782(95)90891-K .	n/a
R&D, firm size and innovation outputs: Are Japanese firms efficient in product development?	Journal of Product Innovation Management	Volume 14, Issue 5	Pages 383-392	1997	Ryuhei Wakasugi, Fumihiko Koyata	https://doi.org/10.1016/S0737-6782(97)00028-3 .	Abstract: Although Japanese firms in various industries enjoyed outstanding success during the 1980s, the recent economic news has been less favorable. Like their American counterparts, Japanese managers have faced difficult decisions regarding plant closures, layoffs, and moving production facilities overseas. Many Japanese business leaders attribute the innovation successes of the 1980s, at least in part, to economies of scale resulting from increases in firm size. If this assertion holds true, the current economic climate in Japan seems certain to result in diminished economies of scale for innovative activities. Ryuhei Wakasugi and Fumihiko Koyata test this assertion in a statistical study of the innovation efficiency of Japanese electrical machinery firms. In other words, their study explores whether the hypothesized economies of scale apply to the innovation inputs and outputs of these firms. They examine the manner in which R&D expenditures, patent applications, and product developments relate to the size of Japanese electrical machinery firms during the late 1980s and early 1990s—a period marked by high levels of innovative activity among these firms. For the Japanese electrical firms in this study, innovation inputs that is, R&D expenditures/increase in greater proportion than firm size. In other words, the larger firms in this study pursued their innovation efforts more aggressively than did the smaller firms in the study. In terms of R&D expenditures, however, the study does not reveal any resultant economies of scale for either patent applications or product developments. Similarly, analysis of the data in this study does not identify any economies of scale for product developments as a result of increases in firm size. In fact, the only economies of scale identified in the study involve firm size and the number of patent applications. In general terms, the statistical evidence in this study does not support the hypothesis that an increase in firm size improves the efficiency of innovation activity. To put this another way, the study does not provide evidence to support the hypothesis of economies of scale in product development.
R&D, firm size and innovation outputs: Are Japanese firms efficient in product development?	Journal of Product Innovation Management	Volume 14, Issue 5	Pages 383-392	1997	Ryuhei Wakasugi, Fumihiko Koyata	https://doi.org/10.1016/S0737-6782(97)00028-3 .	Abstract: Although Japanese firms in various industries enjoyed outstanding success during the 1980s, the recent economic news has been less favorable. Like their American counterparts, Japanese managers have faced difficult decisions regarding plant closures, layoffs, and moving production facilities overseas. Many Japanese business leaders attribute the innovation successes of the 1980s, at least in part, to economies of scale resulting from increases in firm size. If this assertion holds true, the current economic climate in Japan seems certain to result in diminished economies of scale for innovative activities. Ryuhei Wakasugi and Fumihiko Koyata test this assertion in a statistical study of the innovation efficiency of Japanese electrical machinery firms. In other words, their study explores whether the hypothesized economies of scale apply to the innovation inputs and outputs of these firms. They examine the manner in which R&D expenditures, patent applications, and product developments relate to the size of Japanese electrical machinery firms during the late 1980s and early 1990s—a period marked by high levels of innovative activity among these firms. For the Japanese electrical firms in this study, innovation inputs that is, R&D expenditures/increase in greater proportion than firm size. In other words, the larger firms in this study pursued their innovation efforts more aggressively than did the smaller firms in the study. In terms of R&D expenditures, however, the study does not reveal any resultant economies of scale for either patent applications or product developments. Similarly, analysis of the data in this study does not identify any economies of scale for product developments as a result of increases in firm size. In fact, the only economies of scale identified in the study involve firm size and the number of patent applications. In general terms, the statistical evidence in this study does not support the hypothesis that an increase in firm size improves the efficiency of innovation activity. To put this another way, the study does not provide evidence to support the hypothesis of economies of scale in product development.

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Can branded drugs benefit from generic entry? The role of detailing and price in switching to non-bioequivalent molecules	International Journal of Research in Marketing	Volume 25, Issue 4	Pages 247-260	2008	Jorge Gonzalez, Catarina Sismeiro, Shantanu Dutta, Philip Stern	https://doi.org/10.1016/j.ijresmar.2008.08.002	Abstract: Patent expiration represents a turning point not only for the brand losing patent protection, as bioequivalent generic versions of the drug quickly enter the market at reduced prices, but also for the non-bioequivalent drugs that retain patent protection in the same therapeutic category. In this paper, we study how physician characteristics and prescribing decisions impact competition among molecules of a therapeutic class once generic versions of one of these molecules enter the market. Our results show that the traditional focus on the single molecule losing patent protection is not sufficient to understand the impact of generics in the category and their cost-saving potential. We find that generic entry in the category under analysis not only leads to the expected decrease in the prescription of the branded molecule bioequivalent to the generics, but also unexpectedly benefits other non-bioequivalent branded drugs as detailing-sensitive physicians switched from the contested molecule to these other branded alternatives. However, a group of price-sensitive physicians did increase their use of the new generics to the detriment of all branded alternatives, allowing for additional savings in health care costs. The overall market result is a slight decrease in the prescriptions of the now much cheaper molecule. This paradox was identified previously in several pharmaceutical categories [Caves, R.E., Winston, M.D., & Hurvitz, M.A. (1992), "Patent expiration, entry and competition in the US pharmaceutical industry: An exploratory analysis", Brookings Papers on Economic Activity, Microeconomics, vol. 1991, 1748.], but lacked a systematic understanding and explanation. We show that the understanding of such market paradoxes requires marketers and policy makers to (1) determine the size of physician segments sensitive to marketing activity and prices, and (2) assess the marketing activity of all pharmaceutical firms, whether bioequivalent or not. We discuss the managerial and policy implications of our results.
Survival of high tech firms: The effects of diversity of product?market portfolios, patents, and trademarks	International Journal of Research in Marketing	Volume 25, Issue 2	Pages 119-128	2008	Raji Srinivasan, Gary L. Lilien, Arvind Rangaswamy	https://doi.org/10.1016/j.ijresmar.2007.12.005	Abstract: High tech firms can mitigate potential risks by diversifying their product?market portfolios. A key research question is how such diversification influences firm survival. A firm exits the market in two ways, specifically, dissolution and acquisition. Here, we model how the diversity of a new firm's product?market portfolio influences the times to both types of exits. Specifically, we allow for interaction effects of the competitive intensity of a firm's environment and the diversity of a firm's product?market portfolio with its patents and trademarks. Using a competing risk hazard model, we estimate the effects of various covariates on the time to exit for 1435 US high tech firms. We observed that a more diverse product?market portfolio, in conjunction with a larger number of patents, hastens the time to a firm's exit by dissolution (9% decrease in survival duration), while in conjunction with a larger number of trademarks, portfolio diversity delays the time to exit by dissolution (12% increase). A more competitive firm environment results in a greater effect on the portfolio's diversity in delaying its exit by dissolution (7% increase). On the other hand, a diverse product?market portfolio, combined with either a larger number of patents or trademarks, hastens the firm's exit by acquisition (19% and 11% decrease respectively).
The global entry of new pharmaceuticals: A joint investigation of launch window and price	International Journal of Research in Marketing	Volume 28, Issue 4	Pages 295-308	2011	Isabel Verniers, Stefan Stremersch, Christophe Croux	https://doi.org/10.1016/j.ijresmar.2011.05.008	Abstract: Research on the launch of new products in the international realm is scarce. The present paper is the first to document how launch window (the difference, in months, between the first worldwide launch and the subsequent launch in a specific country) and launch price are interrelated and how regulation influences both the launch window and launch price. The research context is the global (50 countries worldwide) launch of 58 new ethical drugs across 29 therapeutic areas. We show that the fastest launch occurs when the launch price is moderately high and the highest launch price occurs at a launch window of 85months. We find that the health regulator acts strategically in that the extent to which it delays the launch of a new drug increases with the price of the new drug. We also find that overall, regulation increases the launch window, except for patent protection. Surprisingly, regulation does not directly impact launch price. The descriptive information on average launch window and launch price and the interconnection between launch window and launch price allow managers in ethical drug companies to make more informed decisions about international market entry. This study also provides public policy analysts with more quantitative evidence on launch window and launch price across a broad sample of countries and drug therapeutic categories.
Making a face: Graphical illustrations of managerial stances toward customer creativity	Australasian Marketing Journal (AMJ)	Volume 20, Issue 1	Pages 9-15	2012	Colin L. Campbell, Pierre R. Berthon, Leyland F. Pitt, Ian McCarthy, Kirk Plangger	https://doi.org/10.1016/j.ausmj.2011.10.009	Abstract: Creative consumers ? consumers who adapt, modify or transform a proprietary offering ? represent an intriguing paradox for business. On the one hand they can be a black hole for future revenue, with breach of copyright and intellectual property, while on the other hand they represent a gold mine of ideas and business opportunities. This problem is central to business ? business needs to both create and capture value; the problem is that creative consumers demand a shift in the mindsets and business models of how firms both create and capture value. We develop a typology of firms' stances to creative consumers based upon their attitude and action towards customer innovation. We then consider the implications of the stances model for corporate strategy, and examine a three-step approach to dealing with creative consumers, namely, awareness, analysis and response.
Indigenous intellectual property rights: Ethical insights for marketers	Australasian Marketing Journal (AMJ)	Volume 22, Issue 4	Pages 307-313	2014	Ann-Marie Kennedy, Gene R. Laczniak	https://doi.org/10.1016/j.ausmj.2014.09.004	Abstract: Present copyright laws do not protect Indigenous intellectual property (IIP) sufficiently. Indigenous cultural artefacts, myths, designs and songs (among other aspects) are often free to be exploited by marketers for business' gain. Use of IIP by marketers is legal as intellectual property protection is based on the lifetime of the person who has put the IP in tangible form. However, Indigenous groups often view ownership in a very different light, seeing aspects of their culture as being owned by the group in perpetuity. Misuse of their cultural heritage by marketers in products often denies the Indigenous group a monetary benefit from their use and is frequently disrespectful. This article discusses ethical insights that might shed moral weight on this issue.
Concept-based patent image retrieval	World Patent Information	Volume 34, Issue 4	Pages 292-303	2012	Stefanos Vrochidis, Anastasia Mourtzidou, Ioannis Kompatsiaris	https://doi.org/10.1016/j.wpi.2012.07.002	Abstract: Recently, the intellectual property and information retrieval communities have shown increasing interest in patent image retrieval, which could further enhance the current practices of patent search. In this context, this article presents an approach for automatically extracting concept information describing the patent image content to support searchers during patent retrieval tasks. The proposed approach is based on a supervised machine learning framework, which relies upon image and text analysis techniques. Specifically, we extract textual and visual low-level features from patent images and train detectors, which are capable of identifying global concepts in patent figures. To evaluate this approach we have selected a dataset from the footwear domain and trained the concept detectors with different feature combinations. The results of the experiments show that the combination of textual and visual information of patent images demonstrates the best performance outperforming both single visual and textual features results. The outcome of this experiment provides a first evidence that concept detection can be applied in the domain of patent image retrieval and could be integrated in existing real world applications to support patent searching.
Efficient situation specific and adaptive search strategies: Training material for new patent searchers	World Patent Information	Volume 34, Issue 1	Pages 54-61	2012	Ricardo Oltra-García	https://doi.org/10.1016/j.wpi.2011.11.004	Abstract: A search for prior art should end with the retrieval of the best available prior art documents and, ideally, it should be performed in the shortest time possible. Optimizing search efficiency is key to the work of a searcher. When confronting the claims for the first time, the initial criteria for searching their subject-matter must be selected, involving not just the technical tools or data bases which will be the most appropriate, but also the precise scope of the search: The where and what to search. Then, the searcher must select an initial strategy for carrying out the search in, what would seem, the most efficient manner. The main focus of the search has to be established: The how to search. And once the search starts, the initial main focus must be continuously revised and adapted in an iterative process in view of the intermediate search results obtained and, if necessary, all the previous criteria and strategies should be changed on the go, steering the search toward the best prior art in the shortest time possible. EPO examiners are trained to optimize the search using the above mentioned closed-loop iterative approach, with a continuous monitoring of the quality of the search results and a critical review of the initial search criteria.
Overview of prior-art cross-lingual information retrieval approaches	World Patent Information	Volume 34, Issue 4	Pages 304-314	2012	Farag Saad, Andreas Nurnberger	https://doi.org/10.1016/j.wpi.2012.08.013	Abstract: Prior-art search in patent data has specific properties, which set it apart from other traditional information retrieval processes. One major issue is that patents are usually described in generic terms in order to avoid narrowing down the scope of the inventions. Given the growing amount of patents in different countries using different languages, prior-art search applications nowadays need to find patent claims across languages. This has prompted the current research efforts into how to tackle cross-lingual patent search issues. In this paper, we review the state-of-the-art of approaches for cross-lingual prior-art search. This includes cross-lingual information retrieval approaches in general and issues that prevent them from working well for prior-art search. Furthermore, we give a brief overview of existing cross-lingual prior-art search approaches and discuss whether they are able to overcome the problems that traditional cross-lingual retrieval approaches have in this area. Finally, a critical analysis based on this overview is presented and ideas on how to tackle some open research issues in cross-lingual prior-art search are given.
Best practice in search and analysis of chemical formulations: From chemical recipes to complex formulation types and dosage forms	World Patent Information	Volume 34, Issue 3	Pages 206-212	2012	Maik Annies	https://doi.org/10.1016/j.wpi.2012.03.003	Abstract: Chemical formulations are compositions of active ingredients and inert formulation components (adjuvants), which are more effective in combination than the active ingredients alone. Thus, formulation technology synergistically can improve the properties of active ingredients with regards to various aspects like application, uptake, safety or storage. Chemical formulations have a broad scope of uses ranging from pharmaceuticals and agrochemicals to cosmetics and materials protection. Since they represent the product as it is finally brought to market they have a high commercial and patent value. Comprehensive search and retrieval of chemical formulations both in patent and non-patent literature builds the basis of a successful reinforcement of patent protection, avoidance of infringement of third party patent rights and competitive analysis. The paper discusses the various aspects of chemical formulations to be considered in chemical formulation searching, and presents best practice strategies for search, retrieval, and analysis of both patent and non-patent literature as well as internet content preferably related to agrochemical and pharmaceutical formulations.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Survey of PCT search reports and the importance of the internet as a source of non-patent literature	World Patent Information	Volume 34, Issue 2	Pages 112-123	2012	Stephen Adams	https://doi.org/10.1016/j.wpi.2012.01.003	Abstract: Previous studies of the internet as prior art in patentability searching have concentrated on the difficulty of establishing a date of publication and a stable form of citation. The current work examines whether the internet is actually contributing new prior art, or merely replicating non-patent literature which can be obtained by other means. A sample of PCT international applications published in 2007 provides some evidence that certain ISAs are more effective in locating and citing internet-based non-patent literature than others. The sample also reinforces the widespread perception that non-patent literature forms a higher proportion of total citations in distinct technical fields. Some recommendations are made about bibliographic control of internet disclosures, and the methods of citation in search reports which are the most helpful for third parties wishing to locate the cited work.
Academic patenting in Europe: An overview of recent research and new perspectives	World Patent Information	Volume 34, Issue 3	Pages 197-205	2012	Francesco Lissoni	https://doi.org/10.1016/j.wpi.2012.03.002	Abstract: The paper surveys recent empirical research on academic patenting in Europe, with particular emphasis on efforts to quantify the relevance of the phenomenon on the basis of inventors' data. The methodological novelty of classifying patents by inventor, rather than applicant, is justified by the legal and institutional peculiarities of European countries, and bears results in terms of bringing to light previously ignored evidence. Academics are found to contribute significantly to patenting activities in Europe, especially in science-based technologies such as Pharmaceuticals & Biotechnology, followed by Chemicals & Materials, Measurement & Scientific Instruments, and Electrical Engineering & Electronics. Academic inventors appear to enjoy high academic status, as measured by their scientific productivity, and to occupy central positions in networks of inventors. Ongoing research on the value of academic patents, largely based on patent citation analysis, suggests that the latter are more original and general than non-academic ones, but unlikely to be more highly cited.
Technology and competitor mapping designed to support strategic business decisions	World Patent Information	Volume 34, Issue 2	Pages 124-127	2012	Ase Dammi	https://doi.org/10.1016/j.wpi.2011.12.001	Abstract: A business support tool has been created to show in a one-page matrix how a patent portfolio matches that of selected competitors and matches a current business strategy. The vertical axis of the matrix represents the business strategy and the horizontal axis describes products reflected in the patent portfolio. The work of defining the axes requires cooperation between the internal customer and the patent information professional, and this helps build a common language to enable positioning patent documents in the correct matrix cells. The matrix enables planning of new innovation areas and may suggest cooperation partners or acquisition targets.
Use of prediction methods for patent and trademark applications in Spain	World Patent Information	Volume 34, Issue 1	Pages 19-29	2012	Antonio Hidalgo, Samuel Gabaly	https://doi.org/10.1016/j.wpi.2011.09.001	Abstract: Patent and trademark offices which run according to principles of new management have an inherent need for dependable forecasting data in planning capacity and service levels. The ability of the Spanish Office of Patents and Trademarks to carry out effective planning of its resource needs requires the use of methods which allow it to predict the changes in the number of patent and trademark applications at different time horizons. The approach for the prediction of time series of Spanish patents and trademarks applications (1979/2009) was based on the use of different techniques of time series prediction in a short-term horizon. The methods used can be grouped into two specific areas: regression models of trends and time series models. The results of this study show that it is possible to model the series of patents and trademarks applications with different models, especially ARIMA, with satisfactory model adjustment and relatively low error.
Patent prosecution highways (PPHs): Their first five years and recent developments seen from Japan	World Patent Information	Volume 34, Issue 4	Pages 279-283	2012	Toshinao Yamazaki	https://doi.org/10.1016/j.wpi.2012.07.001	Abstract: The emergence and current situation regarding PPHs are described, together with the basic features of these systems. Their benefits in terms of speed, quality and cost are discussed. The three options of (i) the numerous bilateral PPH agreements, (ii) the PCT/PPH, and (iii) the Japanese PPH Mottainai are outlined, together with some statistics, especially in relation to the JPO/USPTO agreements.
Beyond intellectual property ? Matching information protection to innovation	World Patent Information	Volume 34, Issue 1	Page 62	2012	Jane List	https://doi.org/10.1016/j.wpi.2011.10.005	n/a
The IP and patent information scene in Mexico	World Patent Information	Volume 35, Issue 1	Pages 31-37	2013	David Fernandez-Alvarez	https://doi.org/10.1016/j.wpi.2012.09.010	Abstract: The development of IP in Mexico over recent years, to bring the system more closely into line with other industrialized nations is first described, together with some statistics on IP filings. The main thrust of the article is a description of the key sources of IP information in Mexico, mostly provided by the Mexican Institute of Industrial Property (IMPI). These sources include SIGA, VDoc, Marcanel and Pymetec, and provide a wide range of both historical and current data on most forms of industrial property. Efforts to disseminate the value of IP and IP information are also covered, in the context that much better use of both would be desirable in Mexico.
Patenting and licensing by Spanish firms: Available survey evidence	World Patent Information	Volume 35, Issue 4	Pages 296-304	2013	Catalina Martinez, Gerardo Penas	https://doi.org/10.1016/j.wpi.2013.06.003	Abstract: This paper presents the results of the OEPM (Spanish Patent and Trademark Office)/OECD (Organisation for Economic Co-operation and Development) survey on the economic and financial uses of patents carried out in 2008 among Spanish business applicants of OEPM patents. It also summarizes evidence from previous surveys. All available information indicates that only a few Spanish firms holding patents license them out. Results from the OEPM/OECD survey also reveal that obtaining public support is the first financial use of patents for Spanish firms. Responses to the same OECD questionnaire by EPO patent applicants from several European countries are quite different: licensing out is an extended practice among EPO patent holders from different countries, including Spain, and convincing venture capitalists and private investors are their two most important financial uses of patents. In our view this suggests that there are significant differences across European countries as regards the development of national technology markets and research from international surveys are driven by responses from the largest and more developed countries. The drivers and actors in markets for patents that only protect inventions nationally may be quite distinct from those in markets for patents that protect inventions regionally, such as EPO patents within Europe.
Integration of software tools in patent analysis	World Patent Information	Volume 35, Issue 2	Pages 97-104	2013	Piotr Masiakowski, Sunny Wang	https://doi.org/10.1016/j.wpi.2012.12.010	Abstract: Modern patent information analysis requires, in addition to profound domain knowledge, sophisticated and specialized computer software tools. Integration of such resources can be a challenging task. In this paper we discuss advantages and pitfalls of combining multiple software resources in a large patent landscaping project, using a custom-configured patent software integration tool.
Successful European oppositions: Analysis for the patent information professional	World Patent Information	Volume 35, Issue 2	Pages 126-129	2013	Aalt van de Kuilen	https://doi.org/10.1016/j.wpi.2012.12.002	Abstract: European patents can be opposed within nine months after grant. The success rate of oppositions seems to be dependent on the technical area. A complete revocation of a granted patent may become the result of a successful opposition. The main reasons for revocation are lack of inventive step (43%), lack of novelty (22%) or added subject matter (11%). From the patent information perspective, an opposition search against a European Patent needs, therefore, be focused primarily on inventive step, and also novelty.
Patent documents as a technology mapping tool in the Brazilian energy sector focused on the oil, gas and coke industries	World Patent Information	Volume 35, Issue 1	Pages 42-51	2013	Adriana Brigante Deorsola, Alexandre Dantas Rodrigues, Carla Maria Salerno Polato, Luiz Claudio de Oliveira Dupim, Rosana Marques Amorim, Sonia Girardi Bencke, Eduardo Winter	https://doi.org/10.1016/j.wpi.2012.10.006	Abstract: The present paper aims at mapping the Brazilian technologies in the oil, gas and coke industries. The research was done on the basis of the patent applications filed by residents at the National Institute of Industrial Property of Brazil (INPI) in the period from 1970 to 2007. The research has shown the technologies involved in the filings of patent applications that had had the greatest interest, over the period studied, were those related to IPC subclasses C10L, C10B and C10G. The subclass C10L was the subclass with the highest number of patents applications filed, highlighting groups C10L 1, liquid carbonaceous fuels (gasoline, diesel, biodiesel and ethanol), and C10L 5, solid fuels (source mineral, non-mineral-vegetable and animal). In the subclass C10B, the group C10B 49, destructive distillation of solid carbonaceous material, showed the highest number of patent applications filed. In the Subclass C10G, the group C10G 11, processes of catalytic cracking, showed the largest number of deposits of patent applications. It is noteworthy that 40% of deposits of patent applications occurred between 2000 and 2007.
The future of information tools and technology ? Our joint effort	World Patent Information	Volume 35, Issue 2	Pages 93-94	2013	Willem Geert Lagemaat	https://doi.org/10.1016/j.wpi.2012.12.007	n/a
Canadian patent profile: Some explorations in patent statistics	World Patent Information	Volume 35, Issue 3	Pages 201-208	2013	Rashid Nikzad	https://doi.org/10.1016/j.wpi.2013.03.001	Abstract: The aim of this paper is to present the patent profile of Canada and Canadian inventors. Different measures of patent statistics have been used to compare Canada's profile with that of other countries. Also, the patent intensity of technologies and industries has been presented. Comparing Canada's patent profile with that of other countries using different patent statistics suggests that Canadian companies do not utilize patents as much as their counterparts in other industrialized countries. This is despite the fact that IP protection in Canada is not an obstacle to innovation according to the surveys of Canadian innovative companies.
Patents and the practice of open science among government research institutes in Malaysia: The case of Malaysian Rubber Board	World Patent Information	Volume 35, Issue 3	Pages 235-242	2013	Ida Madieha Azmi, Rokiah Alavi	https://doi.org/10.1016/j.wpi.2013.03.005	Abstract: In Malaysia, public universities and government research institutes (GRIs) are the main source for new technologies and innovations in the agricultural sector. Evidence shows that IP protection has become a norm for universities and GRIs throughout the world. The increased patenting and commercialization activity, however, brings with it concerns over limitation of the right for follow-up research, changes the norms of open-science and constrains open innovation in industry. The ensuing question is: will the increase in patenting activities by GRIs affect the patterns of knowledge transfer from the institute to the upstream, middle-stream and downstream industries? How do the GRIs decide which agricultural innovations are to be made available in the public domain and which are to be patented and made accessible for a fee? This paper first examines the central concerns surrounding open science in GRIs in relation to the output of R & D funded by the Malaysian government. The paper then explores the patent practice of the Malaysian Research Board (MRB) as a case study. MRB is chosen specifically as it is one of the oldest GRIs and the pioneer in patenting in Malaysia. Among the issues that are dealt with in this paper are: how does the Board balance its role in conducting research for the good of the society as opposed to claiming proprietary rights? How does the Board diffuse the R & D results to the small-scale farmers? What are the modes of commercialization adopted by them? The paper ends by suggesting that a balance between open science and patents must be maintained by the MRB in order to move the economy up the value chain.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Toxicity data of therapeutic nanoparticles in patent documents	World Patent Information	Volume 35, Issue 2	Pages 110-114	2013	Catherine A. Schutz, Lucienne Juillerat-Jeanmeret, Christian Soltmann, Heinz Mueller	https://doi.org/10.1016/j.wpi.2012.12.008	Abstract: Therapeutic nanoparticle systems have become increasingly important in the pharmaceutical sector during the last decade. Many of these systems are either already on the market or in preclinical or clinical studies. In order to assess the impact of these systems on biological organisms, regulatory agencies and other institutions actively seek to collect data related to the safety and toxicity of these nanoparticles. While toxicity data is to some extent available for nanoparticles already on the market or in clinical trials, there continues to be a significant demand for data on nanoparticles in the early developmental stages. Such data would allow researchers and governmental agencies to assess in advance the possible impact of the next generation of nanoparticle-based drugs. This study shows that patent documents can be a valuable source for the information required.
The Large Aperture Optical Elements patent search system based on Domain Knowledge Organization System	World Patent Information	Volume 35, Issue 3	Pages 209-213	2013	Liang Tian, Yang Zhiping, Hu Zhengyin	https://doi.org/10.1016/j.wpi.2013.04.007	Abstract: Effective use of patent information provides a multiplier effect in product design and new technology development. This paper reports research on using an open-source extraction tool?General architecture for text engineering (GATE) and word split software?from the Institute of Computing Technology and Chinese lexical analysis system (ICTLAS) to assist the expert in acquiring and marking of feature word groups from the abstracts and claims of the patents on Large Aperture Optical Elements. Then, it used the experts feature word groups, which were formalized by INSPEC control words, to construct a Domain Knowledge Organization System (DKOS). Base on the DKOS, a retrieval module of patent information is constructed, which has practical significance for designers to design products and develop new technology. The system is a visual application system, for example, which can filter patent documents by topics and retrieve relevant topics via sample text.
The triangle team approach: Collaboration to provide technologically diverse customers with qualitative patent information research	World Patent Information	Volume 35, Issue 1	Pages 52-57	2013	Bart Lindekens	https://doi.org/10.1016/j.wpi.2012.10.008	Abstract: Patent information service activities cannot always easily be outsourced. External patent information consultants, in spite of their expertise, are sometimes not satisfying the customer's need for high quality searches. The cause of the inadequacy may be the consultant's lack of in-depth knowledge of a particular field of technology and insufficient acquaintance with the subject of study. Customers can cope with this by training the consultant and intensely reviewing the first assignments. If however the customer has limited knowledge of how patent information research is done, training and instructing the consultant and assessing performance may not be practicable. This article illustrates a collaborative approach that a technical consulting organisation which is also a PATLIB centre, having available a multitude of technical research consultants and a small team of patent information specialists, can apply, in association with the customer's own technical and/or product expert, to deal with these possible shortcomings. Sirris launched a pilot project to develop and implement a collaborative model. The article gives an account of how the model was created and implemented, and describes the lessons learnt after 2 years in?use.
Electric vehicle technology in China: An exploratory patent analysis	World Patent Information	Volume 35, Issue 4	Pages 305-312	2013	Li-feng Yang, Jin-hua Xu, Peter Neuhausler	https://doi.org/10.1016/j.wpi.2013.06.002	Abstract: Currently, the electric vehicle (EV) technology is of great interest in China and around the world. This paper first conducts a comprehensive review of China's EV policies and the development of China's EV technology, and then analyses the domestic patent situation of China's EV technology and its international competitiveness by adopting the recently developed concept of transnational patents. The results show an outstanding performance for China's EV technology in the domestic market, but a relatively poor performance in the international markets. Finally, several main factors causing the inconsistent performance of China's EV technology are proposed and discussed.
Predictive accuracy of survey-based forecasts for numbers of filings at the European Patent Office	World Patent Information	Volume 35, Issue 3	Pages 187-200	2013	Felix Dannegger, Peter Hingley	https://doi.org/10.1016/j.wpi.2013.04.006	Abstract: This study examines the predictive accuracy of the forecasts for patent filings from a sequence of annual surveys of patent applicants at the European Patent Office, particularly regarding the extent to which applicants could foresee the effects of the 2008/2009 recession. It also investigates the possibilities for new methods to calculate forecasts for survey results. Applicants were selected randomly each year, and opinions were sought about numbers of filings in the previous year, the current year and the following two years. It is found that two and three year predictions were better for worldwide first filings than for EPO Total filings (sum of European direct and PCT International Phase filings, excluding divisional filings), and differences are established between main blocs of residence of the applicants in this regard. An investigation is made to examine the possible benefits of indirect transfer forecasts for total EPO filings via worldwide first filings, and of indirect forecasts of PCT regional phase entries from PCT international phase filings. Although the recession was not well anticipated by the applicants, it was slightly better anticipated in terms of worldwide first filings and PCT regional phase entries, than for total EPO filings. A combination approach may be appropriate for future surveys. Suggestions are made for the further development of analysis methods that can be tried out on future surveys.
Applicability and application of machine translation quality metrics in the patent field	World Patent Information	Volume 35, Issue 2	Pages 115-125	2013	Laura Rossi, Dion Wiggins	https://doi.org/10.1016/j.wpi.2012.12.001	Abstract: This article provides a guide for readers interested in deepening their knowledge of the strengths and weaknesses of the different machine translation (MT) quality metrics, and presents a methodology and tooling developed respectively by LexisNexis® and its MT provider Asia Online® as part of a human quality assessment framework for patent translation. The methodology is designed specifically to compensate for the shortcomings of automated evaluation.
Deciphering innovation: An exploration of USPTO patents granted to Iranian inventors	World Patent Information	Volume 35, Issue 4	Pages 313-320	2013	Alfred Sarkissian	https://doi.org/10.1016/j.wpi.2013.06.005	Abstract: Since nearly a decade ago, Iranian policy circles have declared innovation and development of science-based industries as a priority area. This paper utilizes the emerging Iranian patent stock in the USPTO to ascertain progress on this front. Results indicate that there are policy traces in the emerging patent portfolio as probed by sponsorship statements in 28% of all patents. However, there is little evidence of technological specialization. Breaking down the portfolio into foreign-assigned, Iranian-assigned, unassigned and Iranian-sponsored patents, indicates that foreign-assigned, followed by Iranian-assigned patents are of higher quality and potential value. Nearly half of the patents are unassigned and 40% are assigned to foreign entities. Lack of ownership assignment can be a hurdle to effective exploitation, defense and maintenance of patents. The analysis is concluded by relevant policy lessons.
IPR training and tools for better handling of IPR topics by SMEs	World Patent Information	Volume 35, Issue 3	Pages 214-223	2013	Udo Gennari	https://doi.org/10.1016/j.wpi.2013.04.002	Abstract: The handling of IPR by SMEs is on average still quite poor, leading to missed chances of proper protection, risks due to possible patent infringements and ignorance of the vast pool of available technical information and potential innovation triggers provided by the many million patent documents accessible using patent searches. Existing IPR tools are often devised for larger companies and genuine IPR experts, and some tools are often considered by SME personnel to be difficult to handle and therefore are little used at the SME level. Therefore, the approach of a funded project together with SMEs as intended users has been undertaken in Austria. Based on a mutually defined standardised innovation process according to the stage-gate model, seven valuable yet easy-to-handle IPR tools have been developed, ranging from a guideline to patent searches to a decision guidance for the frequently encountered hard choice between patent and secret know-how. The seven free-of-charge IPR tools, useful in typical situations faced also by SMEs, such as requested cost prediction before applying for a patent, are explained and their benefits highlighted. The IPR training based on the demonstration of these tools and practical exercises using them is described and the lessons learnt by this approach are summarised.
Supporting invention and innovation in Central Finland: Inspiring IP awareness	World Patent Information	Volume 35, Issue 2	Pages 105-109	2013	Jouni Hynynen	https://doi.org/10.1016/j.wpi.2013.01.006	Abstract: The substantial problems that exist in the dissemination of the message about the potential value of all aspects of intellectual property to entrepreneurs and SMEs are explored, in the specific context of the Central Finland region. A case study on existing levels of IP awareness showed the extent of the problems. The article then describes the ways in which this issue has been addressed, including the production of a free single page guide helping users to sharply focus on the link between key business activities and strategies and the value of IP in this context.
Looking for insights ? Quality control initiatives for enhancing patent searches	World Patent Information	Volume 35, Issue 1	Pages 3-7	2013	John Endacott, Robert Poolman	https://doi.org/10.1016/j.wpi.2012.09.005	Abstract: Measuring the quality of patent searches is inherently difficult and poses many challenges. Plausible reasons for this may include the length of the patenting process, and the true value and quality of a search can often not be realised for many years after a search has been conducted. Opportunities are there, however, for searchers to take the initiative by seeking to enhance the quality and comprehensiveness of the searches they perform through different approaches that may be integrated into their day-to-day workflow. While the primary aim of these approaches is to ultimately improve the quality of searches, the insights derived serve to benefit all searchers in the work they do, regardless of their experience, and build a collective team spirit.
Addendum to "Bennet Woodcroft ? Patent information pioneer"	World Patent Information	Volume 35, Issue 2	Page 141	2013	Brian Spear	https://doi.org/10.1016/j.wpi.2013.01.002	n/a
Optimization of prediction methods for patents and trademarks in Spain through the use of exogenous variables	World Patent Information	Volume 35, Issue 2	Pages 130-140	2013	Antonio Hidalgo, Samuel Gabaly	https://doi.org/10.1016/j.wpi.2012.12.009	Abstract: An accurate forecast of patent and trademark application filings is strategic for resource planning at the Spanish Patents and Trademarks Office and other patent offices, national and supranational. The need for reliable forecasts of patents and trademark application filings has been accentuated by the current situation of budgeting rationalization imposed by the economic crisis. In this study we have evaluated the suitability and effectiveness of different methodologies for advanced data analysis to predict the number of national patent and trademark applications in the short and medium terms (2011-2014), including the use of exogenous variables or predictors which help to understand the changes in these variables. The inclusion of exogenous variables which explain the behavior of patent and trademark application filings, in particular the investment in R&D and GDP, and the use of advanced predictive analysis techniques, amongst which the most notable are Polynomial Distributed Lags and Intelligent Transfer Function models, have all achieved an improvement upon the prediction and modeling power possessed by the models formerly used to predict trademark and patent series based only on the analysis of time series.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Evaluating the effectiveness of keyword search strategy for patent identification	World Patent Information	Volume 35, Issue 1	Pages 20-30	2013	Zhongquan Xie, Kumiko Miyazaki	https://doi.org/10.1016/j.wpi.2012.10.005	Abstract: The great usage of patent data in management of technology and innovation highlights the significance of patent identification. For identifying patents related to cross-disciplinary or integrated technologies or products that are emerging and cannot be clearly defined through patent classes or no definite related patent class exists in the patent system, keyword search is an appropriate identification method. However, literature has not explicitly addressed the effectiveness evaluation of keyword search strategy for patent identification, namely which parts of patent information (title, abstract, claims and description) should be used and how to select effective keywords to achieve a high level of effectiveness. This paper tries to fill this gap through evaluating the effectiveness of keyword search strategies of using different parts of patent information with different clusters of keywords, in the case of automotive software related patents issued by the USPTO. Clusters of keywords are selected through evaluating the effectiveness of each keyword by measuring recall and precision. Effectiveness of keyword search strategies of using different parts of patent information is evaluated with the indicators of type I error (missing patents that should be identified) and type II error (retrieving irrelevant patents). The results show that the most effective method of identifying patents in a specific domain through keyword search is using the patent information in the title, abstract and claims. This paper provides a principle of keywords selection for patent identification by using specific criteria of recall and precision.
Markush structure searching by information professionals in the chemical industry ? Our views and expectations	World Patent Information	Volume 35, Issue 3	Pages 178-182	2013	Peter Geyer	https://doi.org/10.1016/j.wpi.2013.05.002	Abstract: Markush structures are a special representation of the chemical compounds covered in patent documents. Due to their highly generic nature they are more difficult to index and search than specific chemical structures since they require special indexing and search features to make them searchable. Only a few databases exist that offer such features. The currently available indexing systems have been developed mainly in the 1960s to the 1980s, have not been majority enhanced since then and their future seems somewhat uncertain. However, due to the fact that such Markush systems index unique information describing the chemistry protected by patent claims they are a necessary and indispensable information source for patent information professionals in the chemical industry in order to be able to support important business processes in chemical companies. Therefore we at BASF see a clear need to keep providing and also to keep developing such systems in the future.
The first steps in developing machine translation of patents	World Patent Information	Volume 35, Issue 3	Pages 183-186	2013	L.G. Kravets	https://doi.org/10.1016/j.wpi.2013.02.002	Abstract: The TSNIIPI MT experimental system, developed in 1963/1966, was focused on the translation of publications of the US weekly "Official Gazette, specifically the first paragraphs of patent claims. These claims are characterized by an abundance of difficult to grasp multicomponent terminological combinations and by a specific syntactic structure of unusually long sentences containing up to several hundred words. The system's algorithm performed the segmentation of the sentences, and the identification and structural analysis of multicomponent word groups necessary to synthesize the corresponding Russian equivalents.
Knowledge dissemination patterns in the information retrieval industry: A case study for automatic classification techniques	World Patent Information	Volume 39	Pages 50-57	2014	Ricardo Eito-Brun	https://doi.org/10.1016/j.wpi.2014.06.003	Abstract: Patents provide valuable information to identify flows in the transfer of technical knowledge and assess the innovation capabilities of the actors involved in different industries. Patent citations are also recognized as a valid tool to measure the impact of innovations and to identify key influencers in diverse activity sectors. This study analyzes a collection of U.S. patents granted in the period between 1990 and 2012 for the subject "automatic document clustering and classification", a key technology within the Information Retrieval and Text Mining disciplines. The purpose of this research is to identify ? using citation analysis?? the most productive and influential companies and journals, and the patterns followed in the transfer and sharing of technical knowledge. The paper identifies the most productive organizations (those that have been granted a higher number of patents) and those with a higher impact (organizations whose patents have received a major number of citations), and compares the generated rankings with those obtained using traditional bibliometric indicators. The conclusions provide an overview of the innovation landscape in the area of study, and suggest to which extent bibliometric indicators match the conclusions obtained after analyzing productivity and impact using patent citation.
A literature review on the state-of-the-art in patent analysis	World Patent Information	Volume 37	Pages 3-13	2014	Assad Abbas, Limin Zhang, Samee U. Khan	https://doi.org/10.1016/j.wpi.2013.12.006	Abstract: The rapid growth of patent documents has called for the development of sophisticated patent analysis tools. Currently, there are various tools that are being utilized by organizations for analyzing patents. These tools are capable of performing wide range of tasks, such as analyzing and forecasting future technological trends, conducting strategic technology planning, detecting patent infringement, determining patents quality and the most promising patents, and identifying technological hotspots and patent vacuums. This literature review presents the state-of-the-art in patent analysis and also presents taxonomy of patent analysis techniques. Moreover, the key features and weaknesses of the discussed tools and techniques are presented and several directions for future research are highlighted. The literature review will be helpful for the researchers in finding the latest research efforts pertaining to the patent analysis in a unified form.
Why do firms give away their patents for free?	World Patent Information	Volume 37	Pages 19-25	2014	Nicole Ziegler, Oliver Gassmann, Sascha Friesike	https://doi.org/10.1016/j.wpi.2013.12.002	Abstract: Within the trend of increasing patent commercialisation and open innovation, a recent phenomenon where firms give away their patents free of charge can be observed. This seems contradictory to the original intention of the patent system (enabling firms to create temporary monopolies to appropriate returns from their R&D investments). Consequently, this paper explores why firms make their patents available for free and which benefits they may gain from this behaviour. Adopting the open source software phenomenon as a background and using firm data from 26 patent release cases, we identify a typology consisting of four main types of 'free patent releases': profit making, cost cutting, innovation catalysing, technology providing. Further, we discuss the motives of these firms to offer their patents as 'open source'. We find that firms may obtain valuable technological input for subsequent innovations as well as social benefits in return for their free patent release.
Internal marketing of the patent information team in the corporate environment	World Patent Information	Volume 36	Pages 16-21	2014	Margaret M. Rainey	https://doi.org/10.1016/j.wpi.2013.09.001	Abstract: This article is a personal reflection by the author on the need for those patent information professionals working within large corporations to market themselves within their organisation, and "have a say" in the patent information team and the patent information strategy. The author adds to the organisation. It looks at why such internal marketing is necessary, and suggests some methods of achieving it successfully.
Canadian worldwide patent activity: An industrial level analysis	World Patent Information	Volume 38	Pages 12-18	2014	Rashid Nikzad	https://doi.org/10.1016/j.wpi.2014.03.001	Abstract: The objective of this paper is to find the determinants of Canadian international patent activity at the industrial level. The paper achieves this goal in two steps. In the first step, Canadian worldwide patent applications are mapped into industry classifications. The paper draws on three different methods (Johnson, 2002 [13]; Schmoch et al., 2003 [22]; and Lybbert and Zolas, 2013 [16]) and two different data sources (EPO PATSTAT and OECD Triadic patent families) to do this task. In the next step, Canadian patent applications abroad are modeled by using a modified gravity model. The empirical results suggest that the industrial R&D and value added of Canada and destination countries as well as industrial exports are significant factors of Canadian patent activity abroad.
Patent landscape analysis: A methodology in need of harmonized standards of disclosure	World Patent Information	Volume 39	Pages 3-10	2014	Emily Grant, Megan Van den Hof, E. Richard Gold	https://doi.org/10.1016/j.wpi.2014.09.005	Abstract: Statistical analyses based on patent data appeal to researchers and policy-makers from diverse fields because patents can serve as quantitative indicators of phenomena that are difficult to measure, including innovation, knowledge spillovers, collaboration, and technological space. This article conducts a comprehensive literature review of studies employing patent landscape analysis/assessing research objectives, sources of patent data, dataset sizes, the structured or unstructured nature of data, and modes of data interpretation?in order to provide an overview of methods of patent analysis across research fields. This article concludes that, while studies in certain fields seem to follow consistent norms of methodological disclosure, these norms are not universal. It emphasizes a need for greater awareness of the limitations of patent data, for improved transparency through harmonized standards for the disclosure of patent methodology, and for cross-disciplinary sharing of best practices in order to develop methodologies tailored to specific research objectives.
Legal Validity Metrics for Patent Offices and Law Firms ? Recycling of Patent Court Appeal Decisions for Quality Management	World Patent Information	Volume 37	Pages 26-32	2014	Christoph Laub	https://doi.org/10.1016/j.wpi.2014.01.002	Abstract: In all relevant patent systems an adversely affected party has the possibility to appeal the patent office's decision in front of a patent court or Board of Appeal (BoA). Within a European context, the EPO is, in a way, even engaging in de facto competition with national patent offices. As an example, the German Patent and Trademark Office (DPMA) provides quasi identical patent products and offers the same kind of legal recourse to the German patent court (BPatGer) for these products. Both offices offer an opposition procedure which is open for appeal, and also in the case of a refusal, both offices offer the possibility of appeals. Thus, the EPO Boards of Appeal are engaged in making decisions every year on around 2000 cases?and, e.g., the BPatGer on 600 cases regarding the legal validity of the first instance's work. It is thus remarkable that, so far, nobody has systematically included the work of the patent courts in a statistical legal validity evaluation in the context of the Patent & Trademark Offices' (PTOs') quality assurance systems. Since there is obviously a need to establish a common standard for the comparison of first and second instance legal teachings in patent law, a methodology for comparative legal validity analysis is proposed in this paper. I have tested and optimised the approach while working as a project manager at the European Patent Office, based on analysis of 2300 appeal decisions from seven annual batches.
South Asian Intellectual Property Knowledge Network	World Patent Information	Volume 39	Pages 69-72	2014	Aditi Chaudhary, Siddhartha Dulakakhona, Tarakanta Jana	https://doi.org/10.1016/j.wpi.2014.06.008	Abstract: The Patent Informatics Division project "Information Driven Innovation in South Asian Association of Regional Cooperation (SAARC) countries for Knowledge Development and Capacity Building" has a dual role of providing patent informatics services and capacity building in SAARC countries by offering short term training programs. Under the purview of the project the website "South Asian Intellectual Property Knowledge Network" (SAIPKN) has been started to act as a platform to provide patent informatics services, and to promote capacity building by offering e-learning opportunities on Intellectual Property Rights (IPR). The informatics services offered through the website are prior art search services and patent landscape analysis. Through the e-learning module of the website users can access study materials on IPR.
Strategic patenting in the upstream oil and gas industry: Assessing the impact of the pre-salt discovery on patent applications in Brazil	World Patent Information	Volume 39	Pages 58-68	2014	Gabriel Marcuzzo do Canto Cavaleiro, Luiz Antonio Joia, Ada Cristina Goncalves	https://doi.org/10.1016/j.wpi.2014.04.003	Abstract: For most of its history, Brazil needed to import oil to complement its internal production to supply the internal demand. However, in 2007, the Brazilian Federal Government announced the discovery of huge hydrocarbon resources in the pre-salt layer of the country's Southeastern coast. This study examines the impact of this discovery accomplished by Petroleo Brasileiro S.A. (Petrobras) on patent applications in Brazil associated with upstream oil and gas technologies. Then, this article provides empirical evidence that the pre-salt discovery significantly affected patent strategizing of Multi-Nationals Companies (MNCs) operating in the upstream oil and gas industry, thereby generating a boom in patent filings in Brazil from the official pre-salt announcement onwards.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Academic inventions and patents in the Netherlands: A case study on business sector exploitation	World Patent Information	Volume 38	Pages 27-32	2014	Peter van Dongen, Jos Winnink, Robert Tijssen	https://doi.org/10.1016/j.wpi.2014.03.002	Abstract: This paper describes a new methodology to identify patent applications based upon research at nine universities and three university medical centers in the Netherlands and a case study elaborating subsequent, scientifically research based, IP exploitation in several sectors. We address the identification and utilization of the intellectual property by domestic business enterprises and start ups based upon patents from university research. A sophisticated semi-automated data collection heuristic was adopted to identify all relevant university-invented patent applications that were filed between 2000 and 2010. In total 2898 patent applications based upon scientific research at universities and related to university inventions were identified. For 952 of these university inventions patent applications were filed by the universities themselves. The total number of university based related patent applications represent 5% of the total volume of patent applications from Dutch origin. A subsequent survey among companies exploiting university research based IP, was carried out to gather information on their actual use of their IP in terms of manpower involved in product or market development and estimated monetary value of the patents. 78 companies responded to this survey. The main findings reveal that a variety of IP exploitation strategies has been used. Overall, more than 50% of the patents still wait to be used for further development and innovations. The number of jobs created by spin offs from university research institutes is approximately 9500 jobs over a period of 10 years. Average revenues from these patents amounted to ? 42,000. Several findings from our small-scale national survey on patent exploitation with regards to use and monetary values are in line with general results from the large-scale European PatVal survey and the APE-INV survey.
The patent legal system in Iraq: The path to efficiency of its statutes	World Patent Information	Volume 36	Pages 32-35	2014	Nabeel Mahdi Althabawi, Zinatul A. Zainol	https://doi.org/10.1016/j.wpi.2013.10.002	Abstract: Iraq is estimated to play a key economic role in the future of its region, and its patent system is a significant component in that industrial progress. This article outlines the Iraqi patent system to assess its worthiness as legal protection for industrial property: a brief history of the legal system in Iraq is also given with a focus on the history of the patent system. Three main issues are addressed in the patent system. Patentability is the first and the most significant issue in the patent system and is examined in some detail. The duration of protection is considered as the second point. The article explores compulsory licences in the third point. It also explains the currently limited availability of information on Iraqi patent applications and patents, and notes that electronic databases are being developed. In the last section of the paper, the efficiency of the patent legal system in Iraq as an instrument to protect industrial innovation is discussed.
An entrepreneurial, research-based university model focused on intellectual property management for economic development in emerging economies: The case of Bogor Agricultural University, Indonesia	World Patent Information	Volume 36	Pages 22-31	2014	Jane G. Payumo, Prema Arasu, Anas Miftah Fauzi, Iskandar Zulkarnaen Siregar, Dini Noviana	https://doi.org/10.1016/j.wpi.2013.11.009	Abstract: Higher education institutions in emerging regions of the world are increasingly expected (largely by their governments and community) to promote regional economic development and national competitiveness. This case study on one of the prominent academic universities in Indonesia ? Bogor Agricultural University (Institut Pertanian Bogor, IPB) ? highlights its successes and lessons learned in managing intellectual property as an entrepreneurial research-based university. This analysis of IPB provides general and specific insights for university administrators, researchers, and policy makers, especially in emerging economies, on appropriate strategies and measures in promoting synergies between research, entrepreneurialism and technology commercialization. The model provides strategies to maximize university research outputs, knowledge transfer and innovation to empower regional communities, and promote strategic and transformational partnerships, private sector engagement and economic growth opportunities for both the institution and the region.
Leveraging text analytics in patent analysis to empower business decisions ? A competitive differentiation of kinase assay technology platforms by I2E text mining software	World Patent Information	Volume 39	Pages 24-34	2014	Yun Yun Yang, Thomas Klose, Jonathan Lippy, Cynthia S. Barcelon-Yang, Litao Zhang	https://doi.org/10.1016/j.wpi.2014.09.002	Abstract: Leveraging available technologies for high-throughput screening (HTS), to enable the rapid delivery of comprehensive data packages for drug discovery programs, is a primary goal in developing new molecular entities for clinical applications. Pharmaceutical companies like Bristol-Myers Squibb (BMS) must constantly evolve their assay methods to ensure an effective and timely impact to business. This article is focused on a novel three step approach, using Linguamatics I2E text analytics software to mine the full text of patents, to identify (1) kinase assay technology information, and (2) kinase group information that is associated with therapeutic areas for drug screening.
Forward searching ? A complement to keyword- and class-based patentability searches	World Patent Information	Volume 37	Pages 33-38	2014	Olivier Couteau	https://doi.org/10.1016/j.wpi.2014.01.007	Abstract: Patent searches are commonly carried out using keyword- and/or class-based search strategies. The objective of this paper is to present a complementary technique to these traditional strategies ? "forward searching". Starting from a known and relevant document and looking at the documents citing this known document, ? the "forward citations" ? it is possible, by indexing these citing documents by time, author name or other bibliographical parameters, to retrieve more relevant documents. Forward searching here is further extended using citation analysis to find documents technically related to the known document. The benefits of forward searching and citation analysis, and the most convenient tools currently available online for implementing these techniques, are highlighted. Based on the advantages provided by these online tools, an attempt is made to show which attributes an "ideal" search platform should exhibit.
Identifying patent conflicts: TRIZ-Led Patent Mapping	World Patent Information	Volume 39	Pages 11-23	2014	Zheng Li, Mark Atherton, David Harrison	https://doi.org/10.1016/j.wpi.2014.07.002	Abstract: This paper presents a novel method of patent mapping for visualising conflicts between patent claims that incorporates the Theory of Inventive Problem Solving (TRIZ). The method uses TRIZ engineering parameters as the criteria for evaluating dissimilarities between patent claims, producing a visualisation based on Multi-Dimensional Scaling (MDS) that can be compared with legal judgments. The advantages of the method are that it (a) reduces evaluation complexity by transforming claim-to-claim comparisons into claim-to-criteria comparisons, and (b) provides a means of comparing judgment standards between different legal authorities in mechanical engineering terms. Reliability and validity of the method are tested through focus groups using a case study on aircraft seats. The scope of the method is limited to the field of mechanical inventions.
Identifying the patent trend, licensing pattern and geographical landscape analysis of the Council for Scientific & Industrial Research (CSIR) of India between 2000 and 2011	World Patent Information	Volume 38	Pages 42-49	2014	Dara Ajay, Abhay T. Sangamwar	https://doi.org/10.1016/j.wpi.2014.03.006	Abstract: The article analyses trends and patterns of the Indian Council for Scientific & Industrial Research (CSIR)'s, national and international patenting activities which are In-force as of August, 2013. CSIR was chosen as being India's largest public funded research and development (R&D) organization covering a wide canvas of scientific disciplines. The article reports on a decade of national and international patent filing and granting trends along with the number of active patents In-force and Patent Cooperation Treaty (PCT) filing patterns. In addition, the article discusses the geographical distribution and Right to Information (RTI) responses related to licensing activities of CSIR patents. The article reports the bibliometric study of patents from between 2000 and 2011, and for an easy understanding and a quick analytical view, the results are discussed in detail using various graphs and landscape bubble charts.
Do you know English? The challenge of the English language for patent searchers	World Patent Information	Volume 39	Pages 35-40	2014	Stephen van Duiken	https://doi.org/10.1016/j.wpi.2014.09.006	Abstract: The complex and inconsistent nature of the English language presents problems for patent searchers researching the prior art. This is true for native speakers as well as for those who use it as a second language. These problems include confusion in translations; "Patentese", the jargon used by patent attorneys; terminology, which can take time to be adopted; "faux amis", words which you think you know as they look identical to foreign words; the oddities of English spelling; multiple meanings for the same words; words that have opposite meanings; synonyms; Americanisms as different spellings and different words; words that are both nouns and verbs; compound nouns, which are often spelt as two words; spelling mistakes; and syntax. Conclusions suggest using broad classes together with keywords; looking for synonyms; allowing for two words in compound nouns; using adjacency operators; combining sets of results; and using citation searching as an additional search, especially if little is found, or the invention is difficult to describe. A thesaurus of recommended words and spellings would be useful if adopted by those preparing abstracts.
The role of essential patents as knowledge input for future R&D	World Patent Information	Volume 38	Pages 33-41	2014	Byeongwoo Kang, Kazuyuki Motohashi	https://doi.org/10.1016/j.wpi.2014.05.001	Abstract: Standards play a key innovation role in industries where a network effect prevails. A standard may contain important technological information that can serve as a basis of further innovation. This study empirically investigates how firms use essential patents as standard-driven technological knowledge for future R&D.
Patent maintaining and premature expiration of utility models in Taiwan	World Patent Information	Volume 38	Pages 57-61	2014	Rain Chen, Chia-Ling Feng, Kuan-Wei Chen	https://doi.org/10.1016/j.wpi.2014.03.003	Abstract: The most commonly seen patents are invention patents, utility models and design patents. Among them, utility models are the most controversial type. The purpose of utility models is to quickly protect creations of lower technological levels or with a shorter life cycle. Nonetheless, the most optimal length of the term of utility models remains an open question. Utility models in Taiwan are the focus of this study, and International Patent Classification (IPC) was used here for the random sampling of the utility models. The investigators discussed the granting of the utility model and the expiring of utility models prematurely in Taiwan over the past ten years (2003?2012). The results suggest that compared to other sections, Section A (human necessities) and Section E (fixed constructions) of IPC have a shorter term of utility model maintaining. Aside from a higher expiration rate, their utility model terms are on average just over 3 years. As for the Section H (electricity) and Section C (chemistry, metallurgy), their utility model terms are slightly longer than those of other utility model sections and the number of renewed cases are also greater. In addition to a lower expiration rate, the utility model terms of these two sections are sometimes longer than five years. The study results can perhaps also be used as a reference by countries interested in introducing the utility model for determining the term of utility models.
Methods of ranking search results for searches based on multiple search concepts carried out in multiple databases	World Patent Information	Volume 36	Pages 4-15	2014	Alain Materne, Gershon Sleightholme	https://doi.org/10.1016/j.wpi.2013.09.003	Abstract: If a patent prior art search produces several hundred results, it can be annoying when the best document turns out to be the last one. Ideally the most relevant search result should be brought to the top of the list. This article discusses the particular problems which searches for multiple concepts entail, explains what ranking is and compares some ways to rank, or reorder, search results. In particular, the article deals with a special technique which examiners at the European Patent Office (EPO) can use and which has been found to work well, especially when there are several search concepts and several technical fields to be searched. This ranking technique, called Horvath?Materne ranking or pivot ranking, is based on the assumption that the best documents will not only mention the search concepts in full-text databases, but will also mention at least some of the concepts in corresponding abstract databases. The more concepts present in the abstracts, the greater the probability that the document is relevant. In principle the technique could be used to rank results in any database where both full-text and abstracts are available. The technique can be broadened by including an automatic concept extraction.

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Considerations, concerns and recommendations in calculating patent expiry dates for United States patents	World Patent Information	Volume 37	Pages 14-18	2014	Frazer McLennan	https://doi.org/10.1016/j.wpi.2014.01.004 .	Abstract: Calculating United States patent expiries for continuing applications involves determining the earliest effective filing date, and is by no means straightforward, especially for chains of applications stretching over 20 years. The United States Patent and Trademark Office provides many definitive answers to the factors determining an expiry date, but leaves one as a great unknown, the earliest effective filing date. A summary of the requirements for claiming the benefit of an earlier filed application is provided, along with examples highlighting the difficulty experienced.
PerFedPat: An integrated federated system for patent search	World Patent Information	Volume 38	Pages 4-11	2014	Michail Salampassis, Allan Hanbury	https://doi.org/10.1016/j.wpi.2014.08.001 .	Abstract: We present PerFedPat, an interactive patent search system based on the federated search approach and the ezDL framework. PerFedPat provides core services to search, using a federated method, multiple online patent resources (currently Espacenet, Google patents, Patentscope and the MAREC collection), thus providing parallel access to multiple patent sources. PerFedPat hides complexity from the end user who uses a common single query tool for querying all patent datasets at the same time. PerFedPat provides cores services such as Boolean and fielded search, merging, grouping and filtering of results, and offers support for query history and search sessions. The second innovative feature of PerFedPat is that it has a pluggable and extensible architecture and it enables the use of multiple search tools which are integrated in PerFedPat. Currently tools are integrated for IPC classification search, faceted navigation, clustering of search results and machine translation queries. As a result the system is able to provide a rich, personalized information seeking experience for different types of patent searches, potentially exploiting techniques from diverse areas such as distributed information retrieval, semantic search, machine learning and human?computer interaction. The system is available for download from the internet.
Facilitated access to Iranian patent information	World Patent Information	Volume 37	Pages 43-47	2014	Seyed Kamran Bagheri	https://doi.org/10.1016/j.wpi.2014.02.003 .	Abstract: Until recently, the published patent information from the Iranian Patent Office was rather limited. There were no open-to-public databases or gazettes for Iranian patents. The only official statistics available on Iranian patents were the number of filed applications and granted patents in each year, published by the national Patent Office. Lately, however, there has been major progress as the Office has launched its first ever on-line searchable patent database. This paper gives a general overview of patent disclosure as specified in Iranian patent law and regulations. It then describes what used to be the only way to access patent bibliographic data in Iran. Next, it highlights the new promising initiative and introduces the new online database of the Iranian Patent Office and its search features. Finally, the paper looks at some recent policy initiatives and argues that the Iranian Patent Office is about to experience a major transition to a more efficient organization. Inter alia, this could pave the way for improved and timely access to accurate information on the patents registered in the country.
Brief history of the flat glass patent ? Sixty years of the float process	World Patent Information	Volume 38	Pages 50-56	2014	Marcio Luis Ferreira Nascimento	https://doi.org/10.1016/j.wpi.2014.04.006 .	Abstract: This paper deals with one of the single most important innovations made in Great Britain since World War II. It is certainly one of the greatest process inventions of the twentieth century. The float process is one of the most widely used methods for flat glass manufacturing as it ensures security, high quality and productivity. From a historical point this innovation was the beginning of a revolutionary change in the mass production of flat glass for the building and automotive sectors. More specifically this innovation eliminates the traditional operations of rolling, grinding and polishing the glass surface while creating a high quality and inexpensive flat glass product. The first patent was applied for on December 10th, 1953 by Pilkington and Bickerton. This paper presents a brief discussion from the 1960s in a historical perspective about this amazing discovery and the main patents related to it. More than 23,900 patents using the term "flat glass" have been filed around the world, according to the European Patent Office databases. These numbers just continue to grow as do total sales worldwide. Looking for titles using flat glass, we found 2,409 patents filed. Curiously, for the same period 1,131 patents were published with float glass in the title and just 3,995 with the term in the title or abstract. So, statistically, there are more published patents using the term 'flat' than 'float' glass process.
A novel approach to obviousness: An algorithm for identifying prior art concerning 3-D printing materials	World Patent Information	Volume 42	Pages 13-18	2015	Joshua M. Pearce	https://doi.org/10.1016/j.wpi.2015.07.003	Abstract: With the development and commercialization of the recyclebot (plastic extruders that fabricate 3-D printing filament from recycled or virgin materials) and various syringe pump designs for self-replicating rapid prototypes (RepRaps), the material selection available for consumers who produce products using 3-D printers is expanding rapidly. This paper provides an open-source algorithm for identifying prior art for 3-D printing materials. Specifically this paper provides a new approach for determining obviousness in this technology area. The potential ramifications on both innovation and patent law in the 3-D printing technological space are discussed.
Public disclosure of biological sequences in global patent practice	World Patent Information	Volume 43	Pages 12-24	2015	Osmat A. Jefferson, Deniz Kollhofer, Prabha Ajikuttira, Richard A. Jefferson	https://doi.org/10.1016/j.wpi.2015.08.005	Abstract: Biological sequences are an important part of global patenting, with unique challenges for their effective and equitable use in practice and in policy. Because their function can only be determined with computer-aided technology, the form in which sequences are disclosed matters greatly. Similarly, the scope of patent rights sought and granted requires computer readable data and tools for companies and the public, the primary data provided to the national patent offices and thence to the public, must be comprehensive, standardized, timely and meaningful. It is not yet. The proposed global Patent Sequence (PatSeq) Data platform can enable national and regional jurisdictions meet the desired standards.
Supporting SMEs' IP capabilities: Impact study of INPI pre-diagnosis through the use of the AIDA approach	World Patent Information	Volume 40	Pages 21-29	2015	Manon Enjolras, Daniel Galvez, Mauricio Camargo, Laure Morel	https://doi.org/10.1016/j.wpi.2014.11.001	Abstract: This article aims to evaluate the impact of a regional SME IP support programme in France led by the INPI (National Institute of IP) and the Lorraine regional government. The panel includes 150 regional SMEs. The data were collected through the use of the AIDA approach and a data analysis was carried out, including principal components analysis (PCA) and a hierarchical ascending classification (HAC). The data analysis shows that the INPI pre-diagnosis allowed enterprises to progress in their IP-management. The knowledge of IP and its issues increase very significantly and appear to influence the IP-related management of the companies studied.
Joseph Brahmah ? Engineer, inventor and prolific patentee	World Patent Information	Volume 40	Pages 51-53	2015	Brian Spear	https://doi.org/10.1016/j.wpi.2015.01.007	Abstract: One of the results of the First Industrial Revolution in GB (approx. 1750?1850) was the development of the modern patent system which was increasingly used effectively by entrepreneurs. Joseph Brahmah (1749?1814) was one of the most prolific pioneers in this field and his numerous engineering achievements are discussed in the light of his patents.
A dynamic log-linear regression model to forecast numbers of future filings at the European Patent Office	World Patent Information	Volume 42	Pages 19-27	2015	Peter Hingley, Walter Park	https://doi.org/10.1016/j.wpi.2015.07.002	Abstract: An econometric model is applied to forecast future levels of patent filings at the European Patent Office out to 2019, using historical data from 1990 to 2013 with 28 source country terms. Descriptors include Research and Development expenditures and Gross domestic product, where the latter is split into trend and business cycles components. The model is applied to logarithmically standardised data. The effects on the forecasts of additional future positive and negative stimuli to the GDP components are considered. Reasonable forecasting accuracy is found. Using a series of shorter historical data windows may give improved accuracy for short term forecasts.
Trademarks and the patent premium value: Evidence from medical and cosmetic products	World Patent Information	Volume 41	Pages 23-30	2015	Grid Thoma	https://doi.org/10.1016/j.wpi.2015.02.003	Abstract: The determinants of the premium value of patents for medical and cosmetic products are analyzed with respect to a complementary IP strategy such as trademarks. I discuss a novel method and database to gauge combinations of patent and trademark pairs regarding the same innovative project. The premium value is computed through a model of renewal decisions for the patent cohorts 1985?1990 that have been designated in the U.K. and Germany. After taking into the account several firm characteristics and patent indicators typically used in the literature, I find ample evidences that patent and trademark pairs are featured by higher valuations.
A comparison of official abstracts and enhanced abstracts for patent search	World Patent Information	Volume 43	Pages 25-49	2015	Alain Materne, Gershon Sleightholme	https://doi.org/10.1016/j.wpi.2015.09.003	Abstract: The official abstracts published together with many patent applications are freely available for search, e.g. using patent office websites such as Espacenet or search engines. Some service providers also offer, for a price, their own enhanced abstracts of patent applications. The authors propose a way of making an objective comparison between searching using the official abstracts and using the enhanced abstracts. The advantages offered by enhanced abstracts will be explained and include simple benefits such as saving time in finding the relevant prior art, and more intricate ones such as better suitability for ranking techniques.
Towards content-oriented patent document processing: Intelligent patent analysis and summarization	World Patent Information	Volume 40	Pages 30-42	2015	Soren Bruggmann, Nadjet Bouayad-Agha, Alicia Burga, Serguei Carrascosa, Alberto Caramella, Marco Ciaromella, Joan Codina-Filba, Enric Escorsa, Alex Judea, Simon Mille, Andreas Muller, Horacio Saggion, Patrick Ziering, Hinrich Schutze, Leo Wanner	https://doi.org/10.1016/j.wpi.2014.10.003	Abstract: In this article, we present an operational prototype of a workflow for intelligent patent document analysis and summarization that has been developed in the context of the R&D project TOPAS, partially funded by the European Commission. The workflow uses the GATE environment as infrastructure for document representation and algorithm integration. It contains, apart from several preprocessing tools, five modules for the individual aspects of patent analysis (entity recognition, lexical chain identification, invention composition derivation, segmentation, and claim ? description alignment) and a module for patent summarization. The workflow, which has been tested in different application settings, can be used as a standalone engine or as component within a more global patent processing line. Most of its modules can be also used separately.
CBK searching (chemistry-biology-keyword): Performing cross-discipline collaborative searches	World Patent Information	Volume 41	Pages 11-14	2015	Kimberly Miller, Seth Mendelson	https://doi.org/10.1016/j.wpi.2015.01.006	Abstract: A debate over whether a search is a chemistry or a biology search is becoming increasingly more frequent within search teams. The line between non-text chemistry and biology searching has become blurred in recent years. The appearance of "non-natural" amino acids and modified peptides, for example, has given rise to the questions: Is it a structure? Is it a sequence? Could it be both? It may not be a question of one or the other, but perhaps working with a colleague to bring the best possible answer to the client. Several examples clarify the line and present guidance when beginning a search. Consider the size of the molecule, how many amino acids are present and what the client needs in order to best cover all bases and create a more comprehensive search report.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Identifying and mitigating linguistic inequalities in the management of patent information in Europe	World Patent Information	Volume 40	Pages 43-50	2015	Michele Gazzola	https://doi.org/10.1016/j.wpi.2014.12.001	Abstract: The current language regime of the European Patent Office, based on three official languages (namely, English, French and German) entails different types of inequalities among European users of the European patent system. Such inequalities concern the distribution of translation costs borne by European applicants when they file a European patent application, and the costs to access patent information published by the Office. This article identifies and characterises inequalities occurring at the level of patent information management, and it discusses some possible measures to mitigate them. Three measures are proposed, that is, rationalising and harmonising the European patent information system, introducing tools to facilitate the retrieval of multilingual information, and enhancing the infrastructure for the dissemination of knowledge on the use of patent information. This article also presents some unpublished figures revealing that the European patent system is more multilingual than commonly believed. There is a mismatch between the current language regime of the Office and the actual needs of European innovators for multilingual patent information. These results confirm the relevance of new initiatives to manage patent information more effectively by reducing existing inequalities in this area.
Patent elasticity, R&D intensity and regional innovation capacity in China	World Patent Information	Volume 43	Pages 50-59	2015	Wei Yanhui, Zhang Huiying, Wei Jing	https://doi.org/10.1016/j.wpi.2015.10.003	Abstract: This study uses patent to measure regional innovative capacity and its changing tendency in mainland China. We provide an empirical analysis of patent applications from above-scale enterprises between 2008 and 2012 in China along two dimensions, geographical location and R&D intensity. We found that patents are much more elastic, than that in Japan, US and Europe. The gaps in provincial innovation capacity in China are narrowing as a whole, whereas the gaps in the central region and western region continue to grow. Furthermore, regional innovation performance can be both affected by patent application fees and R&D input.
Patent attorney as technology intermediary: A patent attorney-facilitated model of technology transfer in developing countries	World Patent Information	Volume 43	Pages 62-73	2015	Changli Li, Tony Lan, Shang-jyh Liu	https://doi.org/10.1016/j.wpi.2015.08.003	Abstract: Technology transfer (TT) is gaining popularity in the developing countries, but there exist barriers impeding the transfer. Technology intermediaries are believed to be able to mitigate such barriers in the literature, which however seldom considers patent attorneys. We contribute to the extant literature by highlighting that patent attorneys could facilitate TT, particularly in the developing countries (e.g., China). We propose a model to specify how patent attorneys can leverage their expertise and resource to motivate technology players to engage in TT, to identify the potential supply and demand of TT as well as to establish comprehensive IPR protection for TT.
Evolution of the Patent Information World ? Challenges of yesterday, today and tomorrow	World Patent Information	Volume 40	Pages 4-9	2015	Frederic Baudour, Aalt van de Kuilen	https://doi.org/10.1016/j.wpi.2014.10.001	Abstract: Over the last 18 years, the field of patent information searches has dramatically evolved. Centralized information centers have started to disappear while new internet applications targeted at end-users have emerged. At the same time, the quantity of information has increased exponentially. Patent information specialists must now master several high level techniques to run precise searches, but also to analyze the large amounts of information retrieved, using modern software packages. The goal of this paper is to review the major advances over the last 18 years, how we have arrived at the current situation and what will be the future challenges for the industry.
Patent portfolios of European wind industry: New insights using citation categories	World Patent Information	Volume 41	Pages 4-10	2015	Rahul Kapoor, Matti Karvonen, Samira Ranaei, Tuomo Kassi	https://doi.org/10.1016/j.wpi.2015.02.002	Abstract: This study explores the use of citation categories assigned by patent examiners to study overlap of patent portfolios among top wind power firms. Cooperative Patent Classification (CPC) is used to obtain a sample of wind industry patents. CPC is shown to be better than the International Patent Classification for identifying patents relevant to the wind power industry. Results show high inter-firm citation among the top wind industry players that can suggest concentration of innovation. The results can be useful for patent analysts, technology managers and policy makers.
Comparative study of Indian patent databases	World Patent Information	Volume 41	Pages 38-40	2015	Mukul Moholkar, Sumit Roy, Kate Buddle	https://doi.org/10.1016/j.wpi.2015.03.001	Abstract: There are now several databases which can be used to search for Indian patent information, including IPAIRS (Indian Patent Information Retrieval System), which is the official and free searching tool. This paper explores both the completeness of the patent coverage and also the accuracy of the information available in three subscription-based databases and IPAIRS. The results of our studies were encouraging, with accurate bibliographic information being retrieved and the data coverage of the databases showing increasing consistency over time.
Roots and development of intellectual property management research: A bibliometric review	World Patent Information	Volume 40	Pages 10-20	2015	Bo Wang, Kah-Hin Chai, Annapoornima M. Subramanian	https://doi.org/10.1016/j.wpi.2014.12.002	Abstract: In recent years, intellectual property (IP) has become a crucial aspect in modern management practices, especially for innovative technology-based organizations. Correspondingly, growing numbers of studies are conducted each year to address various aspects of IP management (IPM). Nevertheless, the research field is still relatively fragmented and researchers lack a systematic understanding of the existing body of knowledge. The purpose of this paper is to investigate the underlying knowledge structure and the evolution of IPM research. To accomplish this goal, we analyzed 773 source articles published between 1980 and 2012 using bibliometric techniques including citation and co-citation analysis. We broadly searched for research articles that focused on IP management in the two largest academic databases (Web of Science and Scopus) and manually refined the search results. The results indicate that intellectual property management is a fast-growing research field with theoretical roots in law, economics, and management. Based on the citation data, we identified the most cited studies that form the intellectual core of IPM research. A co-citation diagram was plotted and five main research themes were uncovered. The center of the diagram is formed by studies on the role of IP in improving firms' appropriability. Surrounding the center are studies on the openness of IP strategy and the economic impact of the patent system; the former has become a heated topic over the recent decade, while the latter has lost popularity. Another two groups of studies emerged at the rear of the diagram, namely IP valuation and optimal IP licensing strategy. The article concludes by providing suggestions and implications for future research.
Update on the CFIB, the French Speaking Patent Information User Group	World Patent Information	Volume 41	Pages 45-48	2015	Frederic Baudour, Philippe Bodart, Emmanuelle Bourbon, Muriel Bourgeois, Pierre-Olivier Bourge, Cecile Boyer-Joubert, Samuel Hutsebaut, Fabienne Windels	https://doi.org/10.1016/j.wpi.2015.03.004	Abstract: Over the last few years, the French Patent Information User Group (CFIB) has re-organized itself and considerably developed its activities. This article is an overview of the association's current activities.
Espacenet, Patentscope and Depatisnet: A comparison approach	World Patent Information	Volume 42	Pages 4-12	2015	Bjorn Jurgens, Victor Herrero-Solana	https://doi.org/10.1016/j.wpi.2015.05.004	Abstract: Espacenet, Patentscope and Depatisnet are known as the main multinational patent databases offered by patent authorities which are available to the public free of charge. As all three systems have substantially improved in the last few years, a comparison of their functionalities and capabilities, as discussed herein, is useful for those unfamiliar with the recent developments. In order to present the comparison, the following aspects were analysed: data coverage, search functionality, result list, bibliographic view of records and patent data export options. Case studies are presented where the search systems were compared in the field of nanotechnology. The analysis concludes that Espacenet has the best features for searching, Patentscope the best for analysis and Depatisnet the best for complex search tasks.
Update on the Confederacy of European Patent Information User Groups (CEPIUG)	World Patent Information	Volume 41	Pages 41-44	2015	Frederic Baudour, Klaus Gundertofte, Guido Moradel, Bob Stenbridge, Linus Wretblad	https://doi.org/10.1016/j.wpi.2015.04.001	Abstract: The Confederacy of European Patent Information User Groups (CEPIUG) was founded in 2008 to promote the sharing of experiences and expertise in patent searching across Europe. CEPIUG currently comprises patent information user groups from eight different European countries and is open to new members. Besides the exchange of information, CEPIUG also seeks to promote the coordination of European efforts in the fields of education and training of new entrants into the profession of patent searching, as well as seeking to establish a suitable certification scheme for patent information professionals.
Learning keyword phrases from query logs of USPTO patent examiners for automatic query scope limitation in patent searching	World Patent Information	Volume 41	Pages 15-22	2015	Wolfgang Tannebaum, Andreas Rauber	https://doi.org/10.1016/j.wpi.2015.02.005	Abstract: Professional search in patent repositories poses several unique challenges. One key requirement is to search the entire affected space of concepts, following well-defined procedures to ensure traceability of results obtained. Several techniques have been introduced to enhance query generation, preferably via automated query term expansion, to improve retrieval effectiveness. Currently, these approaches are mostly limited to computing additional query terms from patent documents based on statistical measures. For conceptual search to solve the limitation of traditional keyword search standard dictionaries are used to provide synonyms and keyword phrases for query refinement. Studies show that these are insufficient in such highly specialized domains. In this paper, we present an approach to extract keyword phrases from query logs created during the validation procedure of the patent applications. This creates valuable domain-specific lexical databases for several specific patent classes that can be used to both expand as well as limit the scope of a patent search. This provides a more powerful means to guide a professional searcher through the search process. We evaluate the lexical databases based on real query sessions of patent examiners.
The effect of co-inventors' reputation and network ties on the diffusion of scientific and technical knowledge from academia to industry in South Africa	World Patent Information	Volume 43	Pages 5-11	2015	Louis Mitondo Lubango	https://doi.org/10.1016/j.wpi.2015.10.002	Abstract: In this paper, it is found that the co-inventors' and coauthors linkages and h-indexes highly enhanced the flows of academic knowledge into industrial patents in South African firms. The findings are based on an in-depth analysis of 1702 patents and 332 science sources that had linkages with patents filed by South African enterprises at the USPTO and elsewhere between 1976 and 2010. The data on co-inventors and co-authors networks/ties as well as their h-indexes can improve prior art searches and the patent examination process. Such ties can boost knowledge diffusion in large R&D and innovation clusters and hubs, globally.
Duty of disclosure during patent prosecution in India	World Patent Information	Volume 41	Pages 31-37	2015	Sneha Sharma, Manchikanti Padmavati	https://doi.org/10.1016/j.wpi.2015.02.001	Abstract: The Indian Patent Office has witnessed an increase in both volume and earnestness from applicants as a result of a duty to disclose that is mandated under Section 8, The Patents Act, 1970. There is a need to delink this with its original purpose. The present study aims at tracing the contours of the duty to disclose requirement in India and in the light of the recent cases, examine the extent to which Section 8 accomplishes the purpose. Elaboration of guidelines for Section 8 in the Manual for Patent Practice and Procedure and need for online linking of databases are suggested as measures for improvement.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Applying an anchor based patent mapping approach: Basic conception and the case of carbon fiber reinforcements	World Patent Information	Volume 45	Pages 1-9	2016	Martin G. Moehrlie, Frank Passing	https://doi.org/10.1016/j.wpi.2016.03.005	Abstract: Patent mapping is an important method for analyzing technological patterns both for scientific research and strategic tasks in companies. In this paper we focus on a specific type of technological pattern, namely the analysis of patents' positions in relation to predefined positions of application fields. For this purpose we use an anchoring approach. We apply semantic patent measurement and discuss RadViz as a powerful method to visualize the measurement's results and to provide insightful motion patterns for monitoring technology change. Moreover, we present an algorithm to define so called anchor points as high dimensional reference points by using textual elements of patents. By the example of carbon fiber reinforcements we demonstrate the usefulness of our approach. Thus, our approach enables academics to analyze important types of technological patterns like convergence or divergence by means of a new instrument and gives practitioners like the R&D management of companies the opportunity to build a reliable strategic business decision support.
Patent Information Professional: Swiss army knife1 chameleon?	World Patent Information	Volume 47	Pages 75-82	2016	Frederic Baudour, Philippe Bodart, Emmanuelle Bourbon, Muriel Bourgeois-Tassanary, Cecile Boyer-Joubert, Gregoire Delannoy, Samuel Hutsebaut, Fabienne Windels	https://doi.org/10.1016/j.wpi.2016.09.005	n/a
Successful European oppositions (part II) Analysis for the patent information professional	World Patent Information	Volume 45	Pages 57-60	2016	Aalt van de Kuilen	https://doi.org/10.1016/j.wpi.2016.04.005	Abstract: European patents can be opposed within nine months from grant. The result of a successful opposition can be a complete revocation of a granted patent. The main reason for revocation is lack of inventive step (47%). From the patent information perspective, an opposition search against an EU-patent needs, therefore, to be first be focused on inventive step. The EPO has clear guidelines on how prior art can be used to attack the inventive step and how it is used during examination. Following the Problem-Solution-Approach used by the EPO, an opposition search should follow the same steps.
A look at the abundance of Chinese utility models	World Patent Information	Volume 45	Pages 21-32	2016	Bernd Wolter, Oliver Pfaffensteller	https://doi.org/10.1016/j.wpi.2016.03.006	Abstract: This article explores the multitude of Chinese utility model filings both from a statistical as well as from a legal standpoint. Both assignee and IPC analysis are used to gain insights into filing patterns and practices. A comparison of Chinese, German, and Japanese utility model laws show similarities and differences between the statutes and practices in these countries.
Continuous Knowledge Transfer – A pragmatic approach to knowledge sharing in the European Patent Office	World Patent Information	Volume 47	Pages 1-11	2016	Hanno Schombacher, Philippe Lahorte, Lars Vistisen, Anton Versluis, Fernando Correia Martins, Wolfram Meyer, Paula Patras, Xavier Bardella, Florence Roux, Angela Kreuter, Jeremy Scott	https://doi.org/10.1016/j.wpi.2016.08.005	Abstract: During the last 15 years the European Patent Office (EPO) has established an internal peer to peer knowledge sharing process. This process is driven by a team of knowledge sharing experts, collated in a team called CKT 7 Continuous Knowledge Transfer. The process works in a complementary manner to classical and well-established learning and development activities of the international organisation. The article aims at describing the motivation for creating such process, the development of CKT and its structure and tools. The basic components of the process are presented and success factors elaborated.
PATSTAT revisited: Suggestions for better usage	World Patent Information	Volume 46	Pages 56-63	2016	Byeongwoo Kang, Gianluca Tarasconi	https://doi.org/10.1016/j.wpi.2016.06.001	Abstract: This study provides a comprehensive summary of and guidance for using the EPO Worldwide Patent Statistical Database (PATSTAT), one of the most widely used patent databases for researchers. We highlight the three most important issues that PATSTAT users must consider when performing patent data analyses and suggest ways to deal with those issues.
Textile patents and the GB Industrial Revolution	World Patent Information	Volume 44	Pages 53-56	2016	Brian Spear	https://doi.org/10.1016/j.wpi.2016.01.004	Abstract: The GB Industrial Revolution (c. 1760?1850) resulted in a vast expansion in industrial activity of which one of the most lucrative was textile production, especially cotton which is rather surprising as the raw cotton was imported vast distances. How this came about is discussed with reference to the crucial patents.
Conference report: EPO Patent Information Conference, 10-12 November 2015, Copenhagen, Denmark	World Patent Information	Volume 46	Pages 19-20	2016	Bernd Wolter	https://doi.org/10.1016/j.wpi.2016.05.007	Abstract: Report on the Patent Information Conference 2015.
Exploring pathways of regional technological development in China through patent analysis	World Patent Information	Volume 46	Pages 74-86	2016	Henning Kroll	https://doi.org/10.1016/j.wpi.2016.06.003	Abstract: Recently, China has experienced a surge in patenting and become the leading applicant nation worldwide. The technological substance of this growth, however, has become increasingly doubted as China's governments continue to promote patenting as a target per se. Against this background, the paper explores the structure of Chinese patenting from a regional perspective. Firstly, it analyses the technological profile, public component and outward orientation of specific provinces' technological ecosystems. Secondly, it connects these specific profiles to regions' recent growth in patent applications. Concluding, it finds that there are indications of both politically induced and technologically substantial growth in applications.
The use of mindmapping software for patent search and management	World Patent Information	Volume 47	Pages 12-20	2016	Dietmar Dirnberger	https://doi.org/10.1016/j.wpi.2016.08.004	Abstract: Modern information technologies and in particular the internet have revolutionized the patent information professionals' work in terms of speed of access and information comprehensiveness from both company internal and external digital sources. Here, I describe how the digital mindmapping technique can be used to complement existing intellectual property management software solutions to meet the challenge of optimizing and managing patent search workflows as well as to rapidly organise and access highly dynamic, heterogeneous and scattered patent information sources. Both eye catching and highly memorable and at the same time self-explanatory mindmapping examples are presented. These were designed to include basic and advanced level digital mindmapping features tailored to significantly speed up and maintain a high work quality level of patent search professionals. A special emphasis is put on the great benefit of organising and accessing the plethora of internet-based worldwide online patent registers through mindmapping, both in terms of managing the constantly changing deep links to the actual search options for e.g., legal status information, and keeping track of the offered level of content.
The effect of ISO quality management system standards on industrial property rights in Turkey	World Patent Information	Volume 45	Pages 33-46	2016	Burhan Başaran	https://doi.org/10.1016/j.wpi.2016.03.002	Abstract: The aim of this study was to assess whether the systematical application of the following ISO quality management system standards: ISO 9001 (Quality Management System), ISO 22000 (Food Safety Management System), ISO 14001 (Environment Management System), ISO 13425 (Medical Device Quality Management System), ISO 27001 (Information Security Management System) and ISO 16949 (Automotive Quality Management System) have had an effect on the emergence of industrial property rights in Turkey. Information was collected about the number of ISO standard certification documents that Turkish organizations received in respect of these standards between the period of 2007 and 2013. For the same period, information about the number of granted patents, petty patents, trademarks and industrial designs in Turkey were also collected. The information was analyzed by year, industrial property right type and ISO standard. A Spearman correlation analysis was also conducted to determine the strength of association between the number of certification documents and the number of granted industrial property rights. The analysis showed that some of the ISO standards had either a positive or negative linear relationship with one or more of the granted industrial property right types. Although the total number of certification documents had decreased over the time period of the study, the number of granted industrial property rights in Turkey had increased over the same period indicating that the adoption of quality management system standards may have led to an increase in national innovation in Turkey. This observation may help to improve innovation in other countries similar to Turkey.
Mapping university receptor patents based on claim-embodiment quantitative analysis: A study of 31 cases from the University of Tokyo	World Patent Information	Volume 46	Pages 49-55	2016	Jihong He, Takayuki Yamanaka, Shingo Kano	https://doi.org/10.1016/j.wpi.2016.06.002	Abstract: This study aimed to develop a quantitative method that is capable of mapping university patents by analyzing the contents of the claims and examples provided in patent specifications. First, two scoring parameters related to the claims and the exemplified embodiment were defined to assess the grantability of a patent application. Second, several assumptions were formulated, and a model was constructed based on these assumptions. A collection of 31 university patent applications in the biomedical field were studied in depth to validate the model.
Increasing patent value by conducting pre-filing prior art searches	World Patent Information	Volume 44	Pages A1-A3	2016	n/a	https://doi.org/10.1016/j.wpi.2016.03.001	n/a
Patents from Latin America and Spain with Latipat: Country coverage and ability to search for emerging topics like nanotechnology	World Patent Information	Volume 46	Pages 1-8	2016	Bjorn Jurgens, Victor Herrero-Solana	https://doi.org/10.1016/j.wpi.2016.05.003	Abstract: The Latipat project unifies patent information from 20 Ibero-American countries making this content available and free of cost via several major public patent search systems: namely Espacenet, Patentscope and Invenes. These different accesses are presented and their data coverage is analysed. A comparison showed that, although the patent information comes from the same origin, the country coverage and actuality of the patent information varies substantially in the three compared search systems. Regarding the technology coverage, an exemplary search for nanotechnology patents revealed different results depending on the keyword and classification support of each search system.
News on patent, trade mark and design databases on the Internet	World Patent Information	Volume 45	Pages 55-56	2016	Philip Eagle	https://doi.org/10.1016/j.wpi.2016.04.001	n/a
Find the most adequate F1 and F-terms	World Patent Information	Volume 44	Pages 24-33	2016	Eigo Kashimoto	https://doi.org/10.1016/j.wpi.2016.01.005	Abstract: New patent information service, J-PlatPat, was launched on March 23rd 2015. The major update for English speaker is a keyword search service in English for Japanese classification (F1, F-terms) in Patent Map Guidance (PMGS). Some other tools and information are provided to find adequate F1 and F-terms for English speaker. This article addresses F1/ F-terms, keyword search and these tools.
Vaccine R&D in Brazil: The effectiveness of push and pull regulations	World Patent Information	Volume 46	Pages 11-18	2016	Cassia Rita Pereira da Veiga, Claudimar Pereira da Veiga, Jansen Maia Del Corso, Wesley Vieira da Silva	https://doi.org/10.1016/j.wpi.2016.05.006	Abstract: Government regulations can guide the technological progress, investment in research and development (R&D), and institutional organization of a specific sector. In this context, using patent data, this study aimed to analyze the effectiveness of three laws that pertain to R&D in Brazilian pharmaceutical market for vaccines. The results reveal an increasing international interest in the Brazilian market since the promulgation of the Industrial Property Law. Despite its limitations, this study reveals significant efforts and promising results in Brazil with respect to ensuring that technological and industrial policies and strategies incorporate innovation in vaccine R&D and change the economy's competitive circumstances.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Measuring patent quality: A claim and search report approach	World Patent Information	Volume 45	Pages 47-54	2016	Mark James Thompson	https://doi.org/10.1016/j.wpi.2016.03.003	Abstract: This paper presents a new prospective metric for assessing the novelty and inventiveness of patents. It does this by using initial patent search reports and examiner's intuition about the impact of adverse citations on patent claim survival. The paper then demonstrates the metric by evaluating the quality of Switzerland's national patent stock using a selection model, finding that between 84 and 90% of the country's national patents would likely not survive examination at the European Patent Office. In doing so, it contributes to the larger literature on patent assessment, underscores the relevance of patent strategy in the observed characteristics of patents, and removes some of the ambiguity in the academic literature about backward citations.
Research and development on Moringa Oleifera – Comparison between academic research and patents	World Patent Information	Volume 47	Pages 21-33	2016	Henri Dou, Jacky Kister	https://doi.org/10.1016/j.wpi.2016.09.001	Abstract: Moringa is a tropical plant well known in Asia and Africa. Many local medicines used the various Moringa extracts to cure various diseases or to provide nutrients. Some parts of the plant are also use as coagulants to clean water and for their biomedical properties. The regional development of developing countries is often linked to their natural resources and applied research and technology information are two main points to explore before decision making. For these reasons we present a comparison between data coming from an academic research using different sources and patent information using the worldpatent database from EPO.
The evolution of patent mining: Applying bibliometrics analysis and keyword network analysis	World Patent Information	Volume 46	Pages 32-48	2016	Farshad Madani, Charles Weber	https://doi.org/10.1016/j.wpi.2016.05.008	Abstract: Text mining methods allow researchers to investigate technical documents (tech mining) and specifically explore patents for valuable information (patent mining). To the review literature and analyze the evolution of patent analysis and patent mining methods, bibliometrics analysis and keyword-based network analysis is applied on 143 papers extracted from the 'Web of science' database. Bibliometrics analysis was applied to determine top players researching in patent mining. Applying cluster analysis on the keyword network shows three main stages of patent analysis evolution. Also, it is discussed how patent mining is evolutionized in terms of information retrieval, pattern recognition and pattern analysis.
The identification of biopiracy in patents	World Patent Information	Volume 47	Pages 67-74	2016	Manuel Soria-Lopez, Israel Fuentes-Paramo	https://doi.org/10.1016/j.wpi.2016.10.003	Abstract: Evidence on biopiracy of traditional knowledge and biodiversity is scarce. A method for generating evidence from patents was applied to a set of endemic plants used in Mexican Traditional Medicine. First the method identified a sample of patents as a potential source of evidence. Then, relevant arguments obtained from patents and traditional knowledge sources contributed to generate experimental evidence to sustain a possible case of biopiracy. The method's main implication is the possibility of identification of potential evidence on biopiracy by searching the global patent system.
Indexing chemical structures: Exemplified compound indexing in patents by the vendors Thomson Reuters, Chemical Abstracts and Elsevier – A comparative study by the Patent Documentation Group (PDG)	World Patent Information	Volume 44	Pages 48-52	2016	Mark Ede, John Endacott, Mark Harper, David Rees	https://doi.org/10.1016/j.wpi.2015.12.003	Abstract: The following article briefly discusses the history of the PDG and why Taskforce/Working Group efforts have been an important part of PDG activities. The authors describe a methodology for analysing exemplified compound indexing from the patent literature in three databases: Chemical Abstracts (CAPLUS and REGISTRY), Derwent World Patents Index (DWPI) and Reaxys. This article also discusses the post analysis feedback from the database vendors. The feedback and the further discussions with the vendors culminated in some examples of positive changes to their indexing policies.
Example of open-source OPS (Open Patent Services) for patent education and information using the computational tool Patent2Net	World Patent Information	Volume 46	Pages 21-31	2016	Renato Ribeiro Nogueira Ferraz, Luc Quoniam, David Raymond, Emerson Antonio Maccari	https://doi.org/10.1016/j.wpi.2016.05.002	Abstract: This paper discusses the use of Patent2Net, an open source software for extracting and making available information on patents related to dengue fever, a neglected disease of high interest to Brazil. Only ten of 1427 dengue-related patents retrieved in the European worldwide database were filed by Brazilian institutions, showing low contribution of technological research in Brazil regarding this disease. The results enable the creation of new indicators, promoting social responsibility in research, since it is expected that scientific research will produce not only high-impact bibliographic production, but also technological products that can effectively further the search for solutions to problems.
Leveraging patent landscape analysis and IP competitive intelligence for competitive advantage	World Patent Information	Volume 45	Pages 10-20	2016	Yateen R. Pargaonkar	https://doi.org/10.1016/j.wpi.2016.03.004	Abstract: Patent landscape and the accompanying IP competitive intelligence involves understanding and anticipating the competitive environment within which a company operates. More specifically, IP competitive intelligence highlights emerging IP risks, provides patent portfolio benchmarking, monitors competitor technology development efforts, and predicts commercialization of technology. This paper provides a framework for patent landscape and IP competitive intelligence as driven by strategic intent. This paper advocates the benefits of both "quantitative" statistical analysis and "qualitative" human intelligence for IP competitive intelligence. Moreover, this paper defines four Levels of IP analysis with pruned examples for effective competitive intelligence.
On the first patents, key inventions and research manuscripts about glass science & technology	World Patent Information	Volume 47	Pages 54-66	2016	Marcio Luis Ferreira Nascimento, Edgar Dutra Zanotto	https://doi.org/10.1016/j.wpi.2016.10.002	Abstract: The objective is to describe the first patents, key inventions and scientific papers related to glass science & technology. According to the literature and the Guinness Book of Records, the first English recorded patent was granted to John Uthnam in England in 1449 and a second in 1552. Regarding publications, the first two papers on glass production were published in 1665 in Le Journal des Scavans in France and the Philosophical Transactions of the Royal Society in England. We illustrate our points using landmarks that cover half a millennia and constitute advancements in modern life that are substantially connected to and dependent on glass technology.
Are patent trade wars impeding innovation and development?	World Patent Information	Volume 46	Pages 64-72	2016	Charles V. Trappey, Amy J.C. Trappey, Yu-Hui Wang	https://doi.org/10.1016/j.wpi.2016.06.004	Abstract: When patents support anti-competitive conduct, innovation can be damaged not only by lack of market access but by the prohibitive costs of litigation. The creation of patent barriers is inconsistent with IP protection and enforcement agreed upon under the World Trade Organization and trade-related aspects of intellectual property rights ('TRIPS'). The study uses the US Apple v HTC IP legal case to investigate anti-competitive market behavior and trade barriers. The research provides a formal patent analytic methodology and the case analysis result. The research method tests whether patent conflicts and technical trade barriers are significantly encouraged by existing IP laws.
Lost in translation? – A review of the post-grant requirements for translation of patent specifications in Europe	World Patent Information	Volume 44	Pages 34-45	2016	Stephen Adams	https://doi.org/10.1016/j.wpi.2016.01.003	Abstract: This article considers the various mechanisms by which granted patent rights, and their supporting disclosures, have been made available in local languages throughout Europe over the past several decades. It considers the legal background to the development of different translation requirements at different points in time, and how this has affected the burden upon the patent owner in maintaining their patent rights in force. It highlights the sources for obtaining translated documents, and how this process will change again if the EU's Regulations on granting unitary effect commence operation later this decade.
A new patent processing suite for academic and research purposes	World Patent Information	Volume 47	Pages 40-50	2016	David Raymond, Luc Quoniam	https://doi.org/10.1016/j.wpi.2016.10.001	Abstract: Patent databases are a counterpart of a technical encyclopedia providing a valuable informational source from patent documents. Patents apply to a wide variety of uses, and this is expanding. The increasing kinds of users of patent documents result in a lack of educational programs regarding this matter. This paper describes Patent2Net (P2N) a patentinformatic suite whose purpose is to fill the lack in the academic world (education and research) of a tool to use with students (STEM, Masters, PhD), by valuation services and for defining corpuses for research in general patent analysis, specifically on textual content. P2N is a free open-source modular, scalable, customizable and derivable tool, written in the python language. We present here the main functions of the tool and the technical aspects after discussing the skills to be reached by students for state of the art patent analysis.
Designing the 7D patent management maturity model – A capability based approach	World Patent Information	Volume 50	Pages 27-33	2017	Martin G. Moehrlé, Lothar Walter, Michael Wustmans	https://doi.org/10.1016/j.wpi.2017.08.003	Abstract: Patent management has become increasingly important in technology-oriented companies. The patent itself does not only protect an invention against imitation, it also has a variety of other functions. For example, patents can be used for generating revenues by licensing to other companies as well as for gathering competitor information. To handle all these functions in an appropriate and balanced way, a professional patent management method is required. To achieve this, we aim to design a maturity model for patent management. The 7D Patent Management Maturity Model that offers companies assistance in building, improving and reviewing their patent management. We define seven dimensions, namely portfolio, generation, intelligence, exploitation, enforcement, organization, and culture. The first five dimensions are core dimensions, the latter two supporting dimensions. We continue with an explanation of the guiding principles behind these dimensions, and finally illustrate the application of the model, showing how it can be used for the organizational development of a company's patent management.
Intellectual property and trademark legal framework in BRICS countries: A comparative study	World Patent Information	Volume 49	Pages 1-9	2017	Adriana Brigante Deorsola, Marcia Cristiane Martins Ribeiro Leal, Milene Dantas Cavalcante, Ingrid Jensen Schmidt, Edmilson Junqueira Braga	https://doi.org/10.1016/j.wpi.2017.03.001	Abstract: Given the importance of the economic group called BRICS, a group of five of the fastest-growing emerging markets in the world, a better understanding of their Intellectual Property legal framework becomes critical for many stakeholders and innovators. The aim of this work is to carry out a comparative analysis of the Trademarks Laws from the BRICS countries. Possible similarities and differences between their normative frameworks for the protection of intellectual property, specifically with respect to trademarks, are investigated. Ultimately, a comparative approach about the BRICS major conventions, treaties and international agreements and its consequences are discussed.
The supply side of IP management: Understanding firms' choices regarding IP intermediaries	World Patent Information	Volume 50	Pages 55-63	2017	Sevim Süzerözü-Melchioris	https://doi.org/10.1016/j.wpi.2017.08.002	Abstract: Studies focusing on the supply side of IP management, particularly on the outsourcing of patent related work, are relatively rare. This paper aims to contribute to the IP literature in two ways. First, a definition of the IP service provider is proposed. Second, I consider three main hypotheses that determine a firm's preference for outsourced IP work. Using data on the outsourcing of patent renewal payments, I found evidence that the choice of IP supplier is affected by: (1) the firm's own IP maintenance capabilities, (2) the firm's IP knowledge utilization, and (3) the IP complexity.
Patents and genetically modified soybean for glyphosate resistance	World Patent Information	Volume 48	Pages 47-51	2017	Adriana Carolina Rojas Arias, Jessica Liliana Palacio, Alejandro Chaparro-Giraldo, Silvio Alejandro Lopez-Pazos	https://doi.org/10.1016/j.wpi.2017.01.002	Abstract: The last patents protecting glyphosate herbicide tolerant soybean (Roundup Ready) expired in 2015 (US4940835, US5188642, US5804425, US5312910, US5352605, US5530196, US5627061, US5633435, US5717084, US5728925). This opens up a very big market for generic soybean. In this paper an overview of patent status will be developed which will offer records of claims, dates and owners in different world regions, including our own experience in transgenic soybean development and implementation of an open operating system will be an opportunity for applications developers from the perspective of the emerging generic transgenic crops agenda.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
A landscape of bioinformatics patents - Garnering of IPR in the field of bioinformatics	World Patent Information	Volume 51	Pages 66-78	2017	Neha Mago, Nishad Deshpande, Rajkumar R. Hirwani	https://doi.org/10.1016/j.wpi.2017.11.007	Abstract: In the current information technology era, Bioinformatics is growing rapidly due to availability of vast database systems and the ever increasing amount of biological data. It is a flexible and creative means of storing, managing, and querying of complex biological datasets. With these rapid advancements in today's technology-driven age, it is also imperative that protection in the form of Intellectual Property Rights (IPR) is sought for such research and development activity. In addition, there is a need to formulate an aggressive strategy to protect one's IP. In fact, various companies, universities, institutions and researchers are into the process to protect their core invention. This landscape will give an outline of the latest technological growth, geographical distribution, and top competitors playing an important role in this field.
Exploring 4G patent and litigation informatics in the mobile telecommunications industry	World Patent Information	Volume 50	Pages 38-51	2017	Charles V. Trappey, Amy J.C. Trappey	https://doi.org/10.1016/j.wpi.2017.08.007	Abstract: Patent informatics are often analysed for IP protections, particularly in high-tech industries. This research develops a computer-supported generic methodology for discovering evolutions and linkages between litigations and disputed patents. The IP litigations in mobile telecommunications are used as the case study. An ontology framework representing the 4G domain knowledge is defined first. Then, a modified formal concept analysis (MFCA) approach is developed to discover the evolutionary linkages of legal cases and their disputed patents. In addition to citation-based patent analysis, this research provides a new approach in identifying legal and technical evolutions for future R&D planning and IP strategies.
Forecasting European trade mark and design filings: An innovative approach including exogenous variables and IP offices' events	World Patent Information	Volume 48	Pages 96-108	2017	Quirinus A. Havermans, Samuel Gabaly, Antonio Hidalgo	https://doi.org/10.1016/j.wpi.2017.01.004	Abstract: Both national and international Intellectual Property (IP) offices need to adopt and use more reliable and efficient forecasting systems to improve their strategic planning and budgetary outlook. The European Union Intellectual Property Office (EUIPO), through the European Observatory on infringements of Intellectual Property Rights, has conducted a research to evaluate the forecasting methodologies currently used at IP offices. Novel forecasting approaches for trade marks and designs have also been analysed. This paper discusses the classic forecasting techniques and shows the improved results that are obtained when innovative techniques based on artificial intelligence with the inclusion of exogenous variables are used.
Visual patent trend analysis for informed decision making in technology management	World Patent Information	Volume 49	Pages 34-42	2017	Qi Han, Florian Heimerl, Joan Codina-Filba, Steffen Lohmann, Leo Wanner, Thomas Ertl	https://doi.org/10.1016/j.wpi.2017.04.003	Abstract: Patent information is increasingly important for decision makers. Their demand for exploratory trend and competitor analysis poses new challenges with respect to the processing and visualization of patent data. We present PatStream: a highly interactive approach for decision support through patent exploration, which offers a streamgraph-based visualization for trends at different levels of abstraction and facilitates the combined analysis of their various aspects, including patent applicants, IPC distributions and innovativeness. PatStream integrates powerful natural language processing techniques for concept extraction and patent similarity assessment to allow for content-oriented visualization and analysis.
Patenting trends in diagnostic and treatment strategies of autism spectrum disorders	World Patent Information	Volume 48	Pages 52-60	2017	Tejaswini Y.R.S.N., Bindu Sharma, Lakshmi Bhargavi Paruchuru	https://doi.org/10.1016/j.wpi.2017.01.001	Abstract: Autism is a spectrum of developmental disorders characterized by impairments in social interaction, communication, often accompanied by stereotypical behaviors. The high prevalence of this disorder has raised the need to understand the underlying molecular mechanisms that would help in both diagnosis and treatment of the disorder. This review talks about a variety of diagnostic and treatment strategies and therapeutic targets of patent documents from various companies, universities, hospitals, research and developing organizations. We have identified and reported the leading assignees and their patenting activities over the time period, trends, geographical distributions, international patent classification analysis and the like.
Gravitational waves discovery, intellectual property and technology transfer	World Patent Information	Volume 51	Pages 1-6	2017	Matthew Trainer	https://doi.org/10.1016/j.wpi.2017.09.001	Abstract: Gravitational waves were discovered in the USA on the 14th September 2015. The worldwide media have presented this as a significant achievement of scientific discovery. Detection of the waves was due to the development of accurate and sensitive scientific measurement instrumentation by an international collaboration of scientists. However, patents on the detection of gravitational waves are few. Technology transfer of intellectual property by science groups associated with gravitational waves research has been identified and has the potential of yielding important spinoffs now and in future years.
An analysis of the breadth and depth of coverage of emerging market countries by commercial patent information sources	World Patent Information	Volume 50	Pages 73-87	2017	Nicholas Cole, Mark Ede, Cynthia Barcelon-Yang, Mark Harper, Arjan Langeveld, Torsten Noll, Joop Swinkels, Guido Vang	https://doi.org/10.1016/j.wpi.2017.08.006	Abstract: The Patent Documentation Group (PDG) ONLINE Working Group has undertaken a study comparing different aspects of emerging market country coverage amongst 5 commercial sources of patent information. The sources were compared against the national patent office registers for each of 9 'emerging market' countries, as well as Inpadoc/Espacenet. Coverage was assessed in relation to 25 patent families occupying the pharmaceutical and household or specialty chemical technical domains. In general, vendors were shown to have added value in terms of country coverage over the 'baseline' offered by Inpadoc/Espacenet but to varying degrees fell short of the 'gold standard' offered by registers. These variances were explored, and conclusions and recommendations were shared with the vendors in order to facilitate product development. In a separate effort, observations relating to the design, searchability and reliability of registers were collated and communicated to the PDG IMPACT working group who commonly liaise with WIPO. This has culminated in a proposal being made by the Committee on WIPO Standards (CWS) to set up a task force on standards for (all) patent office registers during 2017.
Patent data mining in fisheries sector: An analysis using Questel-Orbit and Espacenet	World Patent Information	Volume 51	Pages 22-30	2017	C. Lavina Vincent, Vikram Singh, Kajal Chakraborty, A. Gopalakrishnan	https://doi.org/10.1016/j.wpi.2017.11.004	Abstract: The advent of an enormous amount of patent data in various patent databases and patentinformatics tools to analyze this data have led to an easy access to information for studying the technological trends and R&D activities in a sector. The fisheries sector is driven by the demand and profit generated and there are some unforeseen trends exhibited at different phases of development in specialized areas related to fisheries. In this study we have retrieved patent data of seven technology domains in fisheries, such as Fish, Fish Culture (FC), Fishing Technology (FT), Fish Processing and Products (FP), Fish Health and Nutrition (FHN), Fish Genetics (FG) and Fish Rearing (FR) during 2000/2015. The legal status of patents, top priority countries and top assignees in different fields of the fisheries sector were analyzed. The results were compared with various developmental trends, indicating a clear relation to industrial ups and downs, the emergence of more patent portfolios in countries coping with latest technology trends and the improper litigation of legal status of the patents filed in the fisheries sector. Patent analysis in a specialized sector could be used as a potential tool in global policy debates, where fish as a natural resource is over-exploited without realizing its real potential.
FTO search and analysis for strategic management	World Patent Information	Volume 50	Pages A1-A2	2017	Martin G. Moehrie	https://doi.org/10.1016/j.wpi.2017.10.003	n/a
Sharing innovative and best-practice approaches for teaching intellectual property management: A workshop report	World Patent Information	Volume 49	Pages 75-76	2017	Marcus Holgersson, Frank Tietze	https://doi.org/10.1016/j.wpi.2017.02.004	n/a
Information retrieval, machine learning, and Natural Language Processing for intellectual property information	World Patent Information	Volume 49	Pages A1-A3	2017	Mihai Lupu	https://doi.org/10.1016/j.wpi.2017.06.002	Abstract: Readers of this journal are well aware that automation technology has played a significant role in searching for patent information and, as artificial intelligence is once again (after the first, 1960s, and second, 1980s, golden eras of AI) a trending topic at both academic and industry conferences, the editorial team of this journal would like to encourage contributions that cover any aspect of automation as applied to intellectual property information. As a new Associate Editor of World Patent Information, I take the opportunity to advertise the availability of the editorial team to submissions from computer science teams, in addition to the existing contributions from the IP community. By way of introduction, I have taken the liberty to provide an extremely brief overview of efforts and contributions that the computer science community has made to the field of intellectual property. This summary focuses on patents, but that is not to say that trademarks or other forms of intellectual property have not triggered the interest of computer scientists. In fact, to call this summary short is already giving it too much credit. It is but a seed, upon which I hope that a forest of contributions and publications from my fellow computer scientists will grow.
Claim-based patent indicators: A novel approach to analyze patent content and monitor technological advances	World Patent Information	Volume 50	Pages 64-72	2017	Douglas Henrique Milanez, Leandro Innocentini Lopes de Faria, Roniberto Morato do Amaral, Jose Angelo Rodrigues Gregolin	https://doi.org/10.1016/j.wpi.2017.08.008	Abstract: This paper proposes a new method for developing patent indicators by text mining patent claims according to their drafting structure. We apply the method on nanocellulose as a case of study, although any subject could be the target of investigation. The results show that patent claims are a more reliable source of key terms to develop technical indicators than, for example, patent titles and abstracts. Indicators from patent claims in combination with other traditional indicators developed from bibliographic patent data may contribute significantly to the analytical process of technological forecasting, monitoring and competitive intelligence studies.
Patent market dynamics: In view of the business model of non-practicing entities	World Patent Information	Volume 48	Pages 61-76	2017	Jack Cheng, Tony Lan, Shang-jyh Liu	https://doi.org/10.1016/j.wpi.2017.01.003	Abstract: The emergence of Non-Practicing Entities ("NPEs") influences patent market dynamics. Based on a database of NPE activities from 1996 to 2010, this paper attempts to investigate these influences in view of NPEs' heterogeneity. We found NPEs with prominent R&D involvements can integrate knowledge from the innovation and patent markets, and might therefore generate valuable patents and facilitate effective technology transfer. Hence, when compared with NPEs without any R&D involvement, R&D-performing NPEs appeared able to monetize their patents without resorting to excessive litigation. Thus, different NPEs could exert different influences and drive patent market dynamics in their own respective ways.
Patent filings versus articles published: A review of the literature in the context of Multicriteria Decision Aid	World Patent Information	Volume 50	Pages 17-26	2017	Fernanda de Carvalho Pereira, Helder Gomes Costa, Valdecy Pereira	https://doi.org/10.1016/j.wpi.2017.07.003	Abstract: The objective of this work is to conduct a comparative study of the patents indexed in the base Derwent Innovation Index and the articles published in the ISI Web of Science database related to multicriteria. The results pointed to 10,643 articles and 209 patents on multicriteria. While universities were more prominent in the publishing of articles, companies stood out in patent applications. This work points to a misalignment between the articles published and the filing of patents, initiating an important discussion that could contribute to the production of innovation and guide future research about the subject.
Novel methods and comprehensive insights into patent searches, analysis, and	World Patent Information	Volume 51	Pages 43-44	2017	Elisabeth Eppinger	https://doi.org/10.1016/j.wpi.2017.11.003	n/a

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Patent searches opinion: How to minimize the risk when reviewing patent applications	World Patent Information	Volume 49	Pages 43-51	2017	Paolo Carrara, Davide Russo	https://doi.org/10.1016/j.wpi.2017.05.003	Abstract: This paper is addressed towards minimizing the risk inherent in making patent search opinions and to increase reliability especially in clearance product analysis. Indeed, in recent years, it has become more and more complex to provide professional patent analysis due to the growth of the total number of patent documents, of which two-thirds are patent applications. Always more often, the pool of documents resulting from a patent search contains documents that have not ended their procedure, contain amended parts and/or are still waiting for future events that might radically change the fortune of the patent, misleading any earlier opinion about it. Thus, patent specialist cannot simply search for all relevant patents and interpret the first version offered by patent repositories. In order to avoid grossest errors, it is crucial to identify the most representative document from a patent family, gather information from all other patents of the same family, work always on the last updated files, fix the patent in the timeline procedure in order to measure future changes that can still happen. This paper analyses some of most frequent problems and errors faced in patent searches and offers a vademecum about most critical aspects to be taken into account, useful links and good practices, resulting from procedural and/or legal reasons.
The relationship between patent age and selling price across bundling strategies for United States patents, predominately for computer and communication technology	World Patent Information	Volume 48	Pages 1-11	2017	Pratheeba Vimalnath, Anjula Gurtoo, Mary Mathew	https://doi.org/10.1016/j.wpi.2016.12.001	Abstract: The age at which a patent yields maximum price remains under explored. This paper attempts to demystify the patent age-price relationship using 510 US patents sold in US auctions. Results show computer and communication singletons sold during second half of their life (rather 10 years 2 months) exhibit significantly higher price than those sold before. No such relationship came significant for the portfolios sold. Further, age-price relationships are analysed with different bundling strategies composed of different patent family types and others, and technology fields as controls. The paper concludes with discussing the managerial implications.
Patent landscape: Technology development behind science in the flavor and fragrances (F&F) area	World Patent Information	Volume 51	Pages 57-65	2017	Lucas Henrique Soares Mattos, Marcelo Gomes Speziali	https://doi.org/10.1016/j.wpi.2017.11.006	Abstract: This paper presents a panorama of the flavor and fragrance (F&F) technological sector, constructed with the use of patent applications worldwide. Information from patent documents was retrieved using databases, yielding 5474 documents related to 2903 patent families for the last 10 years. The information within these documents goes far beyond a mere technical description of technologies. They include data regarding the assignee, year of application, countries where the patents have been applied, the technical sector of technologies and other aspects. These data were grouped by category to determine the actual reality of F&F technologies. The panorama obtained with the patent data showed some curious results. Crossing data regarding patents and markets, it is clear that the largest companies are not always the ones that apply for the most patents. In this work, the correlation between innovation and the production of patents is discussed. Inside the patent landscape, a specific group of patents has been analyzed. The 416 triadic patents found generated an island within the original landscape with its own environment. This environment and some trends and facts regarding triadic patents are discussed.
Patent citation: A technique for measuring the knowledge flow of information and innovation	World Patent Information	Volume 51	Pages 31-42	2017	P. Sharma, R.C. Tripathi	https://doi.org/10.1016/j.wpi.2017.11.002	Abstract: Knowledge cannot be bound, restricted or categorized. Knowledge is precisely an intangible strength that has a definite economic importance if well utilized and commercialized. Knowledge spillover is an occurrence, which is imaginable but difficult to have an effective measurement of it. Patents citation is a developing concept and has gained momentum in recent past. Patents citation contains valuable data and if analyzed well, may sometimes reveal concealed mysteries of the information flow between countries, laboratories, companies, and universities. Profuse technical research has been conducted on this topic by many scientists. Through these experiments, scientists have tried to show that the innovative information hidden in patents crosses every barrier and is taken by the research labs for its further expansion. Patents citation reveals the diffusion of information and its applicability into many other technical fields which give birth to a new technology. This paper presents a comprehensive survey of patents citation analysis covering and promoting the landmark research done in the field of patents citation, informing readers to consider this important segment of patent document as a field for analysis. Also, this paper presents an innovative methodology for generating patent citation network with the help of techniques of Information Retrievals.
The cost of patent protection: Renewal propensity	World Patent Information	Volume 49	Pages 22-33	2017	Mark James Thompson	https://doi.org/10.1016/j.wpi.2017.02.002	Abstract: Using a newly collected time-series country panel of renewal fees, this paper finds a small, but significant patentee sensitivity to patent renewal fees, which likely indicates renewal fees are low compared to the exclusionary value confer within a jurisdiction. The low sensitivity may be explained by a decline in fees relative to GDP over the last 30 years. We also find that patent family effects drive much of the renewal behavior at the jurisdictional level, and that estimates of patentee behavior at the jurisdictional level are likely to be biased or incomplete without accounting for the family owner's global strategy.
A novel method for retrieving specialisation profiles ? The case of patent agent firms	World Patent Information	Volume 51	Pages 46-56	2017	Kazimir Menzel, Lutz Maicher	https://doi.org/10.1016/j.wpi.2017.11.005	Abstract: Introduction For a broad variety of innovation intelligence tasks, like finding the patent agent being specialised in a technology, specialisation profiles of entities are of particular interest. Such a profile indicates for each entity in which activities it is markedly specialised. Conventional approaches suffer two shortcomings, though. First, they tend to consider only the activity profiles of the respective entities, while neglecting information about all other entities' activities. Second, they often lack in considering entity specific characteristics, when assigning an activity to an entity's specialisation profile or not. Method To address these shortcomings, we introduce the RSI-specialisation, a novel method for retrieving dichotomous and idiosyncratic specialisation profiles. Operationalising relative specialisation, the novel method is rooted in the theory of comparative advantage. In order to contrast it with the approaches based on absolute specialisation, it is compared with the baseline method ENF-specialisation, which has its theoretical roots in the concept of effective number of components. Analysis Both methods are demonstrated by applying them to the case of the specialisation of patent agent firms. RSI-specialisation and ENF-specialisation are applied to a data set containing all EPO patent applications in 2014 and 2015. Results Compared to the baseline approach, the RSI-specialisation reduces noise from market effects to a greater satisfaction. Besides being less dependent on agent size and market structure, it reduces interpretation to the most essential question for an applicant, i.e. why he should opt for one rather than another provider. In addition, it also guarantees that a potential applicant can find in any field a specialised patent agent firm. Conclusion We find that the novel RSI-specialisation promises to be a robust and reliable method for retrieving dichotomous and idiosyncratic specialisation profiles. Patent agent firms aside, it could be applied to a multitude of different domains, like the specialisation of other professional workers, of politicians, experts in consulting firms or even to users in online-shops and patients in clinical trials.
How to prioritize inventions	World Patent Information	Volume 48	Pages 78-95	2017	Thomas L. Saaty, Elena Rokou	https://doi.org/10.1016/j.wpi.2017.02.003	Abstract: In this paper we consider many intangible criteria that influence the priorities and ranks of inventions as they contribute to human welfare, by using the Analytic Hierarchy Process. We apply the ideas to evaluate a number of modern inventions along with a few old ones. Both the categories of inventions and the effects they have on human well-being and human progress are considered in this weighing process. Different effects of similar types of inventions could have different properties. To our knowledge this work breaks new ground about the numerical prioritization of all kinds of inventions because of the effort spent in structuring the process in a comprehensive hierarchy.
EPO's Search Matters 2018, The Hague	World Patent Information	Volume 54	Pages 49-51	2018	Veerle Deblauwe, Sofia Oliveira-Pires	https://doi.org/10.1016/j.wpi.2018.08.003	Abstract: Search Matters is an annual event which is organised by multiple directorates in the European Patent Office. Search Matters 2018 event was the 30th in series [1] and took place fully-booked in the EPO premises in Rijswijk (close to The Hague, NL) from April 23rd to 25th. Since 2005, the location of Search Matters has been alternating between the EPO premises in Rijswijk and Munich (DE). Search Matters is targeted at patent search professionals. The main objective of the conference is to provide an accurate, in-depth understanding of the way the EPO examining staff searches when a patent application arrives on their desk, to explain their work methods, and to present the latest developments on the tools they have at their disposal. The conference is mainly attended by patent search professionals or other IP professionals such as patent attorneys, innovation and technology transfer managers from industry or universities, but also by scientists and owners of SMEs. 149 participants were registered this year. The EPO organizes another yearly conference in the area of patent information (EPOPIC) in one of the EPC countries. EPOPIC 2018 is being held in Brussels from November 12th to 14th. Both Search Matters and EPOPIC are warmly recommended, not only for patent specialists but also for anybody dealing with innovation, business trends, the current technology landscape, new developments and emerging technologies. Search Matters, aptly named because search does matter ...!
Prima facie obviousness of pharmaceutical patents implications for enantiomers	World Patent Information	Volume 54	Pages 39-45	2018	Sivakami Dhulap, M.G. Kulkarni	https://doi.org/10.1016/j.wpi.2018.07.008	Abstract: Innovator pharmaceutical companies file primary patents to protect new molecular entities (NME) and secondary patents to protect NMEs in various forms. "Non-obviousness" is the most critical criterion for patentability of both. A showing of "prima facie obviousness" shifts the onus to the patentee to prove that the claimed invention is non-obvious. This paper presents a framework to analyze the non-obviousness of the claims. More particularly it explains why the enantiomers are always prima facie obvious and how to overcome the same. The utility of the framework is demonstrated by analyzing the non-obviousness of Levofloxacin and other enantiomers.
Literature Listing	World Patent Information	Volume 53	Pages 67-81	2018	Susan Bates	https://doi.org/10.1016/j.wpi.2018.04.002	Abstract: The quarterly Literature Listing is intended as a current awareness service for readers indicating newly published books, journal and conference articles on: patent search techniques, databases, analysis and classifications; patent searcher certification; patents relating to a) life sciences and pharmaceuticals and b) software; patent policy and strategic issues; trade marks; designs; domain names; and articles reviewing historical aspects of intellectual property or reviewing specific topics/persons. The current Literature Listing was compiled and February 2018. Key resources used are Scopus, Digital Commons, publishers' RSS feeds, and serendipity! Please feel free to send the author details of newly published reports/monographs/books for potential inclusion.
Citations as a measure of technological impact: A review of forward citation-based measures	World Patent Information	Volume 53	Pages 39-44	2018	Leonidas Aristodemou, Frank Tietze	https://doi.org/10.1016/j.wpi.2018.05.001	Abstract: The number of forward citations a patent receives accumulates over time and appears to be correlated to the patent's (i.e. invention's) technological impact. A dominant theory suggests that highly cited patents contain an important technological advance. However, a variety of citation based measures have been proposed by different authors. This study, via a narrative literature review, identified nine forward citation-based measures that appear of particular relevance. We describe each measure and present them in a comparative format. The measures are divided into two broad categories: firstly the ones that are particularly relevant to the patent's citation index; forward citation frequency, generality, influence), and secondly the ones that are relevant to the patent portfolio level (current impact index, herfindal-hirschman index, hindrance index, relative patent position, technology strength). We hope research scholars and industrial users find this review helpful for citation analysis and intellectual property analytics, especially when wanting to employ forward citation-based measures to assess technological impact.

タイトル	ジャーナル (掲載雑誌)	Volume	Pages	発行年	著者	DOI URL	要約
A report on 'WIPO India summer school on intellectual property 2017'	World Patent Information	Volume 52	Pages 19-21	2018	Bhavisha P. Sheth, S.B. Sareen	https://doi.org/10.1016/j.wpi.2018.02.001	Abstract: Intellectual Property (IP) serves as a foundation to promote innovation, hence Intellectual Property Rights (IPR) are absolutely necessary to incentivise this innovation and eventually strengthen the national economy. Here, the authors present a detailed report of the 'WIPO India summer school on intellectual property' which took place at Nagpur, Maharashtra from 6th to 17th November 2017 and was jointly organised by World Intellectual Property Organisation (WIPO), Geneva; Rajiv Gandhi National Institute of Intellectual Property Management (RGNIPM), Nagpur and Maharashtra National Law University (MNLU), Nagpur.
Study and comparison of the unique selling propositions (USPs) of free-to-use multinational patent search systems	World Patent Information	Volume 52	Pages 9-16	2018	Bjorn Jurgens, Nigel Clarke	https://doi.org/10.1016/j.wpi.2018.01.001	Abstract: The article analyses and compares some free-to-use patent search services which are not managed by patent authorities but which may offer unique selling propositions (USPs) beyond the expected, standard, search functions. Those services selected for this study are Google Patents, Lens, Patent Inspiration, Free Patents Online, SunChemBL and Octimine. For this comparative study a total set of 66 criteria were analysed for each of the six search services. Furthermore the USPs and perceived advantages and disadvantages were identified. The study concluded that some of these search services are better suited for general prior art searches or patent analysis while others are applicable for patent searches in specific fields like biotechnology or pharmaceuticals.
A real option based model for the valuation of patent protected technological innovation projects	World Patent Information	Volume 53	Pages 24-38	2018	Roberto Daniel Hernandez-Garcia, David Guemes-Castorena, Idalia Estefania Ponce-Jaramillo	https://doi.org/10.1016/j.wpi.2018.05.002	Abstract: Decision Tree Analysis and Internal Rate of Return, do not properly consider uncertainty and flexibility, which are crucial for both valuating a project and the related decision-making process. Usually, uncertainty and managerial flexibility have been regarded as a factor that needs to be reduced; nevertheless, Real Option analysis recognizes that both may generate value, since both allow managers to decide on the investment on a project as time unfolds. This research proposes the development of a model and a tool based on real options that supports decision-makers in the valuation process of uncertain projects. The model originally developed by Schwartz and later adapted and modified by Ernst et al. is used as a baseline for the tool. The objective is to develop an easier-to-use-tool for decision-makers to valuate patent protected technological innovation projects which uses fewer variables than the actual model. The expected users are Technology Transfer Offices, which can support the decision-making process of investing on risky projects for its further commercialization. The main results of the model are the probability distribution of the project value and the percentage of times that profit is generated, which are critical factors when deciding to invest in a technological project.
Patenting activity in the food safety sector	World Patent Information	Volume 55	Pages 27-36	2018	Yeong Jae Kim, Kaye Husbands Fealing, Evgeny Kiochikhin	https://doi.org/10.1016/j.wpi.2018.08.005	Abstract: Research on science and technology policy has heavily relied on patent data. However, relatively few studies of food safety patent activity appear in scholarly literature. This paper provides a discussion on patents as a measure of new knowledge generation in the food safety sector. In so doing, there are inherent challenges to identifying a research taxonomy for this multidisciplinary area. To overcome these challenges, the paper uses a natural language approach that can be applied to other research areas where boundaries of fields are not well defined.
A deep analysis of chemical structure-based patent searching in the Derwent index space	World Patent Information	Volume 53	Pages 49-57	2018	Andreas Barth	https://doi.org/10.1016/j.wpi.2018.05.005	Abstract: Structure-based patent searching with high precision and recall is the most important information request in chemistry. The different parts of chemical patent information are stored in different databases and the challenge is to bring the different parts together in a consistent manner and retrieve a complete set of structures and patents. With the application of set theory, it is possible to develop a method which enables the user to obtain a group of corresponding, consistent answer sets after subsequent searching in the different databases and utilizing the special features of both structure and concept searching. A second goal of this paper is to demonstrate the relevance of Markush structures for patent searches in a quantitative manner. Another goal is the development of a set of simple indicators which can be applied to the search results of structure-based patent searches. Four indicators have been chosen with special focus on the relevance of Markush structures for patent searches. The searches and the analysis were carried out with ten pharmaceutical examples. The results show in a quantitative manner, that a search in the Markush database yields a number of inventions (patent families) that cannot be found via searches in specific structure databases alone.
Literature Listing	World Patent Information	Volume 52	Pages 50-60	2018	Susan Bates	https://doi.org/10.1016/j.wpi.2018.01.003	Abstract: The quarterly Literature Listing is intended as a current awareness service for readers indicating newly published books, journal and conference articles on: patent search techniques, databases, analysis and classifications; patent searcher certification; patents relating to a) life sciences and pharmaceuticals and b) software; patent policy and strategic issues; trade marks; designs; domain names; and articles reviewing historical aspects of intellectual property or reviewing specific topics/persons. The current Literature Listing was compiled late November 2017. Key resources used are Scopus, Digital Commons, publishers' RSS feeds, and serendipity! Please feel free to send the author details of newly published reports/monographs/books for potential inclusion.
Automatic users extraction from patents	World Patent Information	Volume 54	Pages 28-38	2018	Filippo Chiarello, Andrea Cimino, Gualtiero Fantoni, Felice Dell'Orietta	https://doi.org/10.1016/j.wpi.2018.07.006	Abstract: Patents contain a large quantity of information which is usually neglected. This information is hidden beneath technical and juridical jargon and therefore so many potential readers cannot take advantage of it. State of the art natural language processing tools and in particular named entity recognition tools, could be used to detect valuable concepts in patent documents. The purpose of the present research is to design a method capable of automatically detecting and extracting one of the multiple entities hidden in patents: the users of the invention. The method is based on a new approach tailored for users extraction by integrating state-of-the-art computational linguistics tools with a large knowledge base. Furthermore the paper shows a comparison among different machine learning algorithms with the twofold aim of achieving the highest recall and evaluating the performance in terms of precision and computational effort. Finally, a case study on two patent sets has been conducted to evaluate the effectiveness and the output of the entire tool-chain.
Want to find? Break the rules!	World Patent Information	Volume 52	Pages 22-25	2018	Evert Nijhof	https://doi.org/10.1016/j.wpi.2018.02.003	Abstract: My search strategies are messy; what does this mean? Is it a sign of intelligent quick and dirty searching? I sure hope so, but is it? That patent searching is an art after all? Could be, but it's probably only an art when conducted by the unconsciously competent ones among us and that brings me to the question: am I unconsciously incompetent or unconsciously competent? I am going to investigate this by taking a look at what my drivers are when I conduct searches: these drivers are the requirements of the client and my personal objectives which combined translate into a set of general objectives that I seem to use for most of my searches (primarily novelty and validity searches). These general objectives in turn determine how I tackle searching in practice. It turns out that I basically break every search rule there is.
Tech mining to validate and refine a technology roadmap	World Patent Information	Volume 55	Pages 1-18	2018	Geet Lahoti, Alan L. Porter, Chuck Zhang, Jan Youtie, Ben Wang	https://doi.org/10.1016/j.wpi.2018.07.003	Abstract: This study uses 'tech mining' (extracting intelligence from R&D data) to validate and refine the content of a particular section of a landmark roadmap of nanotechnology for aeronautics. We utilize topical content from publications and patents to analyze the developmental status of nanocomposite coating technologies. This enables us to validate predictions made by specialists, as presented in the target technology roadmap section. Moreover, we augment that roadmap section by providing additional information on nanocomposite-related emerging technologies. This study supports use of tech mining as a means to inform technology roadmapping, both when creating a new roadmap and to check progress.
The X-Patents	World Patent Information	Volume 53	Pages 1-13	2018	Harrison Henri dos Santos Nascimento, Cleber Nauber dos Santos, Carlos Henrique Almeida Alves, Marcio Luis Ferreira Nascimento	https://doi.org/10.1016/j.wpi.2018.03.003	Abstract: The first American patents issued by the United States Patent and Trademark Office (USPTO) were designed as X-Patents. About ten thousand were issued, from July 1790 to July 1836, by almost 7000 inventors, following the Patent Acts of 1790 and 1793. Patents had come of age. Unfortunately, most documents (around 75%), that were just named and dated, were burned in a fire, which occurred on December 15, 1836. Such documents received this specific identification (X-Patent) because they were retrospectively renumbered. We applied new procedures such as data mining to arrive at new correlations and results. For example, it was possible to find first, middle and last names of inventors, assignees, witnesses and manufacturers in most patents. The objective is to describe the earliest United States patents and present some landmarks that cover almost half a century and constitute the dawn of innovation and the rise of the Industrial Revolution in America.
A study on the time-dependent changes of the intensities of factors determining patent lifespan from a biological perspective	World Patent Information	Volume 54	Pages 1-17	2018	Yong Muk Choi, Daemyeong Cho	https://doi.org/10.1016/j.wpi.2018.05.006	Abstract: The lifespan of a human is determined by inborn factors including genetic factors and acquired factors, such as social-environmental factors and individual-behavior. From this point of view, this study classified factors determining the economic lifespan of patents into inborn "genetic factors," acquired "social-environmental factors," as well as "individual-behavioral factors," and analyzed the change in the influence intensity of factors with patent age along with application year. The results showed that the intensities of factors determining patent lifespan differed by industry and changed with the maintenance period and application year. Moreover, while "social-environmental factors" (such as a patent litigation), together with "individual-behavioral factors" (such as the number of patent family) had a stronger influence on patent lifespan than "genetic factors" (such as the number of claim), patents maintained longer period had stronger influence of behavioral and environmental factors rather than genetic factors. Furthermore, recently applied patents had a stronger influence due to the external environments than patents applied a relatively long time ago.
The role of specification in patent applications: A comparative study on sufficiency of disclosure	World Patent Information	Volume 53	Pages 58-65	2018	Edimilson Junqueira Braga, Allan Ribeiro de Souza, Pedro Leal de Lima Soares, Ricardo Carvalho Rodrigues	https://doi.org/10.1016/j.wpi.2018.05.008	Abstract: A patent can be defined as a temporary and territorial right granted by the state to the patentee to exclusively exploit, license or foreclose third party the subject matter of its invention. When a patent application is filed, the applicant, among other requirements, must sufficiently disclose the claimed invention so that a person skilled in the art can carry out it. Nevertheless, sufficiency of disclosure, besides being one of the requirements needed to grant a patent, also plays an important role in the so-called "quid pro quo". Thus, a patent can be considered not only as a "reward", but also as a "contract" between innovators and society, in which a temporary property right is granted in tradeoff for disclosure. In light of the mentioned above, the aim of this work is to carry out a comparative study on the practices regarding sufficiency of disclosure requirements in three of the largest patent offices around the world; EPO, JPO, USPTO as well as in the Brazilian National Institute of Industrial Property (INPI-ABR). The differences and similarities with respect to sufficiency of disclosure requirements among these offices are compared. Ultimately, what innovation could gain with a more harmonized patent specification is discussed.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Intellectual property management system: Develop and self-assess using IPM model	World Patent Information	Volume 52	Pages 29-41	2018	Gouri Gargate, K.S. Moranya	https://doi.org/10.1016/j.wpi.2018.01.005	Abstract: The major concern in organizations, especially from developing countries, is that there is a huge gap in Intellectual Property (IP) generation and its commercialization. The key issue is that how this gap between IP generation and its commercialization can be reduced. Hence, there is a need to develop an IPM model, which can assist technology and IP managers to develop their own IPMS as well as help in self-assessment of the existing IPMS. This paper introduces an IPM model, which is easy to implement and follow and can be applied to any sector with some modifications. The model suggests 5 stages and 15 major IPM processes. The validation of the model confirmed effortless establishment of IPMS including the identification of potential IP. The IPM model also helped to reveal the gaps, if any, in the current IPMS, and facilitated strategic commercialization of organizational IP. The study followed the case study methodology.
Conferences 2017	World Patent Information	Volume 52	Pages 68-71	2018	Mihai Lupu, Jane List	https://doi.org/10.1016/j.wpi.2018.02.005	Abstract: We take a look back at the conferences we attended in 2017. There was a mix between small and large, academic and industry, that gives a broad and exciting view of the patent information usage landscape. The industry conferences have demonstrated, once again, the hot buzz around Industry 4.0 and anything "AI", while the academic conferences show that there is real progress in the AI direction in computer science, albeit it is rarely used for the intellectual property domain, so far.
Using patent valuation methods to assess damages in patent infringement cases under the Unified Patent Court	World Patent Information	Volume 52	Pages 1-8	2018	Roya Chafele, Rasmus Kamstrup Bogetoft	https://doi.org/10.1016/j.wpi.2017.12.003	Abstract: We illustrate how publicly sanctioned IP valuation guidelines prevailing in Europe can be applied to assess damages as foreseen under the provisions of the UPC Agreement. With the help of hypothetical example, we then evaluate if and to what extent the various ways proposed by European institutions to value IP fit with the provisions of the UPCA. We find that in situations where courts have all the necessary information required to determine damages, the IP valuation methods are a very useful tool in determining damages. It can however be expensive to obtain the necessary data to adequately determine damages.
Construction and validation of an ontology-based technology function matrix: Technology mining of cyber physical system patent portfolios	World Patent Information	Volume 55	Pages 19-24	2018	Amy J.C. Trappey, Charles V. Trappey, Usharani Hareesh Govindarajan, Allen C.C. Zhuang	https://doi.org/10.1016/j.wpi.2018.08.001	Abstract: This research develops a computer-supported ontology-based Technology Function Matrix (TFM) construction method, called eTFM, as an approach to reduce technology mining man-power and enhance the accuracy and consistency of patent analysis results. The paper addresses a rarely discussed issue of the TFM validation. The proposed validation approach compares the TFMs construction based on both on the domain ontology and the International Patent Classification (IPC) classes. The research demonstrates the methodology's practical applications using the patent analysis case of cyber physical system (CPS), an essential core technology enabling advanced manufacturing and Industry 4.0.
東南アジア(ベトナム、タイ、インドネシア等)の特許調査と必要な知識	情報の科学と技術	2013 年 63 巻 9 号	Pages App5-	2013	n/a	https://doi.org/10.18919/jkg.63.9_App5	n/a
e-Scienceと情報科学：パラダイムシフトに乗る	情報の科学と技術	2013 年 63 巻 9 号	Pages 358-362	2013	ステーン 智子	https://doi.org/10.18919/jkg.63.9_358	1999年の、英国科学技術省のJohn Taylor所長の提唱以来、e-Scienceのアプローチが、色んな科学分野で、使われているという事が確認され、科学の方向性がさらに変わって来た。情報科学分野の方でそれに見合う対応性が望まれる様になったので、アメリカでは、政府機関、大学、民間企業それぞれに、新しい動きが出て来ている。この論文では、いろいろな例を上げて、e-Science時代に情報を提供するアーカイブや図書館、さらに情報専門家に期待される施設や知識、さらに将来の展望なども、検討してみる。e-Scienceは、国境のない科学で、求められる情報も多言語で提供しなくてはならない。
B21 JST知識インフラ構想における規程同意システムの構築：機関間同意の試行と著者名同意との統合に向けた検討	情報の科学と技術	2013 年 63 巻 3 号	Pages 91-	2013	松田 勝治, 関根 基樹, 齋藤 隆行	https://doi.org/10.18919/jkg.63.3_91_3	n/a
A25 ロシア特許調査におけるデータベースの現状と問題点	情報の科学と技術	2013 年 63 巻 3 号	Pages 91-	2013	都築 泉, 中西 昌弘, 太極 博利, 安藤 俊幸	https://doi.org/10.18919/jkg.63.3_91_2	n/a
A24 網羅性のある韓国特許調査：網羅的かつ効率的に韓国特許を調査する手法の検討	情報の科学と技術	2013 年 63 巻 3 号	Pages 91-	2013	田嶋 文也, 中川 祐子, 沖 祥嘉, 荒牧 佳子	https://doi.org/10.18919/jkg.63.3_91_1	n/a
A23 インド特許調査方法の提案：精度良くインド特許情報を分析するには	情報の科学と技術	2013 年 63 巻 3 号	Pages 90-91	2013	太極 博利, 中西 昌弘, 安藤 俊幸, 都築 泉, 坂本 泉	https://doi.org/10.18919/jkg.63.3_90_4	n/a
A22 中国語キーワードを用いた特許情報解析：調査精度向上への応用	情報の科学と技術	2013 年 63 巻 3 号	Pages 90-	2013	安藤 俊幸, 有賀 康祐, 金澤 祐孝, 乾 智彦	https://doi.org/10.18919/jkg.63.3_90_3	n/a
C12 情報担当者の現状とその分析：情報担当者の地位向上を目指した評価のためのアンケート調査報告	情報の科学と技術	2013 年 63 巻 3 号	Pages 89-90	2013	n/a	https://doi.org/10.18919/jkg.63.3_89_4	n/a
B13 学術論文情報特性の経年変化：「引用評価の信頼性」の前期研究	情報の科学と技術	2013 年 63 巻 3 号	Pages 89-	2013	n/a	https://doi.org/10.18919/jkg.63.3_89_2	n/a
B12 日本及び海外企業(電機系・化学系)の論文発表状況の調査及び比較検討	情報の科学と技術	2013 年 63 巻 3 号	Pages 89-	2013	n/a	https://doi.org/10.18919/jkg.63.3_89_1	n/a
B11 企業技術の引用解析：技術の引用情報から何が見えてくるのか	情報の科学と技術	2013 年 63 巻 3 号	Pages 88-89	2013	黒沢 努, 藤江 隆, 伊藤 祥, 住本 研一, 伊藤 多一, 岩崎 尚, 西村 真, 李 星愛	https://doi.org/10.18919/jkg.63.3_88_4	n/a
A12 CNIPRの新機能解析	情報の科学と技術	2013 年 63 巻 3 号	Pages 88-	2013	永町 保宏, 石田 政司, 蓮中 李徳, 島原 隆秀	https://doi.org/10.18919/jkg.63.3_88_2	n/a
A11 中国実用新案情報の実態	情報の科学と技術	2013 年 63 巻 3 号	Pages 88-	2013	伊藤 敬男, 乾 智彦, 佐武 正紀, 西原 未来, 角田 朗	https://doi.org/10.18919/jkg.63.3_88_1	n/a
多様な検索支援技術	情報の科学と技術	2013 年 63 巻 1 号	Pages 15-20	2013	中村 聡史 京都大学大学院情報学研究所	https://doi.org/10.18919/jkg.63.1_15	本稿では、現在のGoogle型のWeb検索サービスを利用して検索することが困難な理由を「検索ユーザとWeb検索サービス間のギャップ」「検索ユーザと情報提供者間のギャップ」の二つの目的と「検索情報単一Webページ上に存在しないという3つの問題で整理する。また、それぞれの問題を解決するために取り組まれている検索意思図を考慮したインテグレイブな検索手法や、ソーシャルネットワークを利用した検索手法、Web上の情報を集約、分析および可視化することによって目的とする情報を作り出す手法などの様々な情報検索支援技術に関する研究について紹介を行う。
音声ドキュメント検索：マルチメディアデータを対象とした音声言語情報検索	情報の科学と技術	2013 年 63 巻 1 号	Pages 21-27	2013	秋葉 友良	https://doi.org/10.18919/jkg.63.1_21	情報通信技術の発展とデータ記録コストの低減によりテキストデータに加えてマルチメディアコンテンツの増大が加速している。音声ドキュメント検索は、音声データに含まれる言語情報を利用した検索技術であり、今後マルチメディアコンテンツの情報検索時代に必要な不可欠な技術になると考えられる。本稿では、音声ドキュメント検索の諸相について論じる。まず、音声ドキュメント検索の問題設定と、現在技術目標として評価が行われている2つのタスク設定である音声中の検索語抽出(STD)と音声ドキュメントの内容検索(SCR)について述べる。また、音声ドキュメント検索に必要な技術課題を整理し、研究動向を紹介する。最後に、音声ドキュメント検索手法の性能評価に

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
大学教員から見た、技術情報としての特許情報	情報の科学と技術	2014 年 64 巻 7 号	Pages 275-278	2014	大庭 亨	https://doi.org/10.18919/jkg.64.7_275	大学で化学を研究する立場から、特許に含まれる技術情報の受け止め方について私見を述べた。実際に実験を行う上で、実施例に記載された実験方法やデータなどは参考になる。また、従来技術に関する記述は当該分野を俯瞰するのに役立つ。ただし、記述の形式こそ学術論文と似ていても、内容の事実性が審査されているとは限られないことを考慮しなければならない。特許は技術文獻ではあるが、その本質的には発明の技術的範囲を明示する権利である。最小限の情報開示で最大限の権利を確保しようとする結果として、明細書の記述に不十分さや曖昧さが含まれる可能性も、特許の技術情報を読む上では常に念頭に置く必要がある。
化学関連の企業における技術情報としての特許情報の利用	情報の科学と技術	2014 年 64 巻 7 号	Pages 271-274	2014	佐藤 真司	https://doi.org/10.18919/jkg.64.7_271	特許は権利としてだけでなく、特許情報自身が技術文獻としての意義を有し、また、事業戦略等への更なる活用が可能である。近年、テキストマイニングを利用した特許分析ツールの開発が進んでいる。見える化の手段として利用されている特許分析ツールや特許の価値といった独自の指標を提示するようになっている。特許情報の分析は活発に行われている。弊社においても、従来から行っていた出願件数統計といった統計的な分析に加え、これらの分析ツールを利用し、特許解析を行っている。また、従来から行っていた先行技術調査等の調査に加え、さらなる解析を目的として分析ツールの拡大利用を検討している。本稿ではその一例を紹介する。
特許の評価値付与および評価値を使用した戦略的な特許マップ	情報の科学と技術	2014 年 64 巻 7 号	Pages 279-286	2014	有賀 康裕	https://doi.org/10.18919/jkg.64.7_279	特許の価値を数値に表すことは金銭的な価値評価として発展してきた。その過程で手法論が積み出されてきている。特に、数値化に対して有力な情報は特許の経過情報である。この数値は、人的判断に近い計算式としてチューニングして組み立てたことより、自動的に特許1件毎に数値（重み）を与えることができるようになる。このようにして得られた数値情報を利用し、事例としての「クロスカフリング反応を伴った技術」を例として適用した。この反応を伴う技術の中で、特許価値を最大の特許マップを作成することを試みた。その結果、特許価値の効果は特許の範囲だけでなく、ライセンスなどに係る価値をもたせられる。この解析結果は従来の特許マップでは難しかった技術の中央に踏み込んだ解析結果と共に、特許戦略的な面を持つ特許情報となる。
科学技術情報としての特許情報の取扱の現状と問題点	情報の科学と技術	2014 年 64 巻 7 号	Pages 265-270	2014	松永 敦夫, 石川 浩	https://doi.org/10.18919/jkg.64.7_265	今日、主要国特許庁から特許公報の全文データベースとして提供されている。このデータベースを自らサーチし、また必要に応じ審査経過情報にもアクセスして、誰かが関連する特許情報を探ることが可能になっている。特許情報の科学技術情報としての利用促進は、特許制度の要である。しかしながら、特許明細書は、出願人が特定の意図をもって技術情報を開示するものである。また、玉石交雑であることから、その利用には注意を要する。特許情報の利用方法、特許制度を良く知り、また技術分野毎の戦略の「パターン」を知って、特許情報を評価することが重要である。本論では医薬品に関する特許情報の評価や利用例を中心に紹介する。
電機業界における技術情報としての特許の利用例	情報の科学と技術	2014 年 64 巻 7 号	Pages 259-264	2014	井出 達徳, 今野 亮介, 五藤 善久, 北谷 謙一, 堀田 明代	https://doi.org/10.18919/jkg.64.7_259	特許の技術情報としての活用及び企業の経営戦略の策定に貢献する経営情報としての活用について電機業界での一例を紹介する。電機業界では、非常に多数の特許が事業に関与する。個々の特許の例はあちこのこと特許の量は事業遂行上、重要となっている。特許明細書から得られる情報、特許のマクロ分析手法・マクロ分析から得られる情報について述べると共に、ペナルを用いた新しい特許ポートフォリオ分析手法について紹介する。さらに、特許から得られる情報を補強するために様々な情報源、データベースも駆使して研究開発動向やビジネス情報等を総合的に分析する「総合調査」について述べる。
自動車技術情報として特許を探る	情報の科学と技術	2014 年 64 巻 7 号	Pages 255-258	2014	近藤 真喜	https://doi.org/10.18919/jkg.64.7_255	『自動車技術情報として特許を探る』を主題として、自動車技術を取り巻く環境からその活用の実態を論じた。活用の実態は、(1)技術探索、特許から技術を学ぶ、(2)競合他社分析：特許情報に基づいた開発動向のベンチマークから自社の研究・開発戦略策定、(3)新技術の市場投入時のリスク分析、(4)情報ネットワークとの連携と標準化。以上からの各観点で、特許という技術情報の価値と活用シーンを解説した。
技術情報としての特許情報	情報の科学と技術	2014 年 64 巻 7 号	Pages 250-254	2014	臼井 裕一	https://doi.org/10.18919/jkg.64.7_250	特許情報は、特許制度の目的から必然的に権利情報と技術情報の二側面を持っている。また特許情報は論文などと比較してその発行数の多さゆえに研究者がその全てに目を通すことは困難である。研究者が読むべき特許を選別する者が必要と考える。また、多数の特許情報を用いて解析を行い、更に利用価値の高い経営情報を再生産することが可能であることを考慮しても特許情報は十分に利用すべきである。このために知的財産情報データベース上に似て呼ぶような専門家集団が必要であると結論づいた。
C12 MEDLINE収録国内医学雑誌の経年分析	情報の科学と技術	2014 年 64 巻 3 号	Pages 83-84	2014	松田 真実, 黒沢 俊典, 林 和弘	https://doi.org/10.18919/jkg.64.3_83_5	n/a
A13 グローバル特許検索における登録系DBと全文系DBの検索比較：ナノコン/ガラス組織組成物の調査結果を中心に	情報の科学と技術	2014 年 64 巻 3 号	Pages 82-	2014	橋本 武彦, 脇阪 幸也, 武田 領子, 岡 興吉, 青野 祥博	https://doi.org/10.18919/jkg.64.3_82_3	n/a
B32 特許MAPを活用した戦略分析プロセス	情報の科学と技術	2014 年 64 巻 3 号	Pages 86-87	2014	岡 博貴, 富安 亜矢子, 司田 朋子, 花木 陽平, 鈴木 雄也, 佐々木 真樹	https://doi.org/10.18919/jkg.64.3_86_5	n/a
B31 特許文を対象とする高精度な中日・英日自動翻訳：統計翻訳技術の特許検索での実用化	情報の科学と技術	2014 年 64 巻 3 号	Pages 86-	2014	岡田 英一, 内山 将夫	https://doi.org/10.18919/jkg.64.3_86_4	n/a
B22 商品開発の方向性提案に資する分析：お客様の声に特許情報を融合し商品開発に活かす	情報の科学と技術	2014 年 64 巻 3 号	Pages 86-	2014	平塚 悠, 鶴見 隆, 山中 とも子, 河村 克己, 脇川 雅多	https://doi.org/10.18919/jkg.64.3_86_2	n/a
B21 経済統計に関するレفرنス質問に含まれる観測点の分析	情報の科学と技術	2014 年 64 巻 3 号	Pages 86-	2014	山本 一治	https://doi.org/10.18919/jkg.64.3_86_1	n/a
A33 中国語キーワードによる中国特許情報解析：調査精度向上への応用	情報の科学と技術	2014 年 64 巻 3 号	Pages 85-	2014	安藤 俊幸, 金澤 祐季, 小山 裕史, 沖 祥嘉	https://doi.org/10.18919/jkg.64.3_85_4	n/a
A32 中国特許の中国語キーワード検索検証：中国語を用いた特許調査の網羅性向上	情報の科学と技術	2014 年 64 巻 3 号	Pages 85-	2014	石田 政司, 山本 光三, 田畑 文也	https://doi.org/10.18919/jkg.64.3_85_3	n/a
A31 中国出願の中国語発明者名を用いた発明者分析：同姓同名や上位登録名等の影響	情報の科学と技術	2014 年 64 巻 3 号	Pages 85-	2014	山田 健一, 柳山 勉	https://doi.org/10.18919/jkg.64.3_85_2	n/a
A23 タイ特許調査方法の検討：タイ特許データベースの収録の実態	情報の科学と技術	2014 年 64 巻 3 号	Pages 85-	2014	武藤 亜弓, 中西 昌弘, 太極 博利, 小山 裕史	https://doi.org/10.18919/jkg.64.3_85_1	n/a
A22 台湾特許調査手法の検討：網羅的かつ効率的に台湾特許を調査する手法の検討	情報の科学と技術	2014 年 64 巻 3 号	Pages 84-85	2014	田畑 文也, 石田 政司, 桑原 隆秀, 小山 裕史	https://doi.org/10.18919/jkg.64.3_84_3	n/a
A21 中国特許調査の課題に関する研究-II：切り出し機能を活用したTool(Eiplaza等)による調査研究	情報の科学と技術	2014 年 64 巻 3 号	Pages 84-	2014	柳山 勉, 吉野 孝, 藤城 亨, 栗原 健一, 川島 陽, 長谷川 正好, 田中 喜郎, 渡邊 彩	https://doi.org/10.18919/jkg.64.3_84_2	n/a
C13 文献引用の評価性：「引用評価の信頼性」(続)研究者調査	情報の科学と技術	2014 年 64 巻 3 号	Pages 84-	2014	仲木 秀四郎	https://doi.org/10.18919/jkg.64.3_84_1	n/a
A11 中国・台湾特許原語検索における出願人検索の留意点	情報の科学と技術	2014 年 64 巻 3 号	Pages 82-	2014	龍田 久美, 伊藤 徹男, 高橋 元彦	https://doi.org/10.18919/jkg.64.3_82_1	n/a
オープンデータの動向とこれから<特集>オープンデータ	情報の科学と技術	2015 年 65 巻 12 号	Pages 496-502	2015	田中 昌彦	https://doi.org/10.18919/jkg.65.12_496	近年、公共財としてのデータを増強して幅広い活用を促す「オープンデータ」に関する政策と運動が世界的に広がっている。本稿ではまず、オープンデータは何かという定義やそれを裏付けするための利用規約をめぐる議論を紹介する。そして、オープンデータに関する国際組織の動向や国内外の政府・自治体の政策動向、企業・市民社会組織における利用活用の具体的事例を紹介する。最後に、インターネットの普及とともに広がってきた「オープンな文化」の社会的・文化的な意味などを述べ、オープンデータをめぐる議論をもとに社会的な文脈で捉えていく必要性があるが指摘する。
データ可視化の必要性和意義：データビジュアライゼーションとは<特集>情報をわかりやすくするデザイン	情報の科学と技術	2015 年 65 巻 11 号	Pages 470-475	2015	鈴木 雅彦, 鈴村 嘉右	https://doi.org/10.18919/jkg.65.11_470	現代社会を生きる我々には、知らないうちに無数の情報に囲まれている。データを持つという「質」も複雑なものになり、それらのデータ群から「意味」を見出すのは困難を極める。近年、「ビッグデータ」という言葉がメディアに取り上げられて久しいが、データの集合自体はとも「無関係」なものである。そこから意味を見つけ、正しい解釈を行い、有効活用したいものの、それは専門的知識を有する一層の特殊な人になっている。万人が平等に、データから意味を見出すには、従来のグラフでは、表現に限界があるだろう。見たい代目で、別視点での価値をより活用し、価値性を増したグラフに会うことが少ない。膨大なデータ群が今後増えていく技術の中で、インタラクションを伴う「データビジュアライゼーション」と呼ばれる可視化技術について、その意義や手法について解説したい。
情報をわかりやすく伝える技術：情報アーキテクチャ<特集>情報をわかりやすくするデザイン	情報の科学と技術	2015 年 65 巻 11 号	Pages 457-464	2015	長谷川 敦士	https://doi.org/10.18919/jkg.65.11_457	図書館情報学の知見をWebデザインに活かす観点で生まれた「情報アーキテクチャ」の考え方は、情報デザインの普及とともにないWebサイトだけでなく、ユーザー体験のための技術にまで発展した。本稿では、Web情報アーキテクチャの誕生から、Webサイト構築における実業を解説する。また、情報アーキテクチャの読みかたの観点でも有名「ジャスト・イン・タイム」の考え方を与え、影響、わかりやすくデザイン全般への応用、そしてユーザー視点で再定義された現代の情報アーキテクチャについて組織する。
データ分析を用いたサービス品質の管理：カリルのデータ分析活用事例から<特集>データ分析によるサービス改善	情報の科学と技術	2015 年 65 巻 10 号	Pages 430-433	2015	吉本 龍司	https://doi.org/10.18919/jkg.65.10_430	図書館蔵書検索サイト「カリル」は各図書館がウェブ上に公開した蔵書情報をウェブクレンジング技術により統合的に見えるようにすることで利便性の高いプラットフォームを実現した。図書館の現状や問題、利便性や利便性などによって提供される情報は常に変化している。また、システムがウェブ上でデータ連携に開ける変化は日常業務である。変化する情報を迅速に把握し、より正確な情報をユーザーに提供することはカリルにとって一番重要な業務である。本稿では、経験的にカリルが実践してきたサービス品質の管理手法についてまとめるとともに、データを生かした新たな図書館サービスの可能性について提案する。
データ分析からサービスの改善へ<特集>データ分析によるサービス改善	情報の科学と技術	2015 年 65 巻 10 号	Pages 418-423	2015	工藤 卓哉	https://doi.org/10.18919/jkg.65.10_418	今日、世界的な先進企業が日々生成される膨大なデータのなかから「金鉱」を見つけ出すと躍起になっている。日本でも数年前から「ビッグデータ」「データサイエンス」という言葉が流行しはじまっているものの、国内ではまだ「ビッグデータの域を出たは思い切らない。データ活用が、デジタル化社会の将来を見越したビジネスモデルの構築にまで到達するケースはいまだ限られているからだ。そこで本稿では、日本を拠点にさまざまなデータ分析案件に携わる筆者の視点から、デジタル化社会におけるデータ活用のキーポイントを先駆事例を交えながら論じていく。
オープンアクセス・インパクトファクター・XML：Nagoya J Med Sci出版の現場から	情報の科学と技術	2015 年 65 巻 8 号	Pages 355-359	2015	瀬生 英博	https://doi.org/10.18919/jkg.65.8_355	大学図書館が、学内で発行している学術的なオープンアクセス化を行い、研究情報の発信を支援することは、大学図書館による研究支援として、重要な活動と考へられている。本稿では、筆者が編集長に当たっているNagoya Journal of Medical Science(例として、2010年にオープンアクセス化を行い、2013年に最初のインパクトファクターを取得するまでの経緯を述べる。またその後のXML化を行いPMCID登録することで、医学系の重要なデータベースであるPubMedにフルテキストがリンクされて利用できるようになったこと、Nagoya Journal of Medical Scienceの現状と課題を述べる。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
データベース、検索システムについての現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 308-312	2015	沖 砂穂理	https://doi.org/10.18919/jkg.65.7_308	特許調査のほかで、新規性調査、無効異料調査、及び侵害調査は主なものである。近年、データベースの質の向上に加え、得られる特許情報が増加している。本稿では、特許調査に使用するデータベースの概略、有料又は無料データベースの使い分け、超過情報、審査書類情報、引用文献などの利用方法などを、新しくリリースされたJ-PlatPatから得られる情報を含めて紹介する。また、無効異料調査におけるEspacenetおよびEuropean Patent Registerの活用方法を紹介する。データベース、検索システムにおける課題についても述べる。
海外特許調査の現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 302-307	2015	田中 志帆星	https://doi.org/10.18919/jkg.65.7_302	昨今では、日本企業が考える市場は海外にまで広がっており、海外の競合他社の重要性も増していることから、日本企業には世界を見渡したグローバルな知能戦略が求められている。その結果、特許調査においても、様々な国を対象としたグローバルな調査が必須となってきている。そのようなグローバルな調査を効率的に行うには、現時点で利用可能なデータベースの特色や、現状で可能な調査内容、問題点を把握しなければならない。本稿では、最も重要性が高いと考えられる中国での調査を中心に、海外特許調査の現状と課題を解説する。
化学分野における特許調査の現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 296-301	2015	北川 道成	https://doi.org/10.18919/jkg.65.7_296	化学分野の出願では重要な技術用語である化学物質はキーワード検索可能な化学物質名や分子式だけでなく分子構造を図で表した構造式で表現される事がある。また化学物質名の表記は振れがみられる。化学分野の特許調査では他の分野で行う意義感、上位概念・特許分類使用による網羅性確保の他に、化学物質が索引されたデータベース全文系データベースを併用することで網羅性を上げる事が可能である。一方でこれらデータベースの収録範囲、索引基準を把握し、適切な検索をねらった十分な網羅性を確保できない。本稿では特に侵害予防的調査についてフレグマチンダビニータデータベース選択・予備検索・検索式作成・結果出力までのプロセス毎に現状と課題を記載した。
電気分野における特許調査の現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 290-295	2015	矢野 純一	https://doi.org/10.18919/jkg.65.7_290	特許情報は権利情報および技術情報の二面性を持ち、侵害防止調査は権利情報の調査であり、特許解析は技術情報の調査である。電気分野は二つの側面両方に關連して極めて多数の特許が存在するため、権利情報の特許調査、技術情報の特許調査いずれにも大きな困難が伴う。電気分野における権利情報調査としての侵害防止調査の一手法について紹介するとともに、その問題点について述べる。また技術情報調査の一例として事業戦略提案につなげた特許解析を紹介し、このような活用における問題点についても述べる。
特許調査、特に権利調査における現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 284-289	2015	静野 健一	https://doi.org/10.18919/jkg.65.7_284	特許調査、特に権利調査は、企業の海外展開の加速、世界の特許出願件数の増加、技術の高度化・複雑化を背景に、近年その重要性・困難性を増してきている。権利調査は、概念を調査するという特殊な観点から出願前調査等とは全く異なる調査アプローチがられ、完全網羅的な結果を得ることは困難である。また、調査にあたっては、リスク許容度や掛けをけることのできるコスト等を明確にし、実施技術、特許文献双方についてリスク評価を行い、合理的・効果的な調査調査を行うことが求められる。本稿では、権利調査の特殊性を説明し、その基本的なアプローチの紹介をするとともに、権利調査に関する現状の課題について取り上げた。
特許調査の現状と課題（<特集>特許調査の現状と課題）	情報の科学と技術	2015 年 65 巻 7 号	Pages 276-283	2015	下川 公子	https://doi.org/10.18919/jkg.65.7_276	国内では、(独)工業所有権・特許館INPITから提供されてきたIPDLに代わって本年3月からJ-Plat-Patが提供されるようになった。海外では欧州特許庁(EPO)が商用データベースであるGlobal Patent Index(GPI)の提供を始めている。国内の商用データベースでは、PATOLISのサービスが昨年終了し、そのほかの提供会社間では再編の動きがあった。海外の商用データベースはコマンドラインのシステムを残すのはISTWのみになり、このISTWの数年のうちに新プラットフォームへ移行予定である。中国のCNIPDRが昨年より日本国内で日本語を有料で提供するようになり、生知能で指定できるとが新しい。ASEAN諸国や南米の特許情報も、各国特許庁の元データが整備されていないため、データとしてはまだまだ不十分である。これらのデータの整備については、各国特許庁の努力と日本の特許庁からの教育、支援が望まれる。特許分類はIPCよりも細分化されたCPC(Cooperative Patent Classification)が2013年からEPOと米国特許商標庁(USPTO)で付与が開始され、この動きは中国、韓国などへ広がろうとしている。日本の特許庁はCPC採用の意向を示していないが、ユーザーとしては単一の特許分類で調査できることが望ましい。最後に、現在の海外商用データベースとそれを使う側の問題点についても述べる。
特集:「特許調査の現状と課題」の編集にあたって	情報の科学と技術	2015 年 65 巻 7 号	Pages 275	2015	パテントキメンテーション委員会	https://doi.org/10.18919/jkg.65.7_275	n/a
概念検索の使いこなしに関する論文	情報の科学と技術	2015 年 65 巻 3 号	Pages 141-147	2015	六車 正道	https://doi.org/10.18919/jkg.65.3_141	概念検索の使いこなしに関する論文はすでに30篇近く発行されている一方で、概念検索は再現率が低く(実際に使えないという意見もある。本稿でこれらの各論文の概略を紹介した。これをえらうと、検索実験には実験のテーマ数が数十件など大量に実施されたものと少ないものがある。テーマ数が多めの場合、質問文は請求範囲などが使われている。テーマ数が少ない場合、質問文は意図を反映させて利用者が作った短文を使い、ヒット判定に使う目標特許群は概念調査をして設定しているものが多い。これにより、なぜ概念検索の利用で再現率が高いものか低いものがあるのか推察される。
自社の技術の棚卸しによる新規事業提案の手法検討	情報の科学と技術	2015 年 65 巻 3 号	Pages 117-122	2015	本田 瑞穂, 清水 剛, 清水 理恵子, 永山 敦, 豊久田 和郎, 山田 裕昭, 山田 宏文, 山根 深一	https://doi.org/10.18919/jkg.65.3_117	新規事業の立ち上げのアプローチとして、自社の技術を組み合わせたことによるが、実際にやうとすると、自社に多様な技術があるにもかかわらず、その全容はつかみきれないことが多い。本報告では、シーズからのアプローチを試みとして、自社の技術の棚卸しを行うことにより、自社技術の強み・弱みを分析し、新たな事業の提案を行うための手法を、事例を用いて検討した。(1)自社技術のコア技術の抽出の手法、(2)コア技術と他の技術の組み合わせの手法、を中心に報告する。
技術視点から導く新規事業領域推定手法の検討：「研究・事業」および投資力の指標化	情報の科学と技術	2015 年 65 巻 3 号	Pages 111-116	2015	伏見 祥子, 伊賀上 まみ子, 大津 剛, 岡 紀子, 木下 敏夫, 中井 利人, 佐藤 和代	https://doi.org/10.18919/jkg.65.3_111	研究開発を行う組織においては、自組織の保有するコア技術を基に、事業を拡張するための提案を求められる場面が多くなっている。本研究においては、特許調査メーカーが自社のコア技術を基に、事業を拡張することを検討する場合を例に、分析手法の検討を行った。具体的には、優先度が高いコア素材に、親和性の高い疾患をMeSHから抽出し、抽出された疾患に対する特許情報、文献情報および推計患者数から「研究・事業化」の進捗及び市場の投資力分析をこの検討した。
トーク&トープ特許価値評価の現状と課題」を整理して	情報の科学と技術	2015 年 65 巻 3 号	Pages 108-110	2015	清水 美都子	https://doi.org/10.18919/jkg.65.3_108	n/a
B31 エンドユーザー向け検索ツールの比較：Google Scholar、J-GLOBAL、ディスカヴァリー・サービスの情報収録状況比較	情報の科学と技術	2015 年 65 巻 3 号	Pages 106-	2015	森崎 幸一, 鈴木 理加, 中村 伸朗, 特井 聡子	https://doi.org/10.18919/jkg.65.3_106_2	n/a
B22 韓国特許調査手法の検討：パングルネットワーク検索を併用した網羅性向上手法の検討	情報の科学と技術	2015 年 65 巻 3 号	Pages 105-	2015	田畑 文也, 前田 佳治, 伊藤 徹男, 中西 昌弘	https://doi.org/10.18919/jkg.65.3_105_4	n/a
B21 中国特許ステータス情報：中国特許のステータス情報の実態とその情報の検証	情報の科学と技術	2015 年 65 巻 3 号	Pages 105-	2015	水口 保宏, 田畑 文也, 中西 昌弘, 石田 政司, 鈴木 真由美	https://doi.org/10.18919/jkg.65.3_105_3	n/a
A32 開発スピード重視の新商品開発はどう行うのか？：A社の特許戦略を読み解く	情報の科学と技術	2015 年 65 巻 3 号	Pages 105-	2015	下田 中, 杉田 幸弘, 廣瀬 元, 玉野 裕子, 大河戸 誠雄, 三浦 康, 佐々木 真治	https://doi.org/10.18919/jkg.65.3_105_1	n/a
A31 特許を用いた企業の戦略分析における妥当性検証の必要性：サントローを事例として	情報の科学と技術	2015 年 65 巻 3 号	Pages 104-105	2015	山本 光三, 有賀 康裕, 上野 亮貴, 大庭 照夫, 廣田 祐一朗, 都築 崇	https://doi.org/10.18919/jkg.65.3_104_5	n/a
A23 経営サイトに載置されるマップ作成手法の提案：即席結果特許出願No.1がバナーの傾向とガバナーに対抗するための戦略を探索	情報の科学と技術	2015 年 65 巻 3 号	Pages 104-	2015	赤染 剛子, 三宮 瑞美, 西尾 啓, 平尾 啓	https://doi.org/10.18919/jkg.65.3_104_3	n/a
A22 ネオジム磁石市場における知財戦略をあぶりだす：自利と活用との観点から特許情報を解析し、知財部、経営層、研究者への提案に活かす	情報の科学と技術	2015 年 65 巻 3 号	Pages 104-	2015	中西 朋宏, 今井 久美子, 後藤 謙治, 中川 智洋, 杉原 彰子, 伊藤 恵子, 佐藤 貴司	https://doi.org/10.18919/jkg.65.3_104_2	n/a
A21 特許情報からみたスター発明者のネットワーク構築	情報の科学と技術	2015 年 65 巻 3 号	Pages 104-	2015	大塚 龍	https://doi.org/10.18919/jkg.65.3_104_1	n/a
C14 情報評価の定量性	情報の科学と技術	2015 年 65 巻 3 号	Pages 103-	2015	仲木 秀四郎	https://doi.org/10.18919/jkg.65.3_103_4	n/a
C11 科学的異制度評価指数h TM -index	情報の科学と技術	2015 年 65 巻 3 号	Pages 103-	2015	大槻 明, 川村 雅義	https://doi.org/10.18919/jkg.65.3_103_1	n/a
B13 機械翻訳文を利用した中国特許文庫の分析研究：中国特許文庫原文と複数の機械翻訳文を併用する分析法	情報の科学と技術	2015 年 65 巻 3 号	Pages 102-	2015	鶴山 勉, 藤城 亨, 栗原 健一, 川島 剛, 長谷川 正好, 田中 晋郎, 源道彰	https://doi.org/10.18919/jkg.65.3_102_4	n/a
B12 中国特許解析・テキストマイニングによるKW分析：適合率を重視した特許調査支援	情報の科学と技術	2015 年 65 巻 3 号	Pages 102-	2015	安藤 俊幸, 鶴山 勉	https://doi.org/10.18919/jkg.65.3_102_3	n/a
B11 中国特許調査のノウハウ：中国語特許データベース「日本版CNIPR」の活用	情報の科学と技術	2015 年 65 巻 3 号	Pages 102-	2015	高橋 元彦, 伊藤 徹男	https://doi.org/10.18919/jkg.65.3_102_2	n/a
A14 企業における異分野融合の成功事例のプロセス解析とその応用	情報の科学と技術	2015 年 65 巻 3 号	Pages 101-	2015	山中と 満子, 滝 一雄, 浅野 昭, 伊藤 孝, 堀口 卓志, 角田 裕之, 原田 雅子, 水野 圭登	https://doi.org/10.18919/jkg.65.3_102_1	n/a
A13 将来の新事業展開のために連携すべき研究者を発見・評価・選定する手法：産学連携に向けて適切な連携相手を見い出す方法	情報の科学と技術	2015 年 65 巻 3 号	Pages 101-	2015	大久保 武利, 沖田 香織, 小泉 真樹, 堀井 英之助, 佐山 純子, 塚本 徹也, 野口 尚志, 野田口 真也, 柳一英	https://doi.org/10.18919/jkg.65.3_101_3	n/a
A12 自社の技術の棚卸しによる新規事業提案の手法検討	情報の科学と技術	2015 年 65 巻 3 号	Pages 101-	2015	本田 瑞穂, 清水 剛, 清水 理恵子, 永山 敦, 豊久田 和郎, 山田 裕昭, 山田 宏文, 山根 深一	https://doi.org/10.18919/jkg.65.3_101_2	n/a
A11 自組織のコア技術を基に、事業を拡張するための分析手法の検討：夢の特許調査事業への道	情報の科学と技術	2015 年 65 巻 3 号	Pages 101-	2015	伏見 祥子, 伊賀上 まみ子, 大津 剛, 岡 紀子, 木下 敏夫, 中井 利人, 佐藤 和代	https://doi.org/10.18919/jkg.65.3_101_1	n/a

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
オープンサイエンス時代の研究公正	情報の科学と技術	2016 年 66 巻 3 号	Pages 98-102	2016	林 和弘	https://doi.org/10.18919/jkg.66.3_98	公的資金による研究においては科学と社会のあり方に基づき研究公正が問われ、ICT 環境の進展や市民の関心とともに、研究不正発見が新し人間関を見ている。 研究公正に対する取組みは研究者を養護させるものではなく、健全な研究による科学の発展、産業・文化の構築のために行われるべきものである。オープンサイエンスのムーブメントにより、透明性が高まり、様々な研究への貢献が認められる環境。研究プラットフォームを作り出す可能性が生まれている。研究成果の出版、発達のあり方、研究成果の保証の方法が今後大きく変わらなくてはならない。研究者が正当に認められ、研究不正が犯さなく、新しい環境を醸成する必要がある。
情報分析・解析ツール紹介 第2回 国内最大の科学技術論文データベース「JDream III」を用いた分析	情報の科学と技術	2016 年 66 巻 2 号	Pages 87-89	2016	川越 康司	https://doi.org/10.18919/jkg.66.2_87	n/a
情報分析・解析ツール紹介 第12回 ～特許情報解析もグローバルな時代への対応を～「PAT-LIST-GLS」で世界の特許情報を解析	情報の科学と技術	2016 年 66 巻 12 号	Pages 631-633	2016	出口 隆信	https://doi.org/10.18919/jkg.66.12_631https://doi.org/10.18919/jkg.66.12_631	n/a
情報分析・解析ツール紹介 第11回 特許情報の加工・分析用「TECRES@シールズソフト」：「リクエストマップ@EXZ」、「テキストマトリクスチャート@」、「クレーンマップ@」、「PAT EASY Z@」、「パトクレームクラスター@」	情報の科学と技術	2016 年 66 巻 11 号	Pages 597-599	2016	有賀 康裕	https://doi.org/10.18919/jkg.66.11_597	n/a
個人情報の活用と保護の技術	情報の科学と技術	2016 年 66 巻 11 号	Pages 585-590	2016	高橋 克巳	https://doi.org/10.18919/jkg.66.11_585	個人情報の活用と保護の技術に関して、個人情報の取り扱いの原則を解説し、個人情報の定義を述べた上で、原則に基づいたデータ収集、データ処理、データ保管の技術的観点からの解説を行う。個人情報取り扱いの原則はOECD8原則やISO/IECプライバシーフレームワークを参照しながら、利用目的、データ最小化などといった技術的概念を説明し、個人情報保護法が求める保護の技術的意味に迫る。さらにこれらに対してデータ最小化に貢献する匿名化技術や情報セキュリティに貢献する暗号技術の概要を解説する。
情報分析・解析ツール紹介 第10回 特許文書分析・書誌支援・マップ作成ソフトウェア「ばつマイン GAP」を活用した分析とは	情報の科学と技術	2016 年 66 巻 10 号	Pages 545-548	2016	日本パテントデータベース株式会社、ライズ特許サービス株式会社	https://doi.org/10.18919/jkg.66.10_545	n/a
情報分析・解析ツール紹介 第8回 テキスト情報の活用プラットフォーム「見える化エンジン」	情報の科学と技術	2016年 66 巻 8 号	Pages 433-437	2016	中居 隆	https://doi.org/10.18919/jkg.66.8_433	n/a
情報分析・解析ツール紹介 第7回 国内の科学技術動向を俯瞰する-GLOBAL「分析ツールβ版」の使い方	情報の科学と技術	2016 年 66 巻 7 号	Pages 358-360	2016	木村 孝宏	https://doi.org/10.18919/jkg.66.7_358	n/a
新事業創出のための3つの情報分析アプローチ ～空気清浄機を事例として～	情報の科学と技術	2016 年 66 巻 7 号	Pages 345-351	2016	岡本 耕太、清水 裕史、津田 英隆、仲 美津子、伏見 祥子、塩口 泰	https://doi.org/10.18919/jkg.66.7_345	近年、企業活動における情報分析の重要性が大きくなっている。本稿は、筆者らは空気清浄機を開発、製造、販売する電機メーカーA社の経営企画部である仮定して、公開情報（製品、特許、論文など）を分析して新事業創出のための提案を作成する手法の検討を行った。手法の検討にあたっては、以下(1)～(3)の観点からのアプローチを行った。(1)A社空気清浄機技術の強み、(2)空気清浄機技術と競存技術の組み合わせ、(3)社会ニーズに対応する次世代技術
知財審判・訴訟情報調査入門～無料入手可能なソースを中心に	情報の科学と技術	2016 年 66 巻 7 号	Pages 325-330	2016	高井 美里 審判情報	https://doi.org/10.18919/jkg.66.7_325	スマートフォン・知財訴訟や権利争いの懸念、裁判官の審判など、身近な製品に関する知財訴訟に目にする機会が多くなっている。また、平成27年より特許異議申立制度の運用が開始されると、審判制度にも新たな動きが発生している。しかし日本には例によって、審判や訴訟に関する情報としての需求は稀で審判記録情報、判決文などは、その管轄が特許庁審判部、知財高裁、高等裁判所と多岐にわたりどこを見ればすべての情報を簡単に入手可能とはいえないのが現状である。したがって一般の特許情報利用時には、その入手や利用方法の把握が難しく、ましてや審判や訴訟の情報を整理など、より数回が高価と感じられる、といった状況にある。本稿は日本及び外国を中心に、知財審判・訴訟に関する情報の種類ならびに情報入手方法を概説する。
特許訴訟情報の取得	情報の科学と技術	2016 年 66 巻 7 号	Pages 318-324	2016	藤井 保夫	https://doi.org/10.18919/jkg.66.7_318	企業活動が技術革新により特許に大きく依存していることから、企業が重要決定を行うに際して、特許権の個別の実情を知る必要がある。そのために、訴訟情報は欠かせないことができない。日本の特許/知財訴訟情報の本体は、紙媒体上に存在する。その情報は、判決書という形式であっても、裁判官の個性の原則にしたがって、国民に公開されている。この訴訟情報を得るために訴訟番号と当事者名と管轄裁判所の担当部署とを知る必要があるが、これらは、開示された訴訟の情報を電子化してインターネット上にある「知財特許データベース」から知ることができる。米国の特許訴訟に関する情報は、全てが、電子化されて公開されている。「米国訴訟日報」では、特許訴訟の管轄裁判所90のなかより上から、ほとんどの場合、提訴の翌日には、訴訟などの訴訟の内容を知る手がかりが得られ、裁判記録も、電子ファイルとしてインターネット上のデータベースから得られる。
最近の動きと特許調査とは発明の開示との関係	情報の科学と技術	2016 年 66 巻 7 号	Pages 312-317	2016	重嶋 康彦	https://doi.org/10.18919/jkg.66.7_312	知財財産の中でも技術関係の情報を中心とする特許関係の特許庁の審査・審判、更には訴訟に見る最近の動きを把握し、特許調査や発明を促す際の影響など考慮すべきことを述べる。特許庁の特許と裁判所の判例には微妙な違いが見られる。特許庁の審査は、ある程度の技術的開示の範囲があれば、比較的広い範囲で請求範囲が認められる。しかし、権利範囲などの裁判による具体的な判断が影響し、規定する範囲が与えられる。特許調査や発明を促す際の影響を考えると、技術的内容を明確でなく、必要十分な範囲または観点で取組むべきが重要になる。調査であれば技術用語による全文検索を、発明開示であれば出来る限りの下位概念をしっかりと実施形態に述べるべきと求められる。
情報分析・解析ツール紹介 第6回 情報から創生イノベーション ～グローバルな特許情報分析に必要とされるコンテツタ、ツール及びアプローチ	情報の科学と技術	2016 年 66 巻 6 号	Pages 296-302	2016	福 冲	https://doi.org/10.18919/jkg.66.6_296	n/a
企業における経営課題の解決策提案 ～ドラスティアチオンA社を事例として～	情報の科学と技術	2016 年 66 巻 6 号	Pages 282-288	2016	米沢 正英、井脇 俊、小泉 真理、今野 奈津子、高野 奈菜子、原田 洋子、山根 深一、宮城島 匡賢	https://doi.org/10.18919/jkg.66.6_282	企業の経営課題解決において、企業内部で解決が困難な場合に外部の第三者が役割を担って問題を解決するケースがある。その場合、社内の立場からは経営理念とずれない提案力が必要となる。そこで筆者は、社外コンサルタントとしてドラスティア社から依頼を受け、想定で、データベースと分析ツール等を利用して情報収集および課題整理を行い、課題解決を支援することを試みた。実施内容は、①調査・情報収集、②課題の明確化、③仮説構築、④仮説検証、⑤解決策提案とした。現状分析のための情報をデータベースから収集すると、業界、自社、競合の状況が整理される。次に分析ツールにより財務や経営戦略の観点から企業課題を明確化し、公開情報のみに基づきシナリオ分析で課題解決策を提案した。
人工知能による文書分類	情報の科学と技術	2016 年 66 巻 6 号	Pages 277-281	2016	難波 英嗣	https://doi.org/10.18919/jkg.66.6_277	近年、人工知能はコンピュータと機械学習、自動車の自動運転など、様々な分野で目覚ましい発展を遂げており、その成果をインターネット、新聞、テレビなど目にする機会も少なくない。自然言語処理（NLP）は人工知能の一分野であり、人間が日常的にしている言葉（自然言語）をコンピュータで処理させる技術のことを指す。人間が文書を分類する作業を、コンピュータで自動化することは、自然言語処理における代表的な研究課題のひとつである。本稿では、コンピュータによる文書分類に焦点を当て、様々な研究事例とその仕組みを紹介する。
論文データベースにおける主題分類 ～情報分析への利用の観点から～	情報の科学と技術	2016 年 66 巻 6 号	Pages 272-276	2016	小野寺 夏生	https://doi.org/10.18919/jkg.66.6_272	論文データベースの収録記事に付与される主題分類は検索キーとして使われる他、情報分析において重要な役割を果たす。主要なデータベースで使われている主題分類の概要を示し、その中でも情報分析に利用されるWeb of Science Core Collection、Essential Science Indicators、Scopusの3つの分類の特徴を述べるとともにそれらの比較を行う。その後、情報分析を志向して提案された主題分類について解説する。それらは、人的な考察に基づく分類とアルゴリズム的な分類（主に引用関係による）に大別される。
特許分類について	情報の科学と技術	2016 年 66 巻 6 号	Pages 266-271	2016	角田 朗	https://doi.org/10.18919/jkg.66.6_266	初めて特許業務に関わる方や、これから本格的に特許調査に取り組む方に向け、特許分類とはどのようなものか簡単に解説した。特許分類をイメージしやすいように、特許分類を生物学的分類と比較した。次に、国際特許分類についてその概要を説明した。我が国特許庁の特許分類であるJ、F、Aの特許分類、F、A、Mについても、国際特許分類と比較しながら、その概要を解説した。分類付与の実態についても説明した。加えて、外国の特許分類であるCPC・USクラスについても簡単に紹介した。最後に、特許分類の調べ方と分類を使って検索する際に、知っておくべき注意点を解説した。
情報分析・解析ツール紹介 第5回 テキストマイニングによる解析サービス「TRUE TELLER」(パテントポートフォリオ)の特長	情報の科学と技術	2016 年 66 巻 5 号	Pages 243-246	2016	田嶋 龍太郎	https://doi.org/10.18919/jkg.66.5_243	n/a
Web時代の情報サービスの情報加工・分析	情報の科学と技術	2016 年 66 巻 5 号	Pages 230-236	2016	河塚 幸子	https://doi.org/10.18919/jkg.66.5_230	n/a
情報分析・解析ツール紹介 第4回 特許・非特許文献解析ツール STN	情報の科学と技術	2016 年 66 巻 4 号	Pages 176-179	2016	塩永 由紀子	https://doi.org/10.18919/jkg.66.4_176	n/a
アーキストは意図情報検索システムをどう活用しているか 記述標準から考える	情報の科学と技術	2016 年 66 巻 4 号	Pages 153-159	2016	齋藤 希	https://doi.org/10.18919/jkg.66.4_153	本論の目的はアーキストが意図情報検索システムをどのように活用しているかを明らかにすることである。そのため「アーカイブズにおける「記述標準」の考え方を整理し検索手段を分析した。はじめに記述標準を三つのレベルに分類してそれぞれの役割を概観した。ここでは1989年に「リサーチアーカイブ」が提示した分類を用いた。次にその記述標準の活用例を概観した。対象をエコノミア協会のアナログアーカイブズの検索手段として、MARCC EADをどのように使っているかを整理した。最後に二種類の検索手段の構成要素を比較して、アーキストによる記述の実践を明らかにした。
大学アーカイブの可能性 ～個人文書を中心に～	情報の科学と技術	2016 年 66 巻 4 号	Pages 148-152	2016	小池 聖一	https://doi.org/10.18919/jkg.66.4_148	大学アーカイブスは、必ずしも全ての大学に設置されているわけではないが、大学の個性に対応した形態となり、その個性に相応する個人文書を所蔵している。大学アーカイブズでは、これまで「機関アーカイブ」として、当該機関の記録整理に自励することが主であった。その点で、三宅体制を有する広島大学図書館では、公文書管理法の政令指定機関となり、公文書の統一的な管理を果たす一方、大学史料資料が個人文書を学術的資料として収集・整理・公開し、多様な個人文書を所蔵している。今後、アーカイブスは、全体として機能的な発展的な方向を向いている。課題は大きい。個人文書については、国立国会図書館憲政資料室、大学アーカイブズ、その他のアーカイブズとの連携による調査・研究機関が必要ではないだろうか。
中東の特許情報	情報の科学と技術	2016 年 66 巻 1 号	Pages 14-19	2016	中根 希浩	https://doi.org/10.18919/jkg.66.1_14	本稿では、中東湾岸諸国、特にGCC（湾岸協力会議：Gulf Cooperation Council）およびその加盟国（サウジアラビア、UAE、バーレーン、カタール、クウェート、オマーン）とこれらの各国の特許制度および特許出願状況、特許調査機関（特許情報へのアクセス）についてその概要を整理している。GCCを除き、各国の特許情報へのアクセスは非常に難しく、特許調査を行うための環境は整備されていない状況に等しいと言えるが、その中でも、特許情報にアクセスするために現状利用できているWebサイト等について紹介している。また、GCCについては、これまでに発行された全登録特許を対象に権利者や技術分野の傾向について整理している。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
情報分析・解析ツール紹介 第3回 戦略的未来予測のための前向き解析手法	情報の科学と技術	2016 年 66 巻 3 号	Pages 131-132	2016	VALUEENX株式会社	https://doi.org/10.18919/jkg.66_3_131	大学図書館が学内で発行している紀要のオープンアクセス化を行い、研究情報の発信を支援することは、大学図書館による研究支援として、重要な活動と考へてきている。本稿では、筆者が編集を担当しているNagoya Journal of Medical Scienceの例にして、2010年にオープンアクセス化を行い、2013年に最初のイントラファクタを取得するまでの経緯を述べる。またその後、XML化を行いPMCID登録することで、医学系の重要なデータベースであるPubMedにフルテキストがリンクされて利用できるようになったこと、Nagoya Journal of Medical Scienceの現状と課題を述べる。
情報分析・解析ツール紹介 第14回 特許情報解析ツール「CavAid」のご案内	情報の科学と技術	2017 年 67 巻 2 号	Pages 79-81	2017	三根 哲	https://doi.org/10.18919/jkg.67_2_79	n/a
知識創出支援ツールとしてのテキストマイニングの強みと弱み	情報の科学と技術	2017 年 67 巻 12 号	Pages 643-649	2017	李 慧瑛, 下 高原 理恵, 緒 方 重光	https://doi.org/10.18919/jkg.67.12_643	本稿では、テキストマイニングを用いた自然語文から未知の知見を見つける際の強みと弱みについて述べる。要中読Webで、「情報」科学「技術」キーワードとして検索した論文表題の分析例を挙げるが、強みと弱みを考察する。強みとして、人手では扱えないような膨大な量のデータに対して、数値を分析対象とする量的分析（多変量解析）と文字を分析対象とする質的分析（形態素解析）の両方を行うことが出来る。一方、弱みとして数値化されたデータでは表現できない現象の世界を分析する場合、暗黙知を抽出して形式化に直換する過程に課題が残る。
Dr. Garfieldの論文の計量書誌学的分析	情報の科学と技術	2017 年 67 巻 12 号	Pages 639-642	2017	小野寺 夏生	https://doi.org/10.18919/jkg.67.12_639	Dr. Eugene Garfieldの執筆論文について計量書誌学的分析を行なう。Web of Science Core Collectionから検索された1,543件の記事のうち、97件の原稿論文（articleに分類）について、以下の分析を行った：（1）単著/共著の割合、及び主な共著者、（2）参考文献がよく発表された雑誌及びよく参照された論文、（3）Garfieldの論文をよく引用した著者と雑誌。
Dr. Garfieldが開拓した情報資産、分析手法の活用：科学技術政策研究を事例として	情報の科学と技術	2017 年 67 巻 11 号	Pages 589-593	2017	伊神 正貴	https://doi.org/10.18919/jkg.67.11_589	本稿では、ユージン・Garfield博士が開拓した情報資産や分析手法が、科学技術政策研究において、どのように活用されているかを、科学技術・学術政策研究所（NISTEP）におけるScience Citation Indexを用いた調査研究やサイエンスマップ調査の展開、これらの調査と科学技術政策立案との関係の変化を事例として概観する。
ウェブサイトで公開されるデータベースの保存ーDnavi収集データのアクセス可否調査と公開データの長期保存ー	情報の科学と技術	2017 年 67 巻 9 号	Pages 459-464	2017	目沢 司, 村山 孝啓	https://doi.org/10.18919/jkg.67.9_459	インターネットの普及以降、ウェブサイト多くのデータベースが公開されているが、内容やURLの変更、サイト閉鎖等により長期的なアクセスが保証されず、くに調査研究に多く利用される調査結果の信頼性に与える上で大きな課題となる。本稿では、2002～2014年に運用された国立国会図書館データベース・ナビゲーション・サービス（Dnavi）に収集されていたデータベース情報について、2017年時点でのアクセス可否を調査した結果を報告する。またデータベースの長期保存の方法について、国立国会図書館インターネット資料収集保存事業（WARP）の利用や、電子情報の長期保存の規格であるOAIS参照モデルを参照した考察を行う。
概念モデル構築を中心としたデータベース設計とメタデータ設計	情報の科学と技術	2017 年 67 巻 9 号	Pages 442-447	2017	谷口 祥一	https://doi.org/10.18919/jkg.67.9_442	データベースおよびメタデータの設計プロセスを概観し、その中で概念モデル構築（概念設計）の重要性を論じる。戦略的な事例取り上げ、1)身体関連モデルを用いた概念モデル構築の概要を示し、2)その後の論理設計、物理設計に該当する22ヵのレシオナルモデルからなるデータベーススキーム設計、およびレシオナルコードとそのデータ項目からなるメタデータのスキーム設計について、概念モデルからの変換を含めて解説した。特に、対象とする世界や事象を構成する要素とその関連を明らかにし、それらに対する必要な動きがそれぞれによって実現する要求などの検討と定義を含む概念モデル構築の重要性を強調した。
ビッグデータ時代における特許情報調査への人工知能の活用	情報の科学と技術	2017 年 67 巻 7 号	Pages 372-376	2017	田辺 千夏	https://doi.org/10.18919/jkg.67.7_372	現在の第3次人工知能ブームは、情報の蓄積が爆発的に進んだことと情報処理能力が向上したことがきっかけとなっている。特許情報も例外ではなく、特許調査・解析分野への人工知能の応用は既に始まっている。筆者の所属企業である昭和電気（株）でも数年前から人工知能の特許調査分野への応用に着手しており、Patent Explorer、XLPATといった人工知能を用いた商用ツールの導入により特許調査の効率化、自動化を推進している。本稿ではシステムユーザーとしてこれらのツール導入にあたっての期待効果、使用感などについて今後の展望を紹介する。
機械学習等の情報技術を用いた特許調査について	情報の科学と技術	2017 年 67 巻 7 号	Pages 366-371	2017	太田 貴久	https://doi.org/10.18919/jkg.67.7_366	近年、深層学習をはじめとする機械学習技術の発達により、様々な分野で機械学習を用いた業務の効率化が進められている。特許分野でもその例外ではなく、人工知能を利用して特許関連業務を効率化する研究や製品、サービスの開発が進んでいる。本稿では、「自社・他社の知財情報の分析」や「特定の発明目的や特定の技術に関する発明動向の把握」といった自社の特許調査に加えて、機械学習を含む様々な情報技術を活用し、1) 大量の特許文獻から調査対象となる文獻を抽出し、2) 抽出した文獻から自動的にバリエーションを生成する方法について紹介する。
人工知能エンジン「KIBIT」を用いた自然言語処理と特許調査への応用	情報の科学と技術	2017 年 67 巻 7 号	Pages 360-365	2017	藤田 肇	https://doi.org/10.18919/jkg.67.7_360	「人工知能」は、次世代の情報処理技術として現在多くの注目を集め、様々な従来産業の形態を大きく替えようとしています。本稿では、FRONTEOが独自開発した人工知能エンジン「KIBIT」の機能とその搭載製品を紹介いたします。また、KIBITの特許調査の実践において専門家をサポートする特許調査・分析システム「KIBIT Patent Explorer」に当社の取り組みを説明し、AIが変える未来の特許実務を紹介いたします。
機械による特許分析の課題とアプローチ	情報の科学と技術	2017 年 67 巻 7 号	Pages 355-359	2017	鈴木 祥子	https://doi.org/10.18919/jkg.67.7_355	本稿では、近年注目を浴びている自然言語処理の手法と特許分析に適用する際の課題をまとめ、各課題に対するアプローチの創案を示す。特に、特許特有の情報へのアプローチは、特許の専門家の知見が必要となる方法が有効であることが分かってきた。一方で、課題によっては分析者と機械との対話的な分析によるアプローチが有効であることも議論する。
特許情報と人工知能（AI）：総論	情報の科学と技術	2017 年 67 巻 7 号	Pages 340-349	2017	駒山 勉, 安藤 俊幸	https://doi.org/10.18919/jkg.67.7_340	人工知能の第三次ブームにより約2～3年で報の会話の中にも頻りに人工知能（AI）といふ言葉が聞くようになった。膨大な商業データの蓄積によりビッグデータと機械学習が高度なコストの削減が可能な点に加え、顧客を定めた集客機会を理解する高度なレベルの研究が進んでいる。AIの多方面への応用研究が急激に加速され、特許情報とその研究対象とすることに着目されるまでに至った。米国特許情報庁の先行技術調査への活用研究が進んできて来た。プロバイダーでもその活用の特許情報サービスに活用しよう盛んになって来た。ここで、特集号にちなみ総論を纏める。
欧州における新聞デジタル・アーカイブ Europeana Newspapers	情報の科学と技術	2017 年 67 巻 1 号	Pages 34-37	2017	晴実 孝一	https://doi.org/10.18919/jkg.67.1_34	Europeana Newspapersは欧州委員会プロジェクトで、12ヵ国、17機関が参加した、1800万ページの新聞紙面をデジタル化。そのうち100万ページは全文検索可能である。およそ200万ページは記事のレイアウトが解析済みで、中には各要素が抽出されている記事もある。このデータベースの内容、用いられている技術、メタデータの構造、検索例などを示した。
情報分析・解析ツール紹介 第18回 「医中誌 Web」を利用した文献研究	情報の科学と技術	2017 年 67 巻 6 号	Pages 322-324	2017	松田 真美	https://doi.org/10.18919/jkg.67.6_322	n/a
情報分析・解析ツール紹介 第13回 「次世代の特許・情報検索プロ」を目指すカハへー 特許情報分析ツールを使ったアプローチ	情報の科学と技術	2017 年 67 巻 1 号	Pages 30-33	2017	森 清美	https://doi.org/10.18919/jkg.67.1_30	n/a
情報分析・解析ツール紹介 第17回 R&D Navieを利用した技術動向の分析	情報の科学と技術	2017 年 67 巻 5 号	Pages 271-274	2017	大原 康生	https://doi.org/10.18919/jkg.67.5_271	n/a
情報分析・解析ツール紹介 第16回 特許、文獻情報分析ツール Intelifor	情報の科学と技術	2017 年 67 巻 4 号	Pages 202-205	2017	馬場 光明	https://doi.org/10.18919/jkg.67.4_202	n/a
次世代ニーズを予測するための解析手法の研究 ～シナジー開発を例として～	情報の科学と技術	2017 年 67 巻 4 号	Pages 194-201	2017	瀧本 祐明, 法宗 布美子, 有賀 康祐, 左右内 敬浩, 丹 英幸, 都築 崇	https://doi.org/10.18919/jkg.67.4_194	商品開発ではニーズの把握が非常に重要である。そのため、将来のニーズ（例えば次のブーム）を予測する手法が今後益々必要とされる。そこで、本研究では、次世代商品ニーズの予測手法を確立することを目指し、最初に発生する商品であるジャンルを選択し、次にそのジャンルブームを予測した。今回、各年代に発生したブームについて、出力件数の経年変化の動向に対して統計処理を行う手法を試みた。その結果、いずれのブームにもブーム発生以前に前記となるシグナルが確認された。この手法を用いて、種々の手法より抽出したニーズ候補を評価し、次世代商品ニーズ群の選定を試みた。
研究評価のための指標：その現状と展望	情報の科学と技術	2017 年 67 巻 4 号	Pages 179-184	2017	孫 雅	https://doi.org/10.18919/jkg.67.4_179	研究開発や資金獲得における世界的な競争激化を背景に、国、研究機関、研究者個人等さまざまなレベルで、研究成果の定量的な指標が行われている。そのためにイントラファクタ、h-index、分野標準化指標など多様なビロメトリクス指標が開発され、世界中に広く利用されている。一方、ICTの激しい発展により情報流通形態が大きく変化し、論文のダウンロード数やソーシャルメディアでの取り上げられ方などによる研究の影響力を指標化するオルトメトリクスの注目と期待が高まっている。本稿では、いくつかのビロメトリクス指標と利用時の注意点を紹介した後、オルトメトリクスとその問題点について考察する。
研究分析・評価ツールの比較とその活用	情報の科学と技術	2017 年 67 巻 4 号	Pages 171-178	2017	熊谷 真佐子	https://doi.org/10.18919/jkg.67.4_171	大学等研究機関の研究力分析・評価には、抄録・引用文獻データベース、研究力分析・評価ツール、研究者プロフィールングツールという、大きく分けて3つのカテゴリ化されるサービスが利用されている。これら3つのカテゴリに属する各種サービスについての比較検討を行い、3者の関係性について説明する。また研究力分析・評価を行うにあたっての実践的な課題や可能性、今後必要な機能などについて考える。最後に、研究力分析・評価結果を活用し研究力強化を進めるための、機関内での情報の整備や研究力強化施策への展開について論じる。
英国における研究評価事業：制却不能の怪物（モンスター）か否か良案か？	情報の科学と技術	2017 年 67 巻 4 号	Pages 164-170	2017	佐藤 郁哉	https://doi.org/10.18919/jkg.67.4_164	本稿では、公的研究資金の選択的配分を前提としておこなわれる研究評価事業によってもたらされる懸念点について検討する。英国の研究評価事業を事例として取り上げ、同事業が研究活動テーマや方法論の均質化に結びついていく可能性について見ていく。焦点を当てて検討するは、商学・経営学の領域における論文文化の傾向である。この領域では、研究評価事業に懸念点とされる倫理的・経済的懸念も指摘されている。また近年、研究評価の指標は膨大に、評価指標は多様化している。本稿では、研究評価の現状を概観するごに自国的、研究評価の種類、大学等の機関の研究評価が導入された政策の背景、研究評価の方法の考え方、指標の多様性の必要性、イントラ評価の導入と課題、研究でネットワークへの活用について説明する。
研究評価の拡大と評価指標の多様化	情報の科学と技術	2017 年 67 巻 4 号	Pages 158-163	2017	林 隆之	https://doi.org/10.18919/jkg.67.4_158	研究評価は、過去には研究者個人の研究業績や研究プロジェクトをピア（同分野の専門家）が科学的知識の妥当性から評価することがあった。しかし、研究活動自体が多様化するとともに、機関や組織による研究の重要性が顕し、研究成果による社会・経済的効果も期待されるようになった。研究評価の指標は膨大に、評価指標は多様化している。本稿では、研究評価の現状を概観するごに自国的、研究評価の種類、大学等の機関の研究評価が導入された政策の背景、研究評価の方法の考え方、指標の多様性の必要性、イントラ評価の導入と課題、研究でネットワークへの活用について説明する。
特集：「研究評価」の編集にあたって	情報の科学と技術	2017 年 67 巻 4 号	Pages 157	2017	南山 崇之	https://doi.org/10.18919/jkg.67.4_157	n/a
情報分析・解析ツール紹介 第15回 テキストマイニングツールText Mining Studioによる文獻データ分析 ～「DreamIII文獻情報データベース」例へ～	情報の科学と技術	2017 年 67 巻 3 号	Pages 143-146	2017	岩本 圭介	https://doi.org/10.18919/jkg.67.3_143	n/a

タイトル	ジャーナル (掲載雑誌)	Volume	Pages	発行年	著者	DOI URL	要約
知財教育 インフォグラフィック知財を学習するために	情報の科学と技術	2018年 68 巻 2 号	Pages 71-76	2018	石川 浩	https://doi.org/10.18919/jkg.68.2_71	「国民一人ひとりが知財人材」を国は目指している。知財教育については国の取り組みを最初に紹介し、次いで、知財教育をする側、受ける側に通じる考え方・心算を紹介する。目指すべき知財専門人材は、知財の創造・保護・活用を推進するといふことであるが、その入口には知財知識と興味を持ち続け、知財イデントを醸成することが始まる。その後に、企業の知財部門で行われている教育の一部状況を紹介する。そこで、特許出願業務、調査業務、知財経営について触れる。出願・調査は車の両輪業務であり、知財経営は知財情報の再構築から始まる。
特許情報プラットフォーム及び画像意匠公開検索支援ツールによる意匠検索の方法	情報の科学と技術	2018年 68 巻 2 号	Pages 60-64	2018	末 希一郎	https://doi.org/10.18919/jkg.68.2_60	本稿では、「特許情報プラットフォーム (J-PlatPat)」及び「画像意匠公開検索支援ツール (Graphic Image Park)」による意匠検索の方法を紹介する。J-PlatPatは、意匠公開の検索、経路情報の照会等の機能を有する特許情報提供サービスである。キーワードや日本意匠分類等を入力することにより意匠公開を検索することができる。Graphic Image Parkは、画像意匠を含む意匠公開を効率的に検索するための支援ツールである。このツールに自らの画像デザインをドラッグ＆ドロップするだけで、イメージマッチング技術による機械的な評価に基づいて、既存の意匠意匠を共通の特徴をもつものから順に表示させることができる。
AI技術と学術情報システム	情報の科学と技術	2018年 68 巻 12 号	Pages 574-579	2018	相澤 彰子	https://doi.org/10.18919/jkg.68.12_574	学術論文の数が加加速度的に増加する中で、研究活動に必要な最新の情報を逐一入手することは、もはや研究者の手に負えなくなっている。人工知能は、このような問題への解決の糸口を与えるものと期待される。そこで本稿では、人工知能による学術情報の検索・理解支援に焦点を当てて、(1)大量の論文の中から関連論文を容易に見つけだための検索・推薦技術、(2)論文の内容を素早く的確に把握するためのキーワード抽出・自動要約技術、(3)論文に書かれた知識を抽出して活用するための知識解析・知識獲得技術などについて、現状と課題を概観する。
ウェブにおける情報探索のユーザーインターフェース	情報の科学と技術	2018年 68 巻 11 号	Pages 548-554	2018	川添 歩, 篠原 修和	https://doi.org/10.18919/jkg.68.11_548	情報探索におけるユーザビリティという観点から、主にウェブにおけるユーザーインターフェース (UI) について、情報探索のしやすいデザインがどのようなものになっているか。ユーザーが情報探索をする際のタスクを示した上で、それらのタスクごとに検討すべく内容とし、それに対応した「あるあるUI」のデザインパターンについて、「国立国会図書館サーチ」等の例を挙げながら説明する。
情報を探しやすさには	情報の科学と技術	2018年 68 巻 11 号	Pages 536-541	2018	三輪 眞木子	https://doi.org/10.18919/jkg.68.11_536	多様な文脈において人間が情報ニーズを生成し、そのニーズを満たすために情報を試行錯誤により探し出し、有用な情報を獲得し、それを利用するという一連のプロセスである探索型検索は、探索者の知識構造を変化させる究極の自律学習である。情報を探しやすさには、探索的検索システムに実行できるようなシステム環境を整備すること、探索者の経験知、領域知識、自己効力感と関与を高める必要がある。ウェブ上には、情報システムの種類とともに、情報システム化による理解、情報探索を通じて効率的・効果的な自律学習方法の伝授、情報探索経験知の形式知への変換が求められる。
オープンサイエンスの普及と実現に向けて：シュプリンガー・ネイチャーの取り組み	情報の科学と技術	2018年 68 巻 10 号	Pages 506-510	2018	小林 眞代	https://doi.org/10.18919/jkg.68.10_506	シュプリンガー・ネイチャーは、オープンアクセス出版のバイオニアとして、ジャーナルや書籍でのオープンアクセス出版の促進、また研究データ共有を促進する新たな出版サービスの開発を進めている。オープンサイエンスの動向を把握するための研究調査を継続的に行っている。2016年には、データシナリオのための共通語彙である「標準データフォーマット」を作成したほか、2017年にはデータ・シュプリンクに関する研究者の意識調査に基づいたホワイトペーパーを公開した。本稿では、これらの活動を通じて「オープンリサーチ部門」の最近の取り組みと、日本での活動について紹介する。
人工知能 (AI) を用いた化学分野における無効資料調査・先行技術文献調査への活用検討	情報の科学と技術	2018年 68 巻 9 号	Pages 470-476	2018	太田 文徳, 橋本 武彦, 井手 康祐, 遠藤 優希, 周 珣露, 柳井 幸仁, 井手 正実, 青野 祥博	https://doi.org/10.18919/jkg.68.9_470	2016年度PLASDOCオンライン研究会では化学系の特許調査における人工知能 (AI) の活用に関し、AIに学習させる文章 (教師データ) に着目した。特許調査の効率性に関する研究を実施した。具体的には、無効資料調査における化学分野に特化的な請求項の影響検討、及び先行技術調査における教師データの検討結果について報告する。さらに特許調査以外のAI活用方法として、分類問題の公開を教師データとし、分類未知の公開の仕分けについて合わせて検討結果を報告する。
「中国のAI動向を注視する観点から」	情報の科学と技術	2018年 68 巻 7 号	Pages 348-353	2018	田畑 文也	https://doi.org/10.18919/jkg.68.7_348	AI (人工知能) について、日本では新聞などのメディアで毎日目にしないことはないが、いかにホットな話題であり、すでに実生活においても至る所で使われている。これによって中国はどのような思い、「日本より、すでにより広く、より深く使われているが、実態である。これらの中国のAI動向を調べるとは、単に正攻法に分析するだけでなく、政策、規制、ビジネスの進め方など、中国独特の事情を理解して理解しないと、正しく状況を捉えることができない場合もある。本稿では、中国AI動向を例に、中国情報をも正確に理解する上での注意点を紹介する。
テキストマイニングに準拠した人工知能技術を活用した特許文書分析と技術戦略の検討	情報の科学と技術	2018年 68 巻 7 号	Pages 332-337	2018	野村 耕樹	https://doi.org/10.18919/jkg.68.7_332	特許庁では、人工知能 (AI) 技術の活用に向けた検討を進めており、その一つのテーマとして、特許文書への分類付与が挙げられている。特許文書への特許分類 (フーム) 付与においては、特許文書の一部の記載を根拠として分類が付与されることがあり、分類付与と根拠との間を機械的に判定することにより、付与精度の向上、及び、付与支援システムへの活用が有効である可能性がある。そこで、各種の機械学習モデルを用い、特許文書に付与すべき特許分類 (フーム) や、その分類に対する明細書中の付与根拠箇所 (段落) を機械判定し、その精度を比較評価した。
テキストアナリティクスと特許情報分析	情報の科学と技術	2018年 68 巻 7 号	Pages 326-331	2018	那須川 直哉	https://doi.org/10.18919/jkg.68.7_326	個々のテキストに目を注いだだけでは得られない有用な知見を大量のテキストデータから獲得するためのテキストアナリティクスの技術について、概要と仕組みと動向を紹介した上で、その要基技術である自然言語処理における深層学習の影響について考察する。さらに、特許情報分析に対するこれらの技術の影響と方向性を考察する。
特許情報と人工知能 (AI) : 総論	情報の科学と技術	2018年 68 巻 7 号	Pages 316-325	2018	野崎 周志	https://doi.org/10.18919/jkg.68.7_316	新聞・雑誌やニュース等で人工知能というキーワードをほぼ毎日見かけるようになってから久しい。2015以降各種ベンチャー・ガリリスとされたAI搭載型特許調査・分析ツールの界隈を知る上でも、AIの基礎知識について知ることは重要である。本稿では本業特許局の各論を理解するための基礎として、AI・データ・プログラミングの概要と基礎知識・データから見る第3次AIブームの振り返り、最近のAI搭載型特許調査・分析ツールの仕組みと最近のAI搭載ツールの概要紹介、そして個別の特許情報業務におけるAIツールの今後の進化と利用・活用方法やAIツールの付き合いについて述べる。
特集：「特許情報と人工知能(AI)-Ⅱ」の編集にあたって	情報の科学と技術	2018年 68 巻 7 号	Pages 315	2018	パテント・キエムテンション委員会	https://doi.org/10.18919/jkg.68.7_315	本誌では、昨年「特許情報と人工知能 (AI) 」(Vol.67 No.7) という特集を発行し、システム開発者やユーザーの視点から、特許情報と人工知能の関係について、それぞれ論じていただきましたが、その後の1年間で、各社より人工知能を使用した新サービス (システム) が発表されたことも、例として、特許情報分析に人工知能を利用するユーザが増加していること、また、以前は意識していなかった人工知能をどのように利用するか? という点についても、情報担当官 (ユーザー・アナリスト) の要求に適合する文脈を抽出するため、あるいは技術者や開発者が不要な (ノイズ) 情報をフィルタリングするために導入する、など、利用者の層や利用目的も明確になってきた状況です。一方で、人工知能を単純なツールやサービスを利用することによって、業務が改善される可能性については理解しているも、自社の特許情報活動に活用する場面がイメージできない、あるいは、現在行っている特許情報の管理方法との結果の差や費用対効果の分が大きいというところもあり、導入とまだ迷っている方が多いとします。そこで、今号では前回引き続き「特許情報と人工知能 (AI) -Ⅱ」というテーマで、人工知能という技術の特許情報に利用することについて、前回は別号から考察する特集を企画しました。はじめに、野崎周志氏の総論「人工知能と特許情報業務の関わりとツールを使用する際の心得など」、パテント・アナリストの視点から論じていただきました。つづき、那須川直哉氏にはテキスト・アナリティクスの概要や動向、特許情報分析にテキスト・アナリティクスを用いることについて論じていただき、野村耕樹氏は複数の人工知能技術を組み合わせた特許情報分析が導く技術戦略の検討も、具体的な事例の中で見ていただきました。富永孝雄氏と久々子薫志氏には特許文書への分類付与における付与根拠箇所判定に関して、特許庁の最新の取り組み状況も、坂元直氏には市販ツールを使用した分析の手順と結果の考察を、田畑文也氏は海外の特許情報と人工知能という観点から、中国の政策や特許出願などについて、それぞれ解説いただきました。今回の特集も、「人工知能」というツールを理解し、特許情報へ人工知能を適用することの可能性を考えるきっかけとなつていただければ幸いです。
機械学習等の情報技術を用いた特許調査について	情報の科学と技術	2017年 67 巻 7 号	Pages 366-371	2018	太田 真久	https://doi.org/10.18919/jkg.67.7_366	近年、深層学習をはじめとする機械学習技術の発達により、様々な分野で機械学習を用いた業務の効率化が進められている。特許分野もその例外ではなく、人工知能を利用して特許関連業務を効率化する研究や製品、サービスの展開がはじまっている。本稿では、(自社・他社) の業務にどのような分析・IT技術の活用を目指すかという観点から特許調査・先行技術調査の効率化について、機械学習を様々な機械学習技術と区別し、1) 大規模な特許文書から調査対象となる文脈を抽出し、2) 抽出した文脈から自動的にドキュメントを生成する方法について紹介する。
人工知能エンジン(KIBIT)を用いた自然言語処理と特許調査への応用	情報の科学と技術	2017年 67 巻 7 号	Pages 360-365	2018	藤田 肇	https://doi.org/10.18919/jkg.67.7_360	「人工知能」は、次世代の情報処理技術として現在多くの注目を集め、様々な従来産業の形態を大きく変えようとしています。本稿では、FRONTIERが独自開発した人工知能エンジンKIBITの特長とその搭載製品を紹介します。また、KIBITの特許調査の分野において専門性をサポートする特許調査・分析システムKIBIT Patent Explorerと当社の取り組みを説明し、AIが変える未来の特許実務を紹介する。
機械による特許分析の課題とアプローチ	情報の科学と技術	2017年 67 巻 7 号	Pages 355-359	2018	鈴木 祥子	https://doi.org/10.18919/jkg.67.7_355	本稿では、近年注目を浴びている自然言語処理の手法を特許分析に適用する際の課題をまとめ、各課題に対するアプローチの例を示す。特に、特許特有の情報の「プロセス」は、特許の専門家知見を組み込んだ手法が有効であることが分かっていた。一方で、課題によっては分析者と機械との対話的な分析によるアプローチが試みられていることも議論する。
AIの要素技術としての機械学習、その特許情報への適用	情報の科学と技術	2017年 67 巻 7 号	Pages 350-354	2018	岩本 圭介	https://doi.org/10.18919/jkg.67.7_350	近年発展の目覚ましい人工知能は、様々な要素技術の集合体から構成されている。人間が知能を用いて行う活用をコンピュータに実現させるという課題において、機械学習の技術は中核をなす要素である。当社(株)NTTデータ数値システムは、適用分野と問題設定に応じた機械学習のツールを開発・販売し、それらのツールを用いたコンサルティング等のサービスを通じて顧客の問題解決にあたる。本稿では、こうした当社の取り組みを紹介するとともに要素技術の概観を行い、機械学習技術の特許情報・技術文書に対する適用例について述べる。
特許情報と人工知能 (AI) : 総論	情報の科学と技術	2017年 67 巻 7 号	Pages 340-349	2018	柳山 勉, 安藤 俊幸	https://doi.org/10.18919/jkg.67.7_340	人工知能の第三ブームにより次の2〜3年で特許の会議の中で頻りに人工知能 (AI) という言葉が聞かれるようになった。置込み・余剰需要の増加によりAIプラットフォームと知能処理環境プラットフォームの2要素が注目される。更に、顧客を定めて事業を遂行する高度なレベルの研究が盛んになりつつある。AIの多分野への応用研究が急激に加速し、特許情報をもその研究対象とすることに着目されるまでに至った。本誌の特許情報欄での先行技術調査への活用研究が盛んになってきた。プロバイダーでもその応用の特許情報サービスに活用しようと思ふようになってきた。ここで、特集号にちなみ総論を纏める。
技術情報を用いた他社コア技術の特定手法開発	情報の科学と技術	2019年 69 巻 2 号	Pages 94-98	2019	三沢 岳志, 砂原 めぐみ, 田村 雅生, 三橋 敬憲, 矢部 悟	https://doi.org/10.18919/jkg.69.2_94	技術戦略や事業戦略を策定する上で重要であるコア技術について、技術情報を用いて特定する手法を開発した。対象企業の特許情報から技術情報と分類して生存特許と自己引用特許を用いてコア技術領域を絞り込み、テキストマイニングなどの機械抽出した後、非特許情報を使い具体的にコア技術特定する。その後論文や特許、Webなどの広範な非特許情報を用いてコア技術の検証を行う。コア技術の抽出及び特定の手法として、技術と特許に詳しくないスタッフでも利用可能と考えられるような方法であると考えられる。さらに、この手法を更に広げ活用すべき点も検討した。
企業における知財アナリストのキャリアパス～IPランドスケープの実践のために～	情報の科学と技術	2019年 69 巻 1 号	Pages 16-21	2019	相田 裕子	https://doi.org/10.18919/jkg.69.1_16	経営層からの要望やベンチャー解析ツールの高度化により、知財業界で「IPランドスケープ」が盛り上がりを見ている。IPランドスケープは、知財情報を経営戦略に活かすためのものであり、知財解析を実行する人材としての知財アナリストの育成は急務である。本稿では、IPランドスケープの実践に際し、知財アナリストの育成に資する知識として、特許チャーのキャリアパスを参考にしながら検討した。知財アナリストのキャリアパスについて述べる。具体的に、見聞録、一人前、熟達者の3段階にわけて、各レベルに必要なスキル、その獲得時期や方法について言及する。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
プロサーチャーの育成とキャリアパス	情報の科学と技術	2019年 69 巻 1 号	Pages 10-15	2019	橋間 歩	https://doi.org/10.18919/jkg.69.1_10	独立系調査会社のサーチャーとして求められる能力は、基本となる特許の情報検索能力のみならず、ヒアリング力や提案力など多岐に渡る。サーチャー育成にあたっては、段階的に経験を積んでもらい、周囲のサーチャーとディスカッションを行い、互いの考えの共有を図っていく。サーチャーのキャリアパスは一概的に決まるものではない。著者は考える。キャリアパスはサーチャー自身の強みを活かせるものが好ましい。クライアントや業界に求められるものが何であるかを捉え、鍛錬し、サーチャー自身がどの様なサーチャーになるのかを思い描く事が、サーチャーのキャリアとなり、組織の総合力に繋がっていく。
新聞記事のテキストマイニングによる長門市市場動向の分析	人工知能学会論文誌	2013 年 28 巻 3 号	Pages 291-296	2013	n/a	https://doi.org/10.1527/tjsai.28.291	In this study, we developed a new method of the long-term market analysis by using text-mining of news articles. Using our method, we conducted extrapolation tests to predict stock price averages by 19 industry and two market averages, TOPIX and Nikkei225 for about 10 years. As a result, 8 sectors in 21 sectors (about 40%) showed over about 60% accuracy, and 15 sectors in 21 sectors (over 70%) showed over about 55% accuracy. We also developed a web system of financial text-mining based on our method for financial professionals.
文節照改行レイアウトを有する日本語リーダーの読み効率評価	人工知能学会論文誌	2015 年 30 巻 2 号	Pages 479-484	2015	小林 潤平, 関口 隆, 新堀 英二, 川崎 裕夫	https://doi.org/10.1527/tjsai.30.479	We propose a new Japanese electronic text format with phrase-based line breaking for tablet computer to improve reading speed. The new text format prohibits splitting of a phrase and breaks a line between phrases. We measured reading speeds and eye movements using both the new text format and a conventional text format. Reading speeds for the new text formats are faster compared to the conventional text formats at all line lengths tested. The enhancement of reading speed in the new text format seems to be caused by the optimization of eye movements at the beginning of a long-length line, and the increase of short-length lines that can be recognized by a single fixation without horizontal saccade.
データ利活用知識構造化と検索システム	人工知能学会論文誌	2016 年 31 巻 5 号	Pages A-G15_1-9	2016	早矢仕 晃豊, 大澤 孝生	https://doi.org/10.1527/tjsai.A-G15	The potential desire of companies for creating values by combining data from different domains has been increased. In order to lead data-driven innovations, a market of data is expected to enhance this combination and data exchange through the communication among stakeholders. Innovators Marketplace on Data Jackets (IMD) is a gamified workshop for discovering the value of data by discussing the combination of Data Jackets, which supports creativity toward innovations and activates a market of data. A Data Jacket is meta-data, i.e., a summary of a dataset. Even if the data is not open, a Data Jacket enables participants to consider the latent value of datasets through creative communication. In this study, we discuss a system for structuring and reusing knowledge of data utilization, which are created in the workshops of IMD. By modeling and structuring knowledge not only with datasets, but also with solutions or requirements, it is expected to be possible to retrieve important information about solving problems. By implementing structured knowledge of data utilization using RDF (Resource Description Framework) and designing the interface for extracting accurate information for users, we propose the retrieval system named Data Jacket Store, and evaluate the performance.
文脈語彙の対訳関係を用いた単語の意味ベクトルの翻訳	人工知能学会論文誌	2016 年 31 巻 6 号	Pages A130-A_1-10	2016	石渡 祥之祐, 鍛冶 伸祐, 吉永 直樹, 豊田 正史, 喜連川 優	https://doi.org/10.1527/tjsai.A130-A	While vector-based representations of word meanings (word vectors) have been widely used in a variety of natural language processing applications, they are not meant for capturing the similarity between words in different languages. This prevents using word vectors in multilingual-applications such as cross-lingual information retrieval and machine translation. To solve this problem, we propose a method that learns a cross-lingual projection of word representations from one language into another. Our method utilizes translatable context pairs obtained from a bilingual dictionary and surface similarity as bonus terms of the objective function. In the experiments, we evaluated the effectiveness of the proposed method in four languages, Japanese, Chinese, English and Spanish. Experiments shows that our method outperformed existing methods without any additional supervisions.
情報の伝達から理解へ	人工知能学会論文誌	2016 年 31 巻 6 号	Pages A130-H_1-10	2016	日高 昇平 北陸先端科学技術大学院大学	https://doi.org/10.1527/tjsai.A130-H	A long-standing dream in research on artificial intelligence (AI) is to build a strong AI, which understands and processes the input, unlike a weak AI which just processes it as programmed. Toward realization of this dream, we need a mathematical formulation on what understanding is. In the present study, starting off by revisiting Shannon's mathematical theory of communication, I argue that it is a model of information transmission but not that of information understanding, because of its common codebook shared by the sender and receiver. I outline the steps to build a model of information understanding, by seeking possibilities of decoding without the shared codebook. Given the model of information understanding, I discuss its relationship to other known problems in AI research, such as the symbol grounding problem and frame problem.
意見文章自動生成のための組合せ構文特徴を用いたサポート性推定	人工知能学会論文誌	2016 年 31 巻 6 号	Pages A130-L_1-12	2016	佐藤 美沙, 棚井 孝介, 棚橋 利彦, 三好 利輝, 星枝 祐太, 丹羽 芳樹	https://doi.org/10.1527/tjsai.A130-L	This paper describes a technique to recognize "supportiveness" of a given text for an argument topic object and a value. Given an argument topic object (o), a value (v), and a text fragment (t), supportiveness refers to whether t supports a hypothesis "o promotes/suppresses v" or not. For example, with "o: casino" and "v: employment", then a text "The casinos in Mississippi have created 35,000 jobs." should support a hypothesis "o promotes v". This technique enables to automatically collect texts representing reasons and counterexamples for some hypothesis that humans build up (e.g. "casino promotes employment"), combined with text search. Because the difference from relation extraction is polarity of relations, proposed method utilizes multiplications based on local syntax structures, extending reversing hypothesis in sentiment analysis. We propose feature combinations consisting of "primary features" and "secondary features" for supportiveness recognition. "Primary features" represent local syntax structures around a given target or a given value. "Secondary features" represent global syntax structures generated by combining the primary features. The proposed method calculates weighted sum of secondary features to recognize promoting/suppressing supportiveness. The experiments showed that our method outperforms a Bag-of-Words baseline and a conventional relation extraction method.
意味構成のための非線形類似度学習	人工知能学会論文誌	2016 年 31 巻 2 号	Pages O-FA2_1-10	2016	橋 真史, 新保 仁, 松本 裕治	https://doi.org/10.1527/tjsai.O-FA2	The notion of semantic similarity between text data (e.g., words, phrases, sentences, and documents) plays an important role in natural language processing (NLP) applications such as information retrieval, classification, and extraction. Recently, word vector spaces using distributional and distributed models have become popular. Although word vectors provide good similarity measures between words, phrasal and sentential similarities derived from composition of individual words remain as a difficult problem. To solve the problem, we focus on representing and learning the semantic similarity of sentences in a space that has a higher representational power than the underlying word vector space. In this paper, we propose a new method of non-linear similarity learning for compositionality. With this method, word representations are learned through the similarity learning of sentences in a high-dimensional space with implicit kernel functions, and we can obtain new word representations inexpensively without explicit computation of sentence vectors in the high-dimensional space. In addition, note that our approach differs from that of deep learning such as recursive neural networks (RNNs) and long short-term memory (LSTM). Our aim is to design a word representation learning which combines the embedding sentence structures in a low-dimensional space (i.e., neural networks) with non-linear similarity learning for the sentence semantics in a high-dimensional space (i.e., kernel methods). On the task of predicting the semantic similarity of two sentences (SemEval 2014, task 1), our method outperforms linear baselines, feature engineering approaches, RNNs, and achieve competitive results with various LSTM models.
階層構造を持つ文書に対する動的トピックモデル	人工知能学会論文誌	2016 年 31 巻 2 号	Pages M-F92_1-8	2016	清水 琢也, 岡留 剛	https://doi.org/10.1527/tjsai.M-F92	Dynamic Stacked Topic Model (DSTM) proposed here is a topic model, for analyzing the hierarchical structure and the time evolution of topics in document collections. Such document collections as news articles and scientific papers are framed hierarchical. In newspaper, for instance, an article related to the soccer is published in the sports section and that related to the election in the politics section. Furthermore, both topics and sections naturally evolve with a certain timescale. In the proposed model, to capture correlations between topics and the time sequence of topics in sections, a section is modeled as a multinomial distribution over topics based on the previous topic distribution as well as a topic assumed to be generated based on the word distribution of previous epoch. The inference and parameter estimation processes can be achieved by a stochastic EM algorithm, in which the maximum a posteriori estimation of hyperparameters and the collapsed Gibbs sampling of latent topics and sections are alternately executed. Exploring real documents also described demonstrates the effectiveness of the proposed model.
科学技術情報に関する大規模Linked Dataセットの設計および構築	人工知能学会論文誌	2016 年 31 巻 2 号	Pages N-F73_1-12	2016	木村 考宏, 川村 隆浩, 渡邊 勝太郎, 松本 尚也, 佐藤 智吾, 棚田 達矢, 松田 勝治	https://doi.org/10.1527/tjsai.N-F73	In order to develop innovative solutions in science and technology, Japan Science and Technology Agency (JST) has built J-GLOBAL knowledge (JGk), which provides papers, patents, researchers information, technological thesaurus, and scientific data as Linked Data, which have been accumulated by JST since 1957. The total size of all datasets is about 15.7 billion triples, and the JGk website provides a SPARQL endpoint to access part of the datasets. This paper describes several issues on schema design to construct a large-scale Linked Data, and construction methods, especially for linking to external datasets, such as DBpedia Japanese. Finally, we describe performance problems and the future works.
行政機関におけるオープンデータ公開サイトの構築	人工知能学会論文誌	n/a	n/a	2016	浅野 優, 小出 誠二, 岩山 貴, 加藤 文彦, 小林 寛生, 英馬 正司, 大同 一博, 武田 英明	https://doi.org/10.1527/tjsai.OO-27	We describe a procedure for constructing a website for publishing open data by focusing on the case of Open DATA METI, a website of the Ministry of Economy, Trade, and Industry. We developed two sites for publishing open data: a data catalog site and one for searching linked open data (LOD). The former allows users to find relevant data they want to use, and the latter allows them to utilize the found data by connecting them. To implement the data catalog site, we constructed a site tailored to the needs of the organization. Then we extracted a large amount of metadata from the individual open data and put it on the site. These activities would have taken a lot of time if we had used the existing methods, so we devised our own solutions for them. To implement the LOD searching site, we converted the data into LOD form in the Resource Description Framework (RDF). We focused on converting statistical data into tables, which are widely used. Regarding the conversion, there were several kinds of missing information that we needed to associate with the data in the tables. We created a template for incorporating the necessary information for LOD in the original table. The conversion into LOD was automatically done using the template.

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
動詞クワの語感の関係性に基づくクワマイニング	人工知能学会論文誌	2017 年 32 巻 1 号	Pages WII-1_1-15	2017	福地 大助, 山本 岳洋, 田中 克己	https://doi.org/10.1527/tjsai.WII-1	In this paper, we propose a method to find query suggestions of a verbal query, which contains a verb in the query, from the Web. People sometimes cannot obtain appropriate search results even if they consider they have formulated a query that clearly describes their search intents. The idea of the proposed method is to find the relationship between verb and noun in the query, and mine the appropriate representation of the verb based on the relationship. The proposed method estimates the relationship between verb and noun based on particles between them. Based on the estimated relationship, we then obtain candidates of the verb in the query by using either the Web search results or the case frame. Next, we compute the effectiveness of the candidates by considering the similarity between a candidate and the verb and the co-occurrence between the candidates and the noun, and finally rank the candidates to generate queries. To investigate the effectiveness of our proposed method, we conducted the experiment by comparing with the query suggestions of a commercial search engine as our baseline. The experimental result of 20 queries showed that our proposed method, which finds candidates from the Web search results, outperformed the baseline method in terms of AvgRelNum, which measures the number of relevant pages obtained by the generated query that can retrieve a relevant page, and achieved the similar performance in terms ofContain@10andRRR@10.
カーネル法による構文に着目した作家の文体の特徴づけと類似性分析	人工知能学会論文誌	2017 年 32 巻 3 号	Pages F-G94_1-14	2017	金川 絵利子, 岡岡 剛	https://doi.org/10.1527/tjsai.F-G94	The subtree kernel and the information tree kernel defined here permit us to measure the syntactic characteristics and similarity of sentences. The subtree kernel is the total number of the common subtrees in two trees and the information tree kernel is defined as the total Shannon information contents contained in the common subtrees. The information tree kernel enables us to capture such structural characteristics peculiar to the styles of writers. The analyses using by these kernels reveal some syntactic characteristics and similarities of the Japanese 31 authors' writing styles. In particular, the results of the analyses for the great five authors, Soseki Natsume, Ryunosuke Akutagawa, Oeamu Dazai, Nanki Niimi, and Kenz Miyazawa, show that, for example, (1) Natsume more often writes a sentence of the dependency structure in which the same subtree structure occurs multiple times in the sentence. (2) Akutagawa more often uses the dependency structures for extra or detailed expressions that modifies a noun phrase than the others do. (3) Dazai often uses the dependency structures that consist of many shallow subtrees arranged in parallel, but the others seldom write sentences of the parallel subtree structures. (4) Niimi uses simpler dependency structures than Miyazawa does and Miyazawa writes short sentences in more various dependency structures.
進化型多目的最適化における探索履歴を活用した局所解脱出と集中探索メカニズム	人工知能学会論文誌	2017 年 32 巻 3 号	Pages E-GB1_1-12	2017	左文字 晋, 渡邊 真也	https://doi.org/10.1527/tjsai.E-GB1	In this paper, a new local search approach using a search history in evolutionary multi-criterion optimization (EMO) is proposed. This approach was designed by two opposite mechanisms (escaping from local optima and convergence search) and assumed to incorporate these into an usual EMO algorithm for strengthening its search ability. The main feature of this approach is to perform a high efficient search by changing these mechanisms according to the search condition. If the search situation seems to be stagnated, escape mechanism should be applied for shifting search point from this one to another one. On the other hand, if it observes no sign of the improvement of solutions after repeating this escape mechanism for a fixed period, convergence mechanism is applied to improve the quality of solution through an intensive local search. This paper presents a new approach, called "escaping from local optima and convergence mechanisms based on search history - SPLASH -". Experimental results showed the effectiveness of SPLASH and the workings of SPLASH's two mechanisms using WFG test suites.
手順文書からの意味構造抽出	人工知能学会論文誌	2017 年 32 巻 1 号	Pages E-G24_1-8	2017	前田 浩男, 山岡 洋子, 森 健介	https://doi.org/10.1527/tjsai.E-G24_v	We propose a method for extracting semantic structure from procedural texts for more intelligent search or analysis. Procedural texts represent a sequence of procedures to create an object or to make an object be in a certain state, and have many potential applications in artificial intelligence. Procedural texts are relatively clear without modality nor dependence on viewpoints, etc. Thus they can be described their procedures using flow graphs. We adopt recipe texts as procedural text examples and directed acyclic graphs (DAGs) to represent semantic structure. Nodes of a flow graph are important terms in a recipe text and vertices are relationships between the terms such as language phenomena including dependency, predicate-argument structure, and coreference. Because trees can not represent the procedures of recipes sufficiently, DAGs are adopted as the representation of recipes. We first apply word segmentation, automatic term recognition, and then convert the entire text into a flow graphs. For word segmentation and automatic term recognition, we adopt existing methods. Then we propose a flow graph estimation method from term recognition results. Our method is based on the maximum spanning tree algorithm, which is popular in dependency parsing, and simultaneously deals with language phenomena listed above. We experimentally evaluate our method on a flow graph corpus created from various recipe texts on the Internet.
機械翻訳システムの出力安定性の評価	人工知能学会論文誌	2017 年 32 巻 5 号	Pages D-H33_1-4	2017	高橋 寛治, 竹野 蝶峰, 山本 和英	https://doi.org/10.1527/tjsai.D-H33	This paper presents a novel metric for evaluating stability of machine translation system. A stable system indicates that it keeps almost the same outputs when the inputs with slight changes. In this paper, we propose a stability metric by exploiting TER metric for evaluating the differences between the two texts. We have built an evaluation data set, and demonstrate that a neural-based method is unstable rather than a statistical-based method, while the former outperforms the latter.
文節単位を考慮した文字配置の工夫がもたらす日本語電子リーダーの可読性向上	人工知能学会論文誌	2017 年 32 巻 2 号	Pages A-A130_1-24	2017	小林 源平, 関口 隆, 新堀 英二, 川嶋 勉	https://doi.org/10.1527/tjsai.A-A130	We propose bunsetsu-based layouts to improve the efficiency of eye movements in reading Japanese text. When reading text, people tend to direct their gaze toward the center of a word. This is called the optimal viewing position. The optimal viewing position results in the shortest gaze durations and fewest re-fixations. In the case of Japanese text, the eyes tend to fixate on each characteristic Japanese linguistic unit (bunsetsu). An electronic Japanese text reader that facilitates accurate control of eye movements to bunsetsu segments could increase the reading rateand result in more efficient eye movements. In this study, we develop new techniques to decrease inefficient eye movements when reading Japanese text. In Experiment I, we investigate the effectiveness of the layout with bunsetsu-based line breaking. A bunsetsubased linefeed layout breaks a line between bunsetsu segments, i.e., splitting a bunsetsu segment is prohibited. The reading speed for the bunsetsu-based linefeed layout was faster compared to the conventional text layout with line lengths of 5-40 characters per line. The improvements in reading speed were likely due to the optimization of eye movements near the edge of a line. In the case of 5-11 characters per line, the improvements in reading speed were likely due to an increase in the number of lines that can be recognized by a single fixation. These results indicate that the bunsetsu-based linefeed layout is an effective technique to improve reading efficiency. In Experiment II, we develop a new micro-vibration text reader with bunsetsu-based segmentation. The new reader vibrates each bunsetsu segment in a different phase to enhance boundary information for eye guidance. The reading speed for the micro-vibration text was approximately 7%-12% faster compared to the stable text with line lengths of approximately 11-29 characters per line. The improvements in reading speed were likely due to a reduction in re-fixations within a bunsetsu segment and an increase in the number of lines that can be recognized by a single fixation without horizontal saccades. Moreover, 76% of the participants did not experience illegibility or incongruousness with the micro-vibration text reader. These results indicate that micro-vibration is an effective technique to improve the efficiency of reading text with line lengths of 11-29 characters per line without an increase in cognitive load or a decrease in comprehension. In Experiment III, we develop a new stepwise incremental indent layout with bunsetsu-based segmentation and a vertical scrolling operation. The reading speed obtained by the proposed layout of 4.4 characters per line was comparable to the fixed-line length layout of 29 characters per line. This improvement is primarily achieved by a reduction in the number of fixations. Moreover, 85% of the participants did not experience illegibility or incongruousness with the stepwise incremental indent layout reading. These results indicate that this layout is an effective technique to improve the efficiency of reading text with line lengths of 5 characters per line without an increase in cognitive load or a decrease in comprehension. These experimental results indicate that the Japanese electronic text reader with these proposed techniques can improve the reading speed of text with line lengths of 5-40 characters per line without an increase in cognitive load or decrease in comprehension.
クラスティクを利用した語義曖昧性解消の誤り原因のタイプ分け	自然言語処理	2015 年 22 巻 5 号	Pages 319-362	2015	新納 浩幸 茨城大学工学部情報工学科 村田 真樹 鹿取大学大学院工学研究科情報工 学修士課程 白井 清昭 北陸先端科学技術大学院大学情報 科学研究所 福本 文代 山梨大学大学院総合研究部 保田 甲彦 NTT コミュニケーション科学基礎研 究所 佐々木 聡 茨城大学工学部情報工学科 古原 嘉那子 茨城大学工学部情報工学科 乾 孝司 筑波大学大学院システム情報工学研 究科	https://doi.org/10.5715/jnlp.2.319	語義曖昧性解消の誤り分析を行う場合、まずどのような原因がその誤りが生じているかを調べ、誤りの原因を分類しておくことが有効である。この分類のため、分析対象データに対して分析者 7 人が作成した誤り原因のタイプ分けを行い、各自の分析結果はかたまりとなり、それを基論によって統合することは両者の間の作業であった。そこでクラスティクを利用した大域的な分析結果を生成することを行い、最終的に 9 種類の誤り原因として統合した。この 9 種類の中の主要な 3 つの誤り原因により、語義曖昧性解消の誤りの 9 割が生じていることが判明した。またタイプ分類間の類似度を定義することで、統合した誤り原因のタイプ分類が、各自の分析結果を代表していることを示した。また統合した誤り原因のタイプ分類と各自の誤り原因のタイプ分類を比較し、ここで得られた誤り原因のタイプ分類が標準的であることを示した。
リカレントニューラルネットワークによる単語アライメント	自然言語処理	2015 年 22 巻 4 号	Pages 289-312	2015	田村 晃裕 国立研究開発法人情報通信研究機 構 原辺 太郎 グーグル株式会社 梶田 英一郎 国立研究開発法人情報通信研究機 構	https://doi.org/10.5715/jnlp.2.289	本論文では、隠れ層の再帰的な構造により、過去のアライメント履歴全体を活用するリカレントニューラルネットワーク (RNN) による単語アライメントモデルを提案する。ニューラルネットワークに基づくモデルでは、従来、教師あり学習が行われてきたが、本論文では、本モデルの学習法として、Dyer 5 の教師なし単語アライメント (Dyer, Clark, Lavie, and Smith 2011) を拡張して人工的に作成した偽単語対を生成する教師なし学習法を提案する。提案モデルは、IBM データ (Brown, Pietra, Pietra, and Mercer 1993) など多くの従来手法と同様に、各方向で独立したアライメントを学習するため、両方向を考慮した大域的な学習を行うことができない。そこで、各方向のモデルの合意を取るために同時に学習することで、アライメントの精度向上を目指す。具体的には、各方向のモデルの word embedding の差を表すベクトル次元を目的関数に導入し、両方向で word embedding を一致させるようにモデルを学習する。日英及び仏英単語アライメント実験を通じて、RNN に基づくモデルは、フーリエ変換ニューラルネットワークによるモデル (Yang, Liu, Li, Zhou, and Yu 2013) の RNN データよりも単語アライメント精度が高いことを示す。さらに、日英及び中英翻訳実験を通じて、これらのベースラインと同等かそれ以上の翻訳精度を達成できることを示す。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
Hierarchical Coordinate Structure Analysis for Japanese Statutory Sentences Using Neural Language Models	自然言語処理	2018 年 25 巻 4 号	Pages 393-419	2018	Takahiro Yamakoshi, Tomohiro Ohno, Yasuhiro Ogawa, Makoto Nakamura, Katsuhiko Toyama	https://doi.org/10.5715/jnlp.2.5.393	We propose a method for analyzing the hierarchical coordinate structure of Japanese statutory sentences using neural language models (NLMs). Our method deterministically identifies hierarchical coordinate structures according to their rigorously defined descriptive rules. In addition, our method identifies all conjuncts in each coordinate structure using NLM-based scoring. Furthermore, it does not rely on any training data labeled with coordinate structures. An experiment demonstrates that our method drastically outperforms an existing method for Japanese statutory sentences.
10単語以内の文の翻訳	自然言語処理	2018 年 25 巻 4 号	Pages 329-330	2018	新崎 浩幸 筑城大学	https://doi.org/10.5715/jnlp.2.5.329	n/a
自然演繹に基づく論理推論の文脈類似度学習・含意関係認識への応用	自然言語処理	2013 年 28 巻 3 号	Pages 295-324	2018	台中 博 東京大学 峯島 宏次 お茶の水女子大学 Pascual Martinez-Gómez 産業技術総合研究所 戸次 大介 お茶の水女子大学	https://doi.org/10.5715/jnlp.2.5.295	文と文がどのような意味の関係にあるかという文脈の関連性の計算は、情報検索や文書分類、質問応答などの自然言語処理の基礎を築く重要な技術である。文の意味をベクトルや数値で表現する手法は未だ発展途上であり、自然言語処理分野においては、様々な機械学習による手法が活発に研究されている。これらの手法では、文字や単語を単位としたベクトルを入力として、それらの表面的な出現パターンとその振る舞いを学習することで、文ベクトルを獲得している。しかし、否定表現を含む文など、文の構造の意味を正確に表現できるかは自明ではない。一方で、形式意味論においては、表現力の高い高階論理に基づいて意味の分析を行う研究が進展しているが、文脈の関連性のような、連続的な意味的関係を表現することが困難である。そこで本研究では、機械学習と論理推論という2つの手法を組み合わせて文脈の関連性を計算する手法を提案する。具体的には、文、文脈の含意関係も高階論理の推論によって判定するシステムの実行過程から、文脈の関連性に変与する特徴を抽出し、文脈の関連性を学習する。文脈類似度学習と含意関係認識という2つの自然言語処理タスクに関して提案手法の評価を行った結果、推論の過程に関する情報を特徴量に用いることによって、いずれのタスクにおいても精度が向上した。また、含意関係認識適用データセットの一つであるSICKデータセットの評価では、最高精度を達成した。
平易なコーパスを用いないテキスト平易化	自然言語処理	2018 年 25 巻 2 号	Pages 223-249	2018	柳原 智之 情報工科大学東京 小守 守 富都大学東京	https://doi.org/10.5715/jnlp.2.5.223	難解なテキストと平易なテキストからなる大規模な単語語バレルコーパスを用いて、テキスト平易化が活発に研究されている。しかし、英語以外の多くの言語では平易では平易に書かれた大規模なコーパスを利用できないため、テキスト平易化のためのバレルコーパスを構築するコストが高い。そこで本研究では、テキスト平易化のための大規模な疑似バレルコーパスを自動構築する教師なし手法を提案する。我々の提案するフレームワークでは、リークティバ推定と文アイテムを組み合わせることによって、生コーパスのみからテキスト平易化のための単語語バレルコーパスを自動構築する。統計的機械学習を用いた実験の結果、生コーパスのみを用いて学習した我々のテキスト平易化モデルは、平易に書かれた大規模なコーパスを用いて学習した従来のテキスト平易化モデルと同等の性能で平易な同義文を生成できた。
二値符号予測と誤り訂正を用いたニューラル翻訳モデル	自然言語処理	2018 年 25 巻 2 号	Pages 167-199	2018	小田 悠介 奈良先端科学技術大学院大学 情報通信研究機構 Philip Arthur 奈良先端科学技術大学院大学 Graham Neubig 奈良先端科学技術大学院大学 カーネギーメロン大学 吉野 幸一郎 奈良先端科学技術大学院大学 科学技術振興機構 中村 哲 奈良先端科学技術大学院大学	https://doi.org/10.5715/jnlp.2.5.167	本論文では、ニューラル翻訳モデルの問題となる出力層の時間的・空間計算量を、二値符号を用いた予測法により大幅に削減する手法を提案する。提案手法では従来のニューラルネットワークによる各単語のスコアを直接求めるのではなく、各単語に対応付けられたビット列を予測することにより、間接的に出力単語の確率を求める。これにより、最も効率的な場合で従来の対数階層まで出力層の計算量を削減可能である。このようなミニマルネットワークよりも推定が難しく、単体で適用した場合は翻訳精度の低下を招く。このため、本研究では提案手法の性能を補強するために、従来法との混合モデル、および二値符号に対する誤り訂正手法の適用という2点の改良も提案する。日英・英日翻訳タスクを用いた評価実験により、提案手法が従来法と比較して同等程度の BLEU 値を達成可能であると共に、出力層に要するメモリ枚数十分の1に削減し、CPU での実行速度を5 倍から10 倍程度に向上可能であることを示す。
シンボルグラウンディングによる分野特有の単語分割の精度向上	自然言語処理	2013 年 28 巻 3 号	Pages 447-461	2018	友利 涼 京都大学大学院情報学研究科 亀田 博典 東京大学工学系研究科 二宮 崇 愛媛大学大学院理工学研究科 電子情報工学専攻 森 徹介 京都大学学術情報メディアセンター 岡崎 剛雅 東京大学工学系研究科	https://doi.org/10.5715/jnlp.2.4.447	本稿は、自動単語分割における精度向上を実現するために、非テキスト情報とその説明文に対するシンボルグラウンディングを用いた新しい単語分割手法を提案する。本手法は、説明文に付されたテキスト情報の存在を仮定しており、説明文を機械的・率論的単語分割コーパスとすることで、非テキスト情報と分野固有の単語の境界をニューラルネットワークにより学習する。学習されたニューラルネットワークから分野固有の辞書を獲得し、得られた辞書を用いた単語分割の性能向上と用いることでより精度の高い自動単語分割を実現する。将棋局面が対応付けられた棋譜解説文から成る棋譜解説コーパスを用いて実験を行い、シンボルグラウンディングにより得られた辞書を用いることで単語分割の精度が向上することが確認できた。
機械翻訳システムの誤り分析のための誤り箇所選択手法	自然言語処理	2016 年 23 巻 1 号	Pages 87-117	2018	赤部 晃一 奈良先端科学技術大学院大学 Graham Neubig Sakirani Sakti 奈良先端科学技術大学院大学 戸田 智基 奈良先端科学技術大学院大学 中村 哲 奈良先端科学技術大学院大学	https://doi.org/10.5715/jnlp.2.3.87	複雑化する機械翻訳システムを比較し、問題点を把握・改善するため、誤り分析が利用される。その手法として、様々なものが提案されているが、多言語単機にシステム間の翻訳結果と正常訳の差違に着目して誤りを分類するものであり、人手による分析への活用を目的とするものではなかった。本研究では、人手による誤りの分類を効率化する手法として、機械学習の枠組みを導入した誤り箇所選択手法を提案する。学習によって評価の低い誤り抽出・抽出した誤り分類するモデルを作成し、評価低下の手段が何れ自動的に獲得することで、人手による誤り分析の効率化を図る。実験の結果、提案法を活用することで、人手による誤り分析の効率性が向上した。
オープンサイエンスと科学データの可能性	情報管理	2014 年 57 巻 2 号	Pages 80-89	2014	宮下 竜子 ネオキープ・プロパジャング・グループ	https://doi.org/10.1241/johok.anr1.57.80	Galaxy ZooTheBirdに代表される「シチズンサイエンス」では、基礎研究データの効率的な整備や新たな知識の生産に市民が直接貢献している。「開かれた科学」は17世紀後半の科学アカデミーの成立や手紙誌の成立に端を発し、今日の科学界の基盤となる(1)先駆性の確保、(2)科学の集約性、(3)第三者による正当性の担保、(4)着書による説明責任の確立、といった基礎を築いた。サイエンス2.0の到来によって、フルオープン、オープンとアルビュ、オープンデータリボジリ、科学のソーシャル化によるネットワーク化が加速した。本研究では、人手による誤りの分類を効率化する手法として、機械学習の枠組みを導入した誤り箇所選択手法を提案する。学習によって評価の低い誤り抽出・抽出した誤り分類するモデルを作成し、評価低下の手段が何れ自動的に獲得することで、人手による誤り分析の効率化を図る。実験の結果、提案法を活用することで、人手による誤り分析の効率性が向上した。
機械翻訳の新しい統計的手法を中心に	情報管理	2014 年 57 巻 1 号	Pages 12-21	2014	岡田 英一郎 情報通信研究機構/ユニバーサルコミュニケーション研究所	https://doi.org/10.1241/johok.anr1.57.12	類では、半世紀を超える歴史があり、現在、巷（まち）にあふれる自動翻訳システムの2014年の到達点を紹介する。自動翻訳に対する人々の印象はますます変わる。翻訳対象の言語・分野・文長などによって、翻訳品質が大きく違うのである。たとえば、日本語と英語の間では、汎用で高精度な自動翻訳システムは現れない。一方、日本語と韓国語の間では、汎用で高精度な自動翻訳システムが手軽に利用できる。技術に立ち添って、現在の自動翻訳の真の姿を共有することを目的として、中核技術に依りつつ統計翻訳について詳しく説明する。統計翻訳は、対訳データから翻訳に必要なモデルを抽出し、これに基づいて推定を最大化するように学習する。統計翻訳は、1単語の野の高精度翻訳を実現できる。多言語翻訳や管理である従来の実用技術にない特徴を有する。統計翻訳を旅行会社に応用した音訳翻訳特許に適用したテキスト翻訳を例に、高精度の自動翻訳技術について紹介する。
萌芽研究領域の特定手法と評価指標に関する考察	情報管理	2015 年 58 巻 9 号	Pages 694-700	2015	岩見 葉乃 科学技術振興機構 情報企画部 東京大学大学院 工学系研究科	https://doi.org/10.1241/johok.anr1.58.694	科学技術戦略を策定するにあたり、近年では、データを分析して客観的なエビデンスに基づき判断しようという潮流が勢力評価手法の研究が進められている。本分析では、分析対象は、2007-2014年の各年の被引用数上位1%の論文を収集し、論文の引用ネットワークを分析して、萌芽研究領域を特定して投資対象を判断する指標を提案する。研究領域に含まれる平均出版年から萌芽研究領域を特定した結果、日本の論文が含まれる領域は5領域が検出された。それらの領域における日本の研究の質・量・優位性を判断し、その後、取るべき戦略として研究領域を区分した。
関連研究探索のための検索可視化システム	情報管理	2015 年 58 巻 6 号	Pages 447-454	2015	岡川 佐千男 九州大学情報基盤研究開発センター 伊東 崇典 九州大学情報基盤研究開発センター 馬場 謙介 九州大学附属図書館	https://doi.org/10.1241/johok.anr1.58.447	科学技術の加速度的発達により、一般社会と専門家の乖離（かいり）は大きく、若者の体系離れも問題となっている。専門家であっても、複合領域や未知の分野の調査は容易でなく、本稿では、わが国の科学技術の基本構想である科学技術政策の研究開発の進捗を把握し、その後の10年間で人口減少の時代に入し、科学技術関係予算は大きく伸びる可能性は少なく、限られた科学技術関係予算を賢く使うための検索可視化システムを紹介する。本システムでは、検索に現れる結果だけでなく、キーワード、分野、研究者、研究者所属、年数などの単語を異なる色で関連づけず（Mind Map：マインドマップ）として表示する。単語の属性識別により関連解釈が可能となり、知りたいテーマに関連して、「だれが、どこで、どんな研究活動を行っているか」を把握できる。本稿ではシステムの概要と、探索的検索の事例を紹介する。
JSTファンディング情報のデータベース化（JST-FMDB）とその活用 研究開発戦略の立案・評価における情報の役割と方向性	情報管理	2015 年 58 巻 4 号	Pages 286-292	2015	黒沢 勢 国立研究開発法人科学技術振興機構 情報企画部 水田 香雄 国立研究開発法人科学技術振興機構 研究プロジェクト推進部 小賀取 康志 国立研究開発法人科学技術振興機構 戦略研究推進部	https://doi.org/10.1241/johok.anr1.58.286	JSTは前身のJRDC創設以来、50年以上にわたる基礎研究や産業化を通じてイノベーション創出を目指す戦略的研究ファンディング（資金提供）を実施してきた。その結果、数々のノーベル賞受賞者を輩出し、我が国の科学技術の発展に貢献してきた。すでに日本は超高齢社会と人口減少の時代に入し、科学技術関係予算は大きく伸びる可能性は少なく、限られた科学技術関係予算を賢く使うための検索可視化システムを紹介する。本システムでは、検索に現れる結果だけでなく、キーワード、分野、研究者、研究者所属、年数などの単語を異なる色で関連づけず（Mind Map：マインドマップ）として表示する。単語の属性識別により関連解釈が可能となり、知りたいテーマに関連して、「だれが、どこで、どんな研究活動を行っているか」を把握できる。本稿ではシステムの概要と、探索的検索の事例を紹介する。
学術フォーラム「科学を変えるデータジャーナルー科学技術データの共有・利用の新たなプラットフォーム」	情報管理	2015 年 58 巻 3 号	Pages 228-233	2015	佐藤 正樹 国立研究開発法人 科学技術振興機構	https://doi.org/10.1241/johok.anr1.58.228	n/a
研究評価と研究戦略における研究力分析	情報管理	2015 年 57 巻 11 号	Pages 841-844	2015	高谷 真佐子 金沢大学 先端科学・イノベーション推進機構	https://doi.org/10.1241/johok.anr1.57.841	n/a
イノベーションを支える知財情報：WIPOの戦略・政策・イニシアチブ	情報管理	2016 年 59 巻 4 号	Pages 218-225	2016	高木 直幸	https://doi.org/10.1241/johok.anr1.59.218	知的財産情報管理は世界知的所有権機関（WIPO）の戦略4本柱、新条約作成、グローバル保護登録サービスの提供、技術援助と人材養成、グローバルイフの構築に反映されている。情報管理のためのシステムはプラットフォーム構築を中心に進められ、国際登録・出願のためのIPCやマドリッド制度のみならず知財情報を流通させるシステムやネットワークと化し、途上国のデジタル情報活用基盤のためのIPASや国際特許情報国際協力のためのCASEとWIPOの新しいプラットフォームが、多国間の知財情報シニア流通のための基盤として利用され、国際条約を補完する国際調和の推進力として期待されている。
研究者識別子ORCID：活動状況と今後の展望	情報管理	2016 年 59 巻 1 号	Pages 19-31	2016	富入 裕子 ORCID Inc.	https://doi.org/10.1241/johok.anr1.59.19	世界中の研究者への一意的識別子付与を目的とする国際非営利組織ORCID Inc.が、2012年10月にサービスを開始してから3年での経緯とした。2014年1月にアジアで初のORCIDアドホックミーティングが東京で開催された直後に100万人を超えたORCIDの登録者数を、その後の1年余りで180万人に拡大し、研究者識別子の標準番号として急速に浸透している。本稿では、研究者および機関にとってORCIDの意義を再確認するとともに、2015年末までORCID Inc.の活動状況と発展的展望を、特に、国内地域・ヘルス導入を進めるORCIDコソーションの動向や、DOI発行機関によるORCIDジストムの自動アップデートなど、加速度的に進化するORCIDの原動力となるイニシアチブを紹介し、今後ORCIDの活用を目指す日本の研究機関、出版社、研究助成機関などに参考情報を提供する。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
国立情報学研究所における研究用データセットの共同利用	情報管理	2016 年 59 巻 2 号	Pages 105-112	2016	大山 敬三 国立情報学研究所 総合研究大学院大学 大賀賢 智子 国立情報学研究所	https://doi.org/10.1241/johokamri.59.105	情報学研究においては大規模データセットが不可欠となっているが、実際には多くの課題がある。そこで国立情報学研究所では、民間企業などデータセットを受け入れ、研究活動に提供する共同利用の取組みとして情報学研究データポータル（IDR）の活動を挙げている。本稿では、最初その背景にある学大学民間企業間の状況を確認し、次に研究コミュニティにおけるデータセットの信頼性の課題に着目してその共同利用の意義を明らかにしている。また、IDRデータセット提供のために民間企業や研究機関向けに行っている活動内容や、提供中のデータセットとそれらの利用状況について紹介し、最後に今後の展望を示している。
顧客ニーズに即した技術開発に資する情報解析手法：消費技術を対象としたオープンバージョンの検討	情報管理	2016 年 58 巻 10 号	Pages 745-754	2016	高橋 匡 日清エース株式会社 加工食品事業部 第二部 平塚 啓 キヤン株式会社 R&D本部 知的財産部	//doi.org/10.1241/johokamri.58.745	近年、社外の技術やアイデアを社内に取り入れるオープンバージョンを活用し、技術開発を行う企業が増えていく。このような背景を受け、筆者らは2014年度「PAT-LIST研究会」活動において、顧客ニーズに即した技術開発を自社で行う（自前主義）か、他者と提携して行う（オープンバージョン）か、どちらが所得確率を検証する情報解析手法を開発した。本稿では消費技術を対象として、商品情報・特許情報の活用による技術動向把握、アンケート情報・特許情報の比較による顧客ニーズの推定、技術補充が期待される提携先候補の探索を組み合わせた情報解析手法を紹介する。
機械翻訳の新しいパラダイム：ニューラル機械翻訳の原理	情報管理	2017 年 60 巻 5 号	Pages 299-306	2017	中澤 敬明	https://doi.org/10.1241/johokamri.60.299	ニューラル機械翻訳（NMT）の登場により機械翻訳のパラダイムは大きく変化した。平均的な翻訳精度は統計的機械翻訳（SMT）と比較すると格段に向上したが、誤りの傾向やSMTには大きく異なっており、NMT特有の誤りも存在する。本稿では機械翻訳研究の歴史と深く関係し、SMTの仕組みと原理に復習した後、SMTと比較しながらNMTの仕組みを解説する。NMTは大きく分けてエンコーサ・アテンション機構、デコーダの3つからなり、それぞれの役割についても解説する。またそれぞれの翻訳方式の特徴を明らかにし、その長所と短所を説明する。さらに科学技術振興機構（IST）におけるNMTの活用事例を紹介し、最後に本稿のまとめを行う。
官民一体のオープンデータ利活用の取り組み：先進県・福井、データシティ構想	情報管理	2018 年 60 巻 11 号	Pages 798-808	2018	牧田 泰一 福井県政策経営部 藤原 晃典 福井県総合政策部政策統計・情報課	https://doi.org/10.1241/johokamri.60.798	福井県は、誰もが自由に使えるオープンデータの活用推進を県内全域で行っている。県内全市町村の内容・様式を統一したデータを都道府県として初めて公開し、機械的に加工したデータが公開できるように、二次利用を進めている。そして、データが公開するだけでなく、アプリケーションと普及活動等を行っており、オープンデータを活用したアプリケーション開発者は全国トップクラスである。また、福井県福井市は日本で初めてオープンデータに取り組んだ先進自治体であり、オープンデータによる行政の透明化、市民参加、そして官民の連携を進めている。こうした福井県の取り組みから、福井市の注目すべき先進事例を紹介する。
TETDMを用いたテキストマイニングのスキル獲得を支援するためのチュートリアルシステムの開発	情報と知財	2015 年 27 巻 5 号	Pages 771-783	2015	西原 雅子 立命館大学情報理工学部 中垣内 李豪 広島市立大学大学院情報科学研究科 川本 佳代 広島市立大学大学院情報科学研究科 杉山 遼 広島市立大学大学院情報科学研究科	https://doi.org/10.3156/jsoft.27.771	テキストマイニングを用いたデータの分析に関心が高まっており、エンゲルと見えるソフトウェアも数多く開発されている。ソフトウェアを用いてテキストマイニングを行うが、テキストマイニングの手法が実用化されるソフトウェアの開発には、学習するためのスキルを身につける必要がある。スキルを身につけるためには、ツールの選択・操作やデータの分析など、課題を通じて繰り返し練習することが重要になると考えられる。そこで、本論文では、テキストマイニングのソフトウェアであるTETDMを用いたテキストマイニングのスキル獲得を支援するチュートリアルシステムを開発する。提案システムでは、テキストマイニングの課題を基礎的なものから応用的なものへと順に解かせることにより、スキル獲得を支援する。
機械翻訳自動評価	情報と知財	2015 年 27 巻 3 号	Pages 100	2015	越前谷 博 北海道大学大学院工学研究科	https://doi.org/10.3156/jsoft.27.3_100_2	2020年東京オリンピックの開催決定に伴い、各語機械翻訳の開発と普及が進んでいる。現在の機械翻訳研究の主流となっているアーキテクチャは統計的翻訳である。更に、近年では深層学習を背景にニューラル翻訳が注目を集めている。このような機械翻訳研究の発展に大きく寄与している黒子的な技術が自動評価法である。機械翻訳の評価は従来から大きな問題であった。評価として最も信頼性の高い方法は人手評価である。しかし、人手評価はコストと時間を要する。そこで登場したのが自動評価法 BLEUである。2002年に発表されたBLEUは機械翻訳のシステム誤りが人手で作成された正しい翻訳結果（正解訳及び候補訳と呼ばれる）とどれくらい近いかをスコアとして算出し、それを評価結果として得る。
検索対象の多面的理解支援のためのWikipedia記事中の列挙を利用した関連情報発見	情報と知財	2018 年 30 巻 6 号	Pages 788-795	2018	佐藤 進也 日本工業大学先進工学部情報メディア工学科	https://doi.org/10.3156/jsoft.30.6_788	目標が曖昧で、ユーザ自身が経路探索を通して何を検索すべきかを明確化していく探索的な検索では、「調べようとしていること」（検索対象）に対するユーザの理解を支援することが重要である。検索のプロセスの中でユーザが対象の理解を深めていくためには、いゆる取り組みによりよく詳細な情報を得るだけでなく、他の概念などの関係性を把握し、対象概念を多面的に理解することも重要である。そこで、本論文では、検索対象の多面的理解支援に有用な関連情報の発見方法を提案する。提案手法では、関連情報を抽出するため、Wikipediaの表やリストなどの文書の列挙構造を利用する。提案手法により実際に関連情報を見出し、その有用性をユーザ実験により検証した。実験の結果、検索ランツァの理解を容易にすることができ、提案手法が多面的理解支援に有用な情報をもっと発見できること、提案手法で見出した関連情報のうち有用な情報が占める割合が増えることが確認された。
イノベーション加速のための自己組織化マップによる解決手段の可視化	情報と知財	2018 年 30 巻 2 号	Pages 543-547	2018	西田 泰士 大阪府立大学ものづくりイノベーション研究所 本多 克宏 大阪府立大学大学院工学研究科	https://doi.org/10.3156/jsoft.30.2_543	本研究では、特許文獻データを対象とし、技術課題の解決手段の可視化を通して解決手段の着想を支援する手法を提案する。まず、代表となる単語を抽出し類似レベルの共起確率ベクトルを生成する。そして、生成した共起確率ベクトル自身の間係数を算出しベクトル化を行い、SOMに入力させる。共起確率ベクトルにより抽出したSOM、そして共起確率ベクトルにより抽出したSOMを比較し考察することにより、新規技術開発における重要な関連要素の抽出を通してイノベーション加速を支援する手法の可能性を示す。
知財業務におけるアウトソーシングマネジメント	情報管理誌	63巻(2013年) / 11号	Pages 1747	2013	知的財産マネジメント第2委員会第1小委員会	n/a	近年、事業活動のグローバル化や知財の事業への活用が多様化に伴い企業の知財業務は多岐にわたっている。知財部門に期待される役割が拡大し、知財業務が複雑になり、最大限の効果を発揮し、企業がある一方で、外部リソースの活用、すなわちアウトソーシング（OS）を積極的に行う企業も多し、所有の経営資源と最大限の知財業務のパフォーマンスを発揮するために、コスト、品質、社内コストの維持等様々な観点に基づき最適なリソース配分を設定し、的確に運用することが重要である。本論では、特に外部リソースの活用に関する知財マネジメント、すなわち「アウトソーシング・マネジメント」について、各社への調査により実態とその根拠にある考え方及び留意すべき点を明らかにし、これからの知財業務におけるOSの実践的な指針を提示する。
テキスト分析ツールを活用した特許分類業務の効率化	知財管理誌	63巻(2013年) / 10号	Pages 1623	2013	知的財産情報委員会第1小委員会	n/a	テキスト分析に基づいて特許文獻を分類する自動分類ツールおよびテキストマイニングツールに注目し、特許分類業務を効率化するにはこれらのツールとどのように使うべきか、特にツールの性能を引き出すにはどのように使うべきかを検証した。まず特許文獻がデータベースを生成する自動分類ツールについて検証し、IPや特許を用いた分析機能の内視レベルを抽出した分類業務について有用なデータが多く生成されることを活用し、次に分析結果を活用した自動分類ツールについて検証し、ツールの性能と分析結果の信頼性から導き出される効率的な使い方が外国語文獻に対する分類性能について検証した。またテキストマイニングマップを特許分類業務に用いる視点で検証した。
知財業務におけるアウトソーシングマネジメント	情報管理誌	63巻(2013年) / 11号	Pages 1747	2013	知的財産マネジメント第2委員会第1小委員会	n/a	近年、事業活動のグローバル化や知財の事業への活用が多様化に伴い企業の知財業務は多岐にわたっている。知財部門に期待される役割が拡大し、知財業務が複雑になり、最大限の効果を発揮し、企業がある一方で、外部リソースの活用、すなわちアウトソーシング（OS）を積極的に行う企業も多し、所有の経営資源と最大限の知財業務のパフォーマンスを発揮するために、コスト、品質、社内コストの維持等様々な観点に基づき最適なリソース配分を設定し、的確に運用することが重要である。本論では、特に外部リソースの活用に関する知財マネジメント、すなわち「アウトソーシング・マネジメント」について、各社への調査により実態とその根拠にある考え方及び留意すべき点を明らかにし、これからの知財業務におけるOSの実践的な指針を提示する。
グループ会社の知財管理とその課題—権利の帰属と管理形態—	知財管理誌	63巻(2013年) / 8号	Pages 1291	2013	知的財産情報システム委員会第2小委員会	n/a	近年、企業界では事業再編等を目的とした分社やPM&Aなどによるグループ会社化が国内外で進んでいる。グループ全体の事業戦略の遂行に、知財は最大限活用するために、グループ全体を俯瞰できる知財管理を構築、維持する必要がある。本稿では、グループ全体の知財管理について権利の帰属と管理形態から、分属管理と集中管理のメリット・デメリットを検証した。そして、現在の企業環境で最適な管理形態は、権利及び知財管理と一社への集中管理が最も効果的であると結論に至った。また、近年、特に需要が高まっている海外グループ会社知財管理における課題についても海外特有の事情について考察した。
企業の組織成長に合わせた知財管理方法の選定手法の検討と提言	知財管理誌	63巻(2013年) / 7号	Pages 1083	2013	知的財産情報システム委員会第2小委員会	n/a	企業の知財部門は、経営資源としての知財資産を適切に管理するが責務であるが、その管理方法は慎重に選択しなくてはならない。また、適切な管理方法も状況により変化していくため、現状を把握した上で今後の知財資産を立案する必要がある。本稿では、企業環境が変化していく中で知財管理をより適切なものとするために知財管理の現状、知財管理の課題を明らかにし、企業環境の変化に応じて、成長期における組織規模に応じた知財管理の仕組み作りについて必要な条件や選定手法について検討した結果を報告する。また、内閣府の企業経営に資する知財活動を実現するための情報管理のあり方について提言する。
知的財産マネジメントの現状分析と今後のあるべき姿についての研究	知財管理誌	63巻(2013年) / 3号	Pages 337	2013	知的財産マネジメント第1小委員会	n/a	国家戦略として2002年に知的財産戦略大綱が決定され、企業における事業戦略、研究開発戦略、知的財産戦略の三位一体の活動が提唱されてから、早10年が過ぎた。この間は国内外ともに激動の10年であり、経済環境は激変した。当然、知的財産分野についてもこの激変した環境に対応するための見直しを迫られている。そのような環境の中で、三位一体の活動は企業においてどのように理解され、実施されているのか？ 今後のあるべき姿はどのようなのか？ 10年目の節目のタイミングで検討が必要がある。そこで、2年毎に実施される日本知的財産協会のアンケート調査「知的財産経営に関する実態調査」に併せて、本テーマについて調査検討を行った。各企業における詳細な実態を基に、三位一体活動の5段階モデルを提示し、ひいては知的財産マネジメントのあり方として、自社に合わせた目標設定などの考え方を提言する。
社外リソースを活用した知財管理の検討	知財管理誌	64巻(2014年) / 11号	Pages 1712	2014	情報システム委員会第2小委員会	n/a	世間一般のビジネス環境では、コスト削減、コア業務への社内リソースの集中、スピードアップするビジネス環境への対応を理由に、社外リソースの活用が盛んに進んでいる。一方で、知財の分野へも浸透を移す。旧来から、明細書作成は特許事務所へ外注することが一般的であるが、それ以外の、例えば、管理案件の入力業務やシステム上の流動資産化については、企業各社でその独自の管理手法や情報資産への不安定に直面することが、重要となっている。本稿では、社外リソースを活用した知財管理について情報システム上の面から検討した。
グローバルな知財情報の効率的かつ正確・迅速なデータ処理方法の研究	知財管理誌	64巻(2014年) / 8号	Pages 1216	2014	情報システム委員会第1小委員会	n/a	企業活動のグローバル化に伴い、グローバル出展が増大している。当然のことながら、各国毎に出願手続や特許発行の書類形式が異なるため、出展人はそれぞれに対応しながら、自社知財管理に必要な書類の事項、広範囲曜日といった期間隔日等を含み知財情報へ、自社知財管理システムにデータとして取り込み管理している。また近年ではBRICS、ASEAN、南米、中近東、アフリカ等の新興国に出展するケースも増えており、出展人が各国毎の手続きや書類に戸惑いにくくても大きな負担となっている。本稿では、出展人が各国毎で異なるグローバル知財情報へ、効率的かつ正確・迅速に取得、管理することが出来る環境（知財情報のグローバルな電子的流通）を実現すべく、その一つの手段として、各国特許庁の書類及び項目の共通化、コード化について出展人の立場より検討した。
グローバルな知財情報の電子的流通の実現に向けて	知財管理誌	65巻(2015年) / 11号	Pages 1532	2015	情報システム委員会第1小委員会	n/a	グローバル出展の増加、出展国の多様化は、事務管理の負荷やコスト等を増大させるため、出展人の大きな悩みの一つとなっている。当委員会の2013年度活動では、出展人が出展国に問わず知財情報効率的かつ正確・迅速に取得し、知財管理システムで管理することが出来る環境（知財情報グローバル電子的流通）を実現するための1つの解決手法として、五大特許庁（WIPO）の書類及び項目について共通化、コード化することを検討した。本稿ではその手法がインド、ロシア、ブラジル等の新興国においても適用できるかの検証を行った結果を報告する。併せて、各国電子出展システムの現状を調査した上で、今後の知財情報の電子的流通実現に向けた目標とグループ、特に各国のデータのXML2）フォーマットでの提供の必要性について提言する。
経営判断に資する意思決定支援システムの検討—事業判断に必要な情報の検討とそのシステム化の検討—	知財管理誌	65巻(2015年) / 12号	Pages 1703	2015	情報システム委員会第2小委員会	n/a	2002年に国家戦略として知的財産立国が宣言され、2005年の知的財産推進計画で事業部門、研究・開発部門、知財部門による三位一体の経営戦略の重要性が述べられてから10年あまりが経過した。この三位一体経営において知的財産情報は、経営・事業における様々な場面で意思決定に用い、欠かせないものとなっている。また、経営資源が自社の知財マネジメントの現状を正しく把握し、知財情報への不安定に直面することが、重要となっている。本稿では、三位一体経営に必要な知財情報を実現するためのシステムを「経営判断に資する意思決定支援システム」として定義し、そのシステムではあるべき姿、また、どのようにシステム化したか、について調査・研究を行った。

タイトル	ジャーナル（掲載雑誌）	Volume	Pages	発行年	著者	DOI URL	要約
審査官データベースを活用した米国ファイナルオフィスアクションへの対応	知財管理誌	69巻(2019年) / 1号	Pages 72	2019	国際第1 委員会	n/a	<p>米国の特許権利化実務においては、ファイナルオフィスアクションに対し権利化を望む出願人の主な手続として、審判請求（Appeal）と継続審査請求（RCE）がある。当委員会では2017年に、拒絶理由の取扱いの程度を判断することでAppealを有効活用する手法を提案した。しかし、取扱いの程度を判断に迷う場合に、何れの手続を選択すべきか判断に迷うことがある。本稿では、このような場合に、審査官の「審査の特徴」を示す情報を活用することで、従来より高精度で有効な手続を選択できるのではないかと考え調査研究を行った。本調査研究結果より、ファイナルオフィスアクションに対し、審査官データベースを利用した「有効な手続選択フロー」を提案する。</p>