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The Art of Software Innovation Emerging Technologies for Innovation Management in the Software Industry Software Technology Business Model Innovation in Software Product Industry Industrial Organisation and Innovation Handbook of Research on Software Quality Innovation in Interactive Systems India in the Global Software Industry Innovation in the Software Sector Systematic (software) Innovation The New Goliaths Management of Software Engineering Innovation in Japan 2017 IEEE/ACM 1st International Workshop on Design and Innovation in Software Engineering Information Systems Innovation and Diffusion Latin American Women and Research Contributions to the IT Field The Efficiency and Creativity of Product Development Innovation And Diffusion Of Software Technology Firms in Open Source Software Development Strategies for Innovation Scenario-focused Engineering Speed, Data, and Ecosystems Intellectual Property Rights, Innovation and Software Technologies Enterprise SOA Innovation in China Strategic Value Proposition Innovation Management in Software Startups for Sustained Competitive Advantage Invisible Engines The Innovation in Computing Companion Ethical IT Innovation Managing Technical People Knowledge Innovation Through Intelligent Software Methodologies, Tools and Techniques Paradigm Shift in Technologies and Innovation Systems Software Patents Emerging Technologies for Information Systems, Computing, and Management Design Thinking Research Continuous Innovation with DevOps Open Innovation 2017 IEEE ACM 1st International Workshop on Design and Innovation in Software Engineering (DISE) Democratizing Innovation Innovation Explosion Practical Creativity and Innovation in Systems Engineering Innovation Happens Elsewhere

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There has been continued debate in Europe over whether to change the patentability of software - or so-called computer-implemented inventions - and to follow the US model of allowing software patents. The European debate has shown a severe lack of empirical analysis on the possible impact of software patenting that goes beyond interest-driven rhetoric. This book seeks to address this shortcoming by taking a two-fold approach. Firstly, a survey of German software companies provides a representative overview of both general strategies to protect inventions and opinions regarding the future IPR regime in the context of innovation strategies - including the importance and use of Open Source software. Secondly, a series of case studies illustrate the varying impacts that patents and other protection strategies can have in specific contexts. This book provides both a theoretical overview of the economic impacts and policy implications of software patents, and an empirical foundation upon which to base a discussion on how to shape the intellectual property regime for software. Well-known author and long-time manager Watts Humphrey offers keen insight into the special challenge of identifying, motivating, and organizing creative technical people, and the opportunities involved in managing these people. Great technology alone is rarely sufficient today to ensure a product's success. At Microsoft, scenario-focused engineering is a customer-centric, iterative approach used to design and deliver the deeper experiences and emotional engagement customers demand in new products. In this book, you'll discover the proven practices and lessons learned from real-world implementations of this approach, including: Why design matters: Understand a competitive landscape where customers are no longer satisfied by products that are merely useful, but respond instead to products they crave using. What it means to be customer focused: Recognize that you are not the customer, understand customers can have difficulty articulating what they want, and apply techniques that uncover their unspoken needs. How to iterate effectively: Implement a development system that is flexible enough to respond to early and continuous feedback, and enables experimentation with multiple ideas and feedback loops simultaneously. How to bridge the culture gap: In an engineering environment traditionally rooted in strong analytics, the ideas and practices for scenario-focused engineering may not be intuitive. Learn how to change team mindset from deciding what a product, service, or device will do, to discovering what customers actually want and what will work for them in real-life scenarios. Connections with Lean and Agile approaches: See the connections, gaps, and overlaps among the Lean, Agile, and Scenario-Focused Engineering methodologies, and achieve a more holistic view of software development. A key question for China is whether it can

progress from being a traditional centre of manufacturing to becoming a centre for innovation. Identifying the strengths and weaknesses of the industry, this book defines the challenges for China in its transition from "Made in China" to "Innovated in China." As software R&D investment increases, the benefits from short feedback cycles using technologies such as continuous deployment, experimentation-based development, and multidisciplinary teams require a fundamentally different strategy and process. This book will cover the three overall challenges that companies are grappling with: speed, data and ecosystems. Speed deals with shortening the cycle time in R&D. Data deals with increasing the use of and benefit from the massive amounts of data that companies collect. Ecosystems address the transition of companies from being internally focused to being ecosystem oriented by analyzing what the company is uniquely good at and where it adds value. A comprehensive collection of influential articles from one of IEEE Computer magazine’s most popular columns This book is a compendium of extended and revised publications that have appeared in the “Software Technologies” column of IEEE Computer magazine, which covers key topics in software engineering such as software development, software correctness and related techniques, cloud computing, self-managing software and self-aware systems. Emerging properties of software technology are also discussed in this book, which will help refine the developing framework for creating the next generation of software technologies and help readers predict future developments and challenges in the field. Software Technology provides guidance on the challenges of developing software today and points readers to where the best advances are being made. Filled with one insightful article after another, the book serves to inform the conversation about the next wave of software technology advances and applications. In addition, the book: Introduces the software landscape and challenges associated with emerging technologies Covers the life cycle of software products, including concepts, requirements, development, testing, verification, evolution, and security Contains rewritten and updated articles by leaders in the software industry Covers both theoretical and practical topics Informative and thought-provoking throughout, Software Technology is a valuable book for everyone in the software engineering community that will inspire as much as it will teach all who flip through its pages. Software methodologies, tools and techniques have become an ever more important part of our lives, and are crucial to the decision-making processes that affect us every day. This book presents papers from the 19th International Conference on New Trends in Intelligent Software Methodology Tools, and Techniques (SoMeT20), held in Kitakyushu, Japan from 22–24 September 2020. The SoMeT conferences bring together researchers and practitioners to share their original research results and experience of practical developments in software science and related new technologies, and this book explores new trends and theories that highlight the direction and development of intelligent software methodologies, tools and techniques. It covers newly developed techniques, enhanced methodologies, software related solutions and recently developed tools, as well as indicating the direction of future research, and the 40 revised papers included here have been selected by the SoMeT20 international reviewing committee on the basis of technical soundness, relevance, originality, significance, and clarity. The book is divided into 5 chapters: artificial intelligence techniques on software engineering, and requirement engineering; software methods for informatics, medical informatics and bio-medicine applications; applied software tools, techniques and related software engineering models; intelligent-software systems design, software quality, software evolution and validation techniques; and knowledge science and intelligent computing. Providing an overview of the state-of-the-art in software science and its supporting technology, this book will be of interest to all those working in the field. This book throws a spotlight on innovation across the software universe, setting out key issues and highlighting policy perspectives. It spans research and development, invention, production, distribution and use of software in the market. Although the effort to involve women in engineering has risen in recent years with the creation of new initiatives and the promotion of inclusion in technical disciplines, the active participation of women in engineering professions is continuously lower than expected. While the need for engineers appears to be constantly increasing, women still do not fill most of this role and have a long way to go to even reach an equal split in the field. This gender gap has a significant impact how women in the STEM fields are perceived as well as their experiences in their education and careers. When it comes to Latin American women in IT, their contribution to science can go unnoticed, their participation levels in these fields are very low, and they often occupy lower-level positions than their male counterparts. These issues need to be discussed, and the experiences of women who work in the field must be shared. Latin American Women and Research Contributions to the IT Field highlights the important role of Latin American women in IT by collecting and disseminating their frontier-research contributions in order to provide more visibility and inspire greater participation of Latin American women within the major field of computer science. With chapters contributed by female authors from eight Latin American and Caribbean countries, the book provides a deep analysis of these women’s trajectory paths to high quality theoretical and applied relevant research in computer science and IT. While highlighting areas such as inclusivity and STEM education, along with advancements and achievements in topics that include nonverbal interaction in virtual reality, fuzzy logic applications in education, and ant colony optimization, this book is ideal for professionals, academics, students, and researchers working in the fields of information technologies and computer science as well as those interested in gender and women’s studies. ICSE, the International Conference on Software Engineering, is the premier software engineering conference, providing a forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, experiences and concerns in the field of software engineering This book examines the current massive changes in the software product industry on the basis of business model changes affecting six software products, and proposes a generic framework for business model innovation. Due to the combined effects of globalization, new market expectations and IT consumerization, the software industry has been experiencing a period of fundamental and rapid change. Achieving agility and the ability to innovate has now become vital, thus forcing organizations to create immense potential for innovating their business models. Proprietary and open source software (OSS) licensing represent the two extreme ends of the spectrum that could be used to build the business model of a software product. Given the changed face of the software product industry, successful software product vendors are innovating their business models by adopting a variety of combinations of these unilateral and new business models. However, these innovations also pose a number of challenges. The book examines these challenges in the context of several software product case studies in which companies successfully (or in some cases, less successfully) met these challenges and changed their business models. Focusing on the major issues related to business models in the software product industry, the book is targeted for a variety of readers: software entrepreneurs/start-ups, software product industry professionals, academics and students. Though the industry and technologies are changing rapidly, the issues addressed here are fundamental and will remain important ones for the foreseeable future. "This book creates and empirically examines an advanced hermeneutic framework for the study of B2B decision-making processes for software application development" -- Back cover. This work provides a systematic/quantitative analysis of the development of the software industry, the major growth industry in advanced economies. It presents the results of industry surveys, shedding light on differences in specialisation and performance of European and US software firms. In this timely and unique study, the innovations in India's information (IT) industry are examined in detail. Globally the IT Industry has experienced phenomenal growth. For many economies, IT is expected to be the engine of growth for many countries. Already in India, the IT industry has made a mark in the global economy. However, India faces major challenges in meeting the basic needs of all its people and simultaneously meeting the requirements of competing in the increasingly globalized post-WTO world economy. The Indian IT sector provides a unique window to understand the process of development in an era of global economic integration. This unique study examines the issues surrounding the analysis of the Indian IT sector on a global, national, regional, firm, and product level and the significance of national policies to sustain the competitiveness of the Indian IT sector. The principles of successful market-oriented and human-centered design are used to analyze the formation of a good business enterprise. Focusing on technology based enterprises, the author elaborates on the powerful methods for planning, organization and control; and on starting, growing and maturing organizations that create human-centered products and systems. Case studies include the aerospace, computer and electronics industries, as well as technology-oriented government institutions. Innovation is the key to maintain competitive advantage. Innovation in products, processes, and business models help companies to provide economic value to their customers. Identifying the innovative ideas, implementing those ideas, and absorbing them in the market requires investing many resources that could incur large costs. Technology encourages companies to foster innovation to remain competitive in the marketplace. Emerging Technologies for Innovation Management in the Software Industry serves as a resource for

technology absorption in companies supporting innovation. It highlights the role of technology to assist software companies—especially small start-ups—to innovate their products, processes, and business models. This book provides the necessary guidelines of which tools to use and under what situations. Covering topics such as risk management, prioritization approaches, and digitally-enabled innovation processes, this premier reference source is an ideal resource for entrepreneurs, software developers, software managers, business leaders, engineers, students and faculty of higher education, researchers, and academicians. This book connects the new world of digitalization with classic IT management. With the presence of software in objects, products and processes, most businesses will become software-defined businesses. Software development and software management are thus key to stay competitive in an environment that demands continuous innovation. The authors provide a comprehensive introduction to continuous innovation, the DevOps concept and lay the foundations of an innovation-oriented IT management. The DevOps approach to continuous innovation, which combines lean and agile concepts with an automated tool chain, enables solutions that synergize fast (re)action through digital innovation on the one hand and long-term development cycles and stable operation on the other. A comprehensive case study of T-Systems MMS, a digital service provider from Deutsche Telekom in Germany, illustrates the use of this approach in practice. Explaining how ubiquitous computing is rapidly changing our private and professional lives, Ethical IT Innovation: A Value-Based System Design Approach stands at the intersection of computer science, philosophy, and management and integrates theories and frameworks from all three domains. The book explores the latest thinking on computer ethics, including the normative ethical theories currently shaping the debate over the good and bad consequences of technology. It begins by making the case as to why IT professionals, managers, and engineers must consider the ethical issues when designing IT systems, and then uses a recognized system development process model as the structural baseline for subsequent chapters. For each system development phase, the author discusses: the ethical issues that must be considered, who must consider them, and how that thought process can be most productive. In this way, an ‘Ethical SDLC’ (System Development Life Cycle) is created. The book presents an extensive case study that applies the "Ethical SDLC" to the example of privacy protection in RFID enabled environments. It explains how privacy can be built into systems and illustrates how ethical decisions can be consciously made at each stage of development. The final chapter revisits the old debate of engineers’ ethical accountability as well as the role of management. Explaining the normative theories of computer ethics, the book explores the ethical accountability of developers as well as stakeholders. It also provides questions at the end of each chapter that examine the ethical dimensions of the various development activities. In an age of dwindling economic competition, instead of breaking up corporate giants, we need to compel them to share their technology, data, and knowledge This encyclopedic reference provides a concise and engaging overview of the groundbreaking inventions and conceptual innovations that have shaped the field of computing, and the technology that runs the modern world. Each alphabetically-ordered entry presents a brief account of a pivotal innovation and the great minds behind it, selected from a wide range of diverse topics. Topics and features: Describes the development of Babbage’s computing machines, Leibniz’s binary arithmetic, Boole’s symbolic logic, and Von Neumann architecture Reviews a range of historical analog and digital computers, significant mainframes and minicomputers, and pioneering home and personal computers Discusses a selection of programming languages and operating systems, along with key concepts in software engineering and commercial computing Examines the invention of the transistor, the integrated circuit, and the microprocessor Relates the history of such developments in personal computing as the mouse, the GUI, Atari video games, and Microsoft Office Surveys innovations in communications, covering mobile phones, WiFi, the Internet and World Wide Web, e-commerce, smartphones, social media, and GPS Presents coverage of topics on artificial intelligence, the ATM, digital photography and digital music, robotics, and Wikipedia Contains self-test quizzes and a helpful glossary This enjoyable compendium will appeal to the general reader curious about the intellectual milestones that led to the digital age, as well as to the student of computer science seeking a primer on the history of their field. Dr. Gerard O'Regan is a CMMI software process improvement consultant with research interests including software quality and software process improvement, mathematical approaches to software quality, and the history of computing. He is the author of such Springer titles as World of Computing, Concise Guide to Formal Methods, Concise Guide to Software Engineering, and Guide to Discrete Mathematics. This book examines the effects of Intellectual Property Rights (IPRs), namely patents and copyrights, on innovation and technical change in information technologies. It provides new insights on the links between markets, technologies and legislation by applying a variety of empirical and analytical methods. The book also explores the success of the Open Source movement to establish an alternative regime for IPRs by illuminating the rationale behind it and illustrating how Open Source can strategically be used by firms. The inclusion of experts in communicability in the software industry has allowed timeframes to speed up in the commercialization of new technological products worldwide. However, this constant evolution of software in the face of the hardware revolution opens up a host of new horizons to maintain and increase the quality of the interactive systems following a set of standardized norms and rules for the production of interactive software. Currently, we see some efforts towards this goal, but they are still partial solutions, incomplete, and flawed from the theoretical as well as practical points of view. If the quality of the interactive design is analyzed, it is left to professionals to generate systems that are efficient, reliable, user-friendly, and cutting-edge. The Handbook of Research on Software Quality Innovation in Interactive Systems analyzes the quality of the software applied to the interactive systems and considers the constant advances in the software industry. This book reviews the past and present of information and communication technologies with a projection towards the future, along with analyses of software, software design, phrases to use, and the purposes for software applications in interactive systems. This book is ideal for students, professors, researchers, programmers, analysists of systems, computer engineers, interactive designers, managers of software quality, and evaluators of interactive systems. This book aims to increase the success rates of startups by focusing on value proposition innovation, which is propelled by the involvement of potential consumers as well as other resources such as freelancers and strategic relationships with academia. The author shows how startups who are resource constrained can invest efforts exploring the potential market of their products. The author also explores how global markets can be beneficial for a startup’s success, while showing the workarounds in hard-to-access markets. The book investigates gaining knowledge shared by freelancers, customers, and academia, whose involvement can be crucial in supporting value proposition innovation activities such as ideas generation, implementation, and commercialization. Combined, the author leads readers to discover their ability to foster value proposition innovations that result into long term competitive advantage in a highly fluctuating business environment. Imagine that you are the CEO of a software company. You know you compete in an environment that does not permit you to treat innovation as a secondary issue. But how should you manage your software innovation to get the most out of it? This book will provide you with the answer. Software innovation is multifaceted and the approaches used by companies can be very different. The team of authors that wrote this book took the assumption that there is no such thing as a universal software engineering process or innovation process. Some things work well for a certain company, others do not. The book is organized around what the authors call eight fundamental practice areas for innovation with software. Each practice area contains a number of activities that can help companies to master that practice area. It also contains industrial experience reports that illustrate the applicability of these practice areas in software companies and is structured in such a way that you can select and read only those practice areas that are relevant to your company. The book is written with an industrial target audience in mind. Its most important goal is to challenge companies by offering them a framework to become more innovation-driven, rather than engineering-driven. Intrigued? Here you will find details of what you and your company can do to understand, implement, and sustain continuous innovation. A guide to systems engineering that highlights creativity and innovation in order to foster great ideas and carry them out Practical Creativity and Innovation in Systems Engineering exposes engineers to a broad set of creative methods they can adopt in their daily practices. In addition, this book guides engineers to become entrepreneurs within traditional engineering companies, promoting creative and innovative culture around them. The author describes basic systems engineering concepts and includes an abbreviated summary of Standard 15288 systems’ life cycle processes. He then provides an extensive collection of practical creative methods which are linked to the various systems’ life cycle processes. Next, the author discusses obstacles to innovation and, in particular, how engineers can push creative ideas through layers of reactionary bureaucracy within non-innovative organizations. Finally, the author provides a comprehensive description of an exemplary creative and innovative

case study recently completed. The book is filled with illustrative examples and offers effective guidelines that can enhance individual engineers' creative prowess as well as be used to create an organizational culture where creativity and innovation flourishes. This important book: Offers typical systems engineering processes that can be accomplished in creative ways throughout the development and post-development portions of a system's lifetime. Includes a large collection of practical creative methods applicable to engineering and other technological domains Includes innovation advice needed to transform creative ideas into new products, services, businesses and marketing processes Contains references and notes for further reading in every section Written for systems engineering practitioners, graduate school students and faculty members of systems, electrical, aerospace, mechanical and industrial engineering schools, Practical Creativity and Innovation in Systems Engineering offers a useful guide for creating a culture that promotes innovation. Information Technology professionals can use this book to move beyond the excitement of web services and service oriented architecture (SOA) and begin the process of finding actionable ideas to innovate and create business value. In Enterprise SOA: Designing IT for Business Innovation, SAP's blueprint for putting SOA to work is analyzed from top to bottom. In addition to design, development, and architecture, vital contextual issues such as governance, security, change management, and culture are also explored. This comprehensive perspective reduces risk as IT departments implement ESA, a sound, flexible architecture for adapting business processes in response to changing market conditions. This book answers the following questions: What forces created the need for Enterprise Services Architecture? How does ESA enable business process innovation? How is model-driven development used at all levels of design, configuration, and deployment? How do all the layers of technology that support ESA work together? How will composite applications extend business process automation? How does ESA create new models for IT governance? How can companies manage disruptive change? How can enterprise services be discovered and designed? How will the process of adapting applications be simplified? Based on extensive research with experts from the German software company SAP, this definitive book is ideal for architects, developers, and other IT professionals who want to understand the technology and business relevance of ESA in a detailed way--especially those who want to move on the technology now, rather than in the next year or two. This is the first book that comprehensively describes the history of the game software industry in Japan. A major objective here is to identify the key determinants of the emergence of the business, the maturing of the market, and the changes brought about by innovations, based on the history of the Japanese industry. To date, similar books have focused only on particular topics of the game software industry, such as the success of Nintendo and Sony and the uniqueness of the Japanese industry. There are no books that interpret the development process of this industry from the point of view of innovation. To fully understand the business and derive insightful lessons from it, however, requires a careful and thorough examination of its development process. Currently, many companies aim to improve efficiency by using information and communications technology (ICT), but it is difficult to maintain a balance between the pursuit of efficiency and the encouragement of creativity. In the case of Japan's game software industry, firms have pursued higher efficiency in product development to build competitive advantage, resulting in a low rate of radical innovation and causing the slow growth of the industry. In certain situations, the development activities that target the creation of new products may, in themselves, hinder the creation of truly new products. This book conceptualizes this phenomenon as a "development productivity dilemma" and clarifies the mechanisms behind it. The dilemma, like the productivity dilemma in the manufacturing industry, evokes a certain innovation pattern and prevents potential growth. Understanding the lessons from the game software business presented in this book, managers, researchers, and policymakers can gain insight into the mechanisms leading to industrial maturity and clues to avoid the development productivity dilemma. This book provides some new ideas on the conceptualization of a shift in technological paradigm, and it explores in depth the relevance of this concept for research on innovation systems. It examines text-mining software and analyzes patent data as well as academic and business journals to illustrate the paradigm shift of newly emerging technologies, such as the all-solid-state battery and automatic driving for electric vehicles, and surgical robots. It also explores the critical role of emerging software technologies by examining US, EU, and Japanese patent statistics. Highlighting the paradigm shift of technologies since the 1990s and the geographical dispersion of innovative capabilities, it identifies essential trends toward new innovation systems as well as the concentration and dispersion of national and corporate R&D capabilities that have taken place as a result. In this new paradigm, the competitiveness of a company is decisively determined by other innovations in systems and management. Since the 1990s, when a network economy began to be established and technological know-how came to be easily transferred across borders, the changing structure of technological activities has required organizations with traditional integral and closed architecture models to move toward open innovation or modular architectures. These changes involve wider technological areas and cognitive diversity among international inter-firm and intra-firm R&D networks. This book is highly recommended not only to academicians but also to business people seeking an in-depth and up-to-date overview of the paradigm shift of technologies and new innovation systems. In todays information-rich environment, companies can no longer afford to rely entirely on their own ideas to advance their business, nor can they restrict their innovations to a single path to market. As a result, says Harvard Business School professor Henry W. Chesbrough, the traditional model for innovation--which has been largely internally focused, closed off from outside ideas and technologies--is becoming obsolete. Emerging in its place is a new paradigm, open innovation, which strategically leverages internal and external sources of ideas and takes them to market through multiple paths. This path-breaking analysis is based on extensive field research, academic study, and the authors own longtime experience working in Silicon Valley. Through rich descriptions of the innovation processes of Xerox, IBM, Lucent, Intel, Merck, and Millennium, and the many spin-offs that have emerged from these firms, Open Innovation shows how companies can use their business model to identify a more enlightened role for R&D in a world of abundant information, better manage and access intellectual property, advance their current business, and grow their future business. Arguing that companies in all industries must transform the way they commercialize knowledge, Chesbrough convincingly shows how open innovation can unlock the latent economic value in a companys ideas and technologies. It's a plain fact: regardless of how smart, creative, and innovative your organization is, there are more smart, creative, and innovative people outside your organization than inside. Open source offers the possibility of bringing more innovation into your business by building a creative community that reaches beyond the barriers of the business. The key is developing a web-driven community where new types of collaboration and creativity can flourish. Since 1998 Ron Goldman and Richard Gabriel have been helping groups at Sun Microsystems understand open source and advising them on how to build successful communities around open source projects. In this book the authors present lessons learned from their own experiences with open source, as well as those from other well-known projects such as Linux, Apache, and Mozilla. * Winner of 2006 Jolt Productivity Award for General Books * Describes how open source development works and offers persuasive reasons for using it to help achieve business goals. * Shows how to use open source in day-to-day work, discusses the various licenses in use, and describes what makes for a successful project. * Written in an engaging style for executives, managers, and engineers that addresses the human and business issues involved in open source development as well as its history, philosophy, and future The process of user-centered innovation: how it can benefit both users and manufacturers and how its emergence will bring changes in business models and in public policy. Innovation is rapidly becoming democratized. Users, aided by improvements in computer and communications technology, increasingly can develop their own new products and services. These innovating users—both individuals and firms—often freely share their innovations with others, creating user-innovation communities and a rich intellectual commons. In Democratizing Innovation, Eric von Hippel looks closely at this emerging system of user-centered innovation. He explains why and when users find it profitable to develop new products and services for themselves, and why it often pays users to reveal their innovations freely for the use of all.The trend toward democratized innovation can be seen in software and information products—most notably in the free and open-source software movement—but also in physical products. Von Hippel's many examples of user innovation in action range from surgical equipment to surfboards to software security features. He shows that product and service development is concentrated among "lead users," who are ahead on marketplace trends and whose innovations are often commercially attractive. Von Hippel argues that manufacturers should redesign their innovation processes and that they should systematically seek out innovations developed by users. He points to businesses—the custom semiconductor industry is one example—that have learned to assist user-innovators by providing them with toolkits for developing new products. User innovation has a positive impact on social

welfare, and von Hippel proposes that government policies, including R&D subsidies and tax credits, should be realigned to eliminate biases against it. The goal of a democratized user-centered innovation system, says von Hippel, is well worth striving for. An electronic version of this book is available under a Creative Commons license. This book assesses the achievements of the software engineering discipline as represented by IT vendors in Japan in order to deepen understanding of the mechanisms of how software engineering capabilities relate to IT vendors' business performance and business environment from the perspective of innovation and engineering management. Based on the concepts of service science and science for society, the volume suggests how to improve the sophistication of services between the demand side, i.e., IT user companies, and the supply side, i.e., IT vendors, simultaneously. The author and his colleagues developed a structural model including innovational paths, such as service innovation, product innovation and process innovation, and a measurement model including the seven software engineering capabilities: deliverables, project management, quality assurance, process improvement, research and development, human resource development and customer contact. Then they designed research on software engineering excellence and administered it with the Japanese Ministry of Economy, Trade and Industry and Information-Technology Promotion Agency. Through statistical analyses of the results, they found that human resource development and R&D are significant fundamental conditions to improve the quality of the deliverables and that IT firms with high levels of deliverables, derived from high levels of human resource development, quality assurance, project management and process improvement, tend to sustain high profitability. In addition, they developed a measurement model based on Porter's five forces and Barney's resource-based view. A regression tree analysis suggested that manufacturer spin-off vendors tend to expand business with well-resourced R&D, whereas user spin-off vendors tend to depend heavily on parent company demand. This book aims to examine innovation in the fields of information technology, software engineering, industrial engineering, management engineering. Topics covered in this publication include; Information System Security, Privacy, Quality Assurance, High-Performance Computing and Information System Management and Integration. The book presents papers from The Second International Conference for Emerging Technologies Information Systems, Computing, and Management (ICM2012) which was held on December 1 to 2, 2012 in Hangzhou, China. This book summarizes the results of Design Thinking Research carried out at Stanford University in Palo Alto, California, USA, and Hasso Plattner Institute in Potsdam, Germany. The authors offer readers a closer look at Design Thinking with its processes of innovations and methods. The contents of the articles range from how to design ideas, methods, and technologies via creativity experiments and wicked problem solutions, to creative collaboration in the real world and the connectivity of designers and engineers. But the topics go beyond this in their detailed exploration of design thinking and its use in IT systems engineering fields and even from a management perspective. The authors show how these methods and strategies work in companies, introduce new technologies and their functions and demonstrate how Design Thinking can influence as diverse a topic area as marriage. Furthermore, we see how special design thinking use functions in solving wicked problems in complex fields. Thinking and creating innovations are basically and inherently human – so is Design Thinking. Due to this, Design Thinking is not only a factual matter or a result of special courses nor of being gifted or trained: it's a way of dealing with our environment and improving techniques, technologies and life. Harnessing the power of software platforms: what executives and entrepreneurs must know about how to use this technology to transform industries and how to develop the strategies that will create value and drive profits. Software platforms are the invisible engines that have created, touched, or transformed nearly every major industry for the past quarter century. They power everything from mobile phones and automobile navigation systems to search engines and web portals. They have been the source of enormous value to consumers and helped some entrepreneurs build great fortunes. And they are likely to drive change that will dwarf the business and technology revolution we have seen to this point. Invisible Engines examines the business dynamics and strategies used by firms that recognize the transformative power unleashed by this new revolution—a revolution that will change both new and old industries. The authors argue that in order to understand the successes of software platforms, we must first understand their role as a technological meeting ground where application developers and end users converge. Apple, Microsoft, and Google, for example, charge developers little or nothing for using their platforms and make most of their money from end users; Sony PlayStation and other game consoles, by contrast, subsidize users and make more money from developers, who pay royalties for access to the code they need to write games. More applications attract more users, and more users attract more applications. And more applications and more users lead to more profits. Invisible Engines explores this story through the lens of the companies that have mastered this platform-balancing act. It offers detailed studies of the personal computer, video game console, personal digital assistant, smart mobile phone, and digital media software platform industries, focusing on the business decisions made by industry players to drive profits and stay a step ahead of the competition. Shorter discussions of Internet-based software platforms provide an important glimpse into a future in which the way we buy, pay, watch, listen, learn, and communicate will change forever. An electronic version of this book is available under a Creative Commons license. In open innovation scenarios, firms are able to profit from technological developments that take place beyond the legal boundaries. However, in the absence of contract-based vertical command chains, such as in the case of open source software (OSS), it is difficult for firms to obtain control over the innovation project's trajectory. In this book, the author suggests that firms have basically two options to control project work beyond their boundaries and beyond their vertical command chains. The assumption is discussed against various theories of the firm as well as control theory and empirically tested by analyzing firm engagement in Eclipse open source projects as well as communication work in the Linux kernel project. Organizations report that as much as 50% of investments in IS and IT solutions are judged to be outright failures or deemed highly unsatisfactory. Information Systems Innovation and Diffusion: Issues and Directions reports on innovation and diffusion research and presents theory-based guidelines that will increase the business value of IS/IT investments. How both entrepreneurs and nations can develop, harness, and utilize intellect, science, and technology to maximize innovation and growth.

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