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促进我国软件产业 发展战略研究

刘 森 李孟刚 著



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摘要

当前，以信息产业发展水平为主要特征的综合国力竞争日趋激烈，信息技术和信息网络的结合与应用，孕育了大量的新兴产业，并为传统产业注入新的活力。软件产业作为信息产业的核心和国民经济信息化的基础，对国家安全、国民经济发展的各个阶段都有很重要的支撑作用。软件产业的技术水平和产业规模已经成为一个国家综合国力和现代化程度的重要标志，越来越受到世界各国的重视。我国软件产业起步较晚，在国家政策的扶持下，近年来有突飞猛进的发展。但是，与美欧等软件大国相比，我国软件产业目前的现状令人担忧——没有掌握核心技术、产业集中度不高、软件产业在国民生产总值中所占比重较低^①、从业人员数量和质量都偏低、产业链不完善、没有真正成为拉动经济增长的新引擎，没有明显起到带动就业、推动产业升级、提升我国核心竞争力的作用，我国软件产业处于不安全的现状。研究促进软件产业发展战略，是为了改变我国软件产业不安全的现状，解决我国软件产业发展的“瓶颈”问题，促进我国软件产业快速发展，以期带动国家经济快速升级，避免因软件问题影响到我国政治、军事、经济安全的重大问题。

本书分为三编十一章，介绍了美国、印度、爱尔兰和我国软件产业发展现状，分析各国软件产业政策，找出各国在发展软件产业过程中的经验、教训和值得借鉴的地方。在详细分析我国软件产业现状、软件产业政策的情况下，总结我国软件产业发展的经验教训，提出促进我国软件产业发展的战略规划。

第一编总论，介绍了本书的研究背景、问题的提出和国内外研究现状，介绍软件产业、软件知识的基本概念和本书涉及的专业术语内涵。

^① 2011 年我国软件总收入为 18 848 亿元，GDP 为 471 564 亿元，软件总收入占 GDP 比例为 4%。

第二编国际软件产业竞争格局，介绍了美国、印度、爱尔兰及我国的软件产业发展现状和在国际软件竞争中的地位，分析了以上各国软件产业促进政策，总结了各国软件产业发展的经验、教训和值得借鉴的地方，为制定促进我国软件产业发展战略打下基础。第三编为促进我国软件产业发展的战略规划，提出政府扶持战略、知识产权保护战略、人才培养战略、研发基础软件战略和软件领域实施反垄断战略。

本书试图通过对世界主要软件国家的软件促进政策进行剖析，总结归纳出促进软件产业发展的政策规律，结合我国实际找出切实可行的促进软件产业发展战略，本书在内容和观点上的创新点在于：

1. 政府产业扶持政策是软件产业发展的关键，软件产业需要政府的扶持，政府的宏观调控政策有利于纠正市场失灵，更好地促进产业发展。本书通过分析美国、印度、爱尔兰三国政府软件扶持政策的成功经验，得出无论是软件产业发达国家或者不发达国家，要想发展软件产业，都需要国家政府对软件产业实施扶持政策，凸显国家政策对软件产业发展的重要性。我国软件产业的发展现状，更需要国家政府在宏观方面进行调控，“如果没有政府强有力的宏观调控，只依靠市场的自发调节，工业的发展必然要走一条漫长的道路，即先是大量低水平的重复建设，然后再通过竞争不断提高生产的技术水平和集中度。如此，后发展的优势就不可能得以发挥。”^① 只有政府对软件产业进行强有力的宏观调控，才能使我国软件产业快速发展，早日摆脱产业不安全的局面。

2. 实施适当的知识产权保护战略，能够激发出软件产业创新的活力，是保障软件产业快速、健康发展的关键。正确认识盗版现象，盗版对国内整个软件产业来说，就像倾销一样，能够对国内软件产业实施毁灭性的打击。打击盗版不但保护版权人的利益，更重要的是保护了整个国内软件产业、为国内软件产业提供一个公平竞争的环境。软件知识产权制度需要改革，改革软件知识产权侵权追究时效，有助于提高权利人维权的积极性；把“禁止反悔原则”应用于知识产权侵权责任追究中，有助于避免权利人通过“放任盗版行为”获取市场份额、占领市场，

^① 郑新立著：《社会主义市场经济需要强有力的宏观调控体系》，载于《行政法学研究》1993年第2期。

影响整个软件产业的公平竞争；改革软件产品定价机制，在促进软件产业发展的同时，避免因不合理定价，影响公共利益和社会整体福利的提高；制定具有垄断地位的软件产品的源代码公开机制，维护公平竞争的市场环境。

3. 制定适合我国实际的软件人才培养战略。在对比我国和美国、印度、爱尔兰的软件人才培训机制的基础上，分析我国软件产业人才培养的不足，提出在我国软件产业人才培养方面，应当重视建立校企合作机制、改变师资结构、提高师资力量、培养方案应当细化并贴近软件产业生产实际等措施。

4. 研发基础软件战略。认识到基础软件对国家的重要性，我国应当成立以国家为投资主体的科研机构或企业集团，攻关基础软件；鼓励使用国产软件，是发展基础软件的根本；在新兴领域加大投入，实施弯道超越战略；在基础软件领域实施反垄断措施，打击软件巨头对国产软件的排挤，维护公平竞争的市场环境；鼓励基础软件企业在商业模式和运营模式上创新；鼓励基础软件企业与硬件企业结合，提供一体化解决方案；鼓励兼并重组，做大做强基础软件企业。

5. 实施反垄断战略，为国内软件企业保驾护航。通过国际社会对微软反垄断案件的剖析，总结出目前反垄断案件的发展趋势是反垄断案件的旷日持久性、反垄断案件越过了国籍限制、反垄断的目的由传统的维护价格竞争转向促进科技创新、通过反垄断案件支持本国企业发展成为反垄断案件的根本目的。我国软件行业实施反垄断的必要性，包括跨国公司在内的大量垄断现象，严重影响了公平竞争的市场环境。本书在完善反垄断司法制度方面，建议完善、建立反垄断集体诉讼制度、检察机关参与制度、专家陪审团制度。并提出反垄断政策服务于国家的宏观经济调控政策，把维护市场公平竞争秩序作为执法体制完善的价值追求的观点；将反垄断政策与产业技术进步政策、产业促进政策相结合的观点。培养法经济学人才，以提高反垄断案件的执法精度和力度。针对跨国公司影响我国软件产业发展的垄断行为，及时开展反垄断措施，消除跨国公司设立的进入壁垒，以达到维护公平竞争、维护创新、保障软件市场向着良性发展的目的。

ABSTRACT

Currently, the competition in overall national strength mainly characterized by the development level of the information industry is becoming increasingly fierce, and integration and application of information technology and information network breed a lot of new industries and inject new vitality to the traditional industries. Software industry as the core of the information industry and the basis of the national economy plays a very important supporting role in the national security and the various stages of the development of the national economy. The technical level and the industrial scale of the software industry have become an important symbol of a country's overall national strength and the degree of modernization, and attracted more and more world attention. Although the software industry in China started relatively late, it has made much progress under the support of national policies in recent years. However, compared with the major software powers such as the United States and Europe, the current status quo of China's software industry is worrying-mastering no core technology, low industry concentration, low proportion in the gross national product, a small number and low quality of employees, incomplete industry chain, not really becoming a new engine to pull economic growth, playing no obvious role in stimulating employment, promoting industrial upgrading and enhancing our core competitiveness. The status quo of China's software industry is insecure. We research the strategy of promoting software industry development in order to change the insecure status quo of China's software industry, and solve the bottleneck in the development of China's software industry, and promote the rapid development of China's software industry to drive the country's rapid economic upgrade, and avoid serious issues in politics, military and economic security because of the software problems.

This thesis is divided into three parts and ten chapters. It introduces the

developments of the software industry in the United States, India, Ireland, and China, and analyses their software industrial policies to find out the experience, lessons, and points worthy of learning during the development of the software industry of the countries. Upon detailed analysis of the status quo of China's software industry and software industry policy, we summarize the lessons for the development of China's software industry, and put forward strategic plan for promoting the development of China's software industry.

Part I deals with preface. It introduces the research background, the raised issues and the research status home and abroad, and introduces the basic concepts of the software industry, software knowledge, and the terminology connotation in this paper. Part II deals with the competitive pattern of international software industry. It introduces the software industry development status and positions in the international software competition of the United States, India, Ireland and China. It also analyses these countries' software industry promotion policies, sums up the experience and lessons and points worthy of learning of the countries in the development of the software industry, and lays the foundation for fostering the development strategy of China's software industry. Part III deals with the strategic planning to promote the development of China's software industry, such as government support strategy, intellectual property protection strategy, personnel training strategy, R & D infrastructure software strategy and implementation of anti-monopoly strategy in software field.

This paper attempts to analyze the promoting policies for the software industry by the main world software powers, summarize the policy and the law to promote the development of the software industry, and find out practical development strategy for promoting the software industry in combination with China's actual situations. Its innovation on the content and viewpoint are as follows.

First, governmental industrial supporting policies are key to the development of the software industry. The software industry needs governmental support. The government's macro-regulation policies are conducive to correct

market failures, and to promote industrial development. This paper, by analyzing the successful experience of the United States, India, Ireland in software supporting policies, reaches that regardless of developed countries or undeveloped countries, in order to develop the software industry, national support policies are needed to the software industry. It highlights the importance of the national policies on the development of the software industry. The current development of China's software industry needs more macro-regulation of the national government. "If there is no strong government macro-regulation and only the self-regulation of the market, the industrial development will take a long time, that is, firstly, a large number of low-level duplicated construction, and then improving the technological level of production and concentration through competition. Accordingly, the advantages of the developing countries can not be exploited to the full."① Only by way of the strong macro-regulation on the software industry from the government, the China's software industry will make a rapid development, and may get rid of the industrial insecurity.

Second, the implementation of appropriate intellectual property protection strategy can inspire innovative vitality of the software industry, and is key to ensure a rapid and healthy development of the software industry. We should have a correct understanding of the phenomenon of piracy. The piracy, likes dumping, for the entire software industry in the country, will give the domestic software industry a devastating blow. Combating piracy not only protects the interests of copyright owners, a more important point is to protect the entire domestic software industry, to provide a fair and competitive environment for the domestic software industry. The software intellectual property system needs to be reformed. The period for investigating infringement should be reformed, and it will help to raise the enthusiasm of the right holder to protect rights; the "estoppel principles" should be applied in investigating the

① See, Mr. Zheng Xinli, *Socialist Market Economy Requires a Powerful Macro-control System*, Published on the *Administrative Law Review*, 2nd de., 1993.

intellectual property infringement liability, and it helps to prevent the right holder from gaining market share and occupying the market through the “laissez-faire piracy behavior”. This behavior will affect the entire software industry fair competition. The software product pricing mechanism should be reformed, to promote the development of the software industry while avoiding affecting the public interest due to irrational pricing and overall social welfare; the mechanism of publishing the source code of the software products with monopoly position, should be formulated to maintain a fair competitive market environment.

Third, the strategy of software talents training should be formulated according to the actual conditions. On the basis of the comparison between China and the United States, India, Ireland in terms of the software talent training mechanisms, it analyses China's shortcomings in software industry talents training. The attention should be paid to the establishment of a school-enterprise cooperation mechanism to change the structure of teaching faculty, improve the teaching faculty, and detail the training programs which should get close to the actual production of the software industry.

Fourth, the strategy on Basic software R&D. Recognize the importance of the basic software to the country, China should establish as an investment subject national research institutions or enterprise groups to research basic software. We should encourage using domestic software, which is the foundation for the development of basic software. Increase investment in the emerging field in order to implement the corner beyond strategy. The anti-monopoly measures should be implemented in the field of basic software, software giants should be combated for excluding domestic software, and a market environment for fair competition should be maintained. Basic software enterprises are encouraged to make innovations in the business model and operating model. Encourage the basic software companies to combine with hardware companies to provide integrated solutions; encourage mergers and acquisitions to form bigger and stronger software enterprises.

Fifth, the implementation of the anti-monopoly strategies escorts the do-

mestic software enterprises. By analyzing these antitrust cases against Microsoft by the international community, we summarize the trends of the current antitrust cases, that is, they last long, go beyond the nationality restrictions, and antitrust purpose changes from the maintenance of price competition to promote scientific and technological innovation. The fundamental purpose of antitrust cases is to support the development of domestic enterprises. It is necessary to implement the anti-monopoly in China's software industry. There are a lot of monopoly issues inside transnational corporations, which have seriously affected the market environment of fair competition. In view of perfecting antitrust judicial system, this thesis recommends establishing and improving the antitrust collective litigation system, the procuratorate's participation system, and the expert jury system. It is also proposed that antitrust policy serve the country's macroeconomic regulation policies, and maintaining a fair market competition order should be a value pursuit in improving enforcement system, and that the anti-monopoly policy should be combined with industrial technology progress policy and industrial promotion policy. In order to improve the accuracy and strength of the enforcement in the antitrust case, we should cultivate the talents of Law and Economics. We should take anti-monopoly measures against monopolistic behavior of multinational companies which affect the development of our software industry, to eliminate the barriers established by multinational companies, and then to maintain fair competition, to safeguard innovation, to guide software market toward the sound development.

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第一编

总 论

