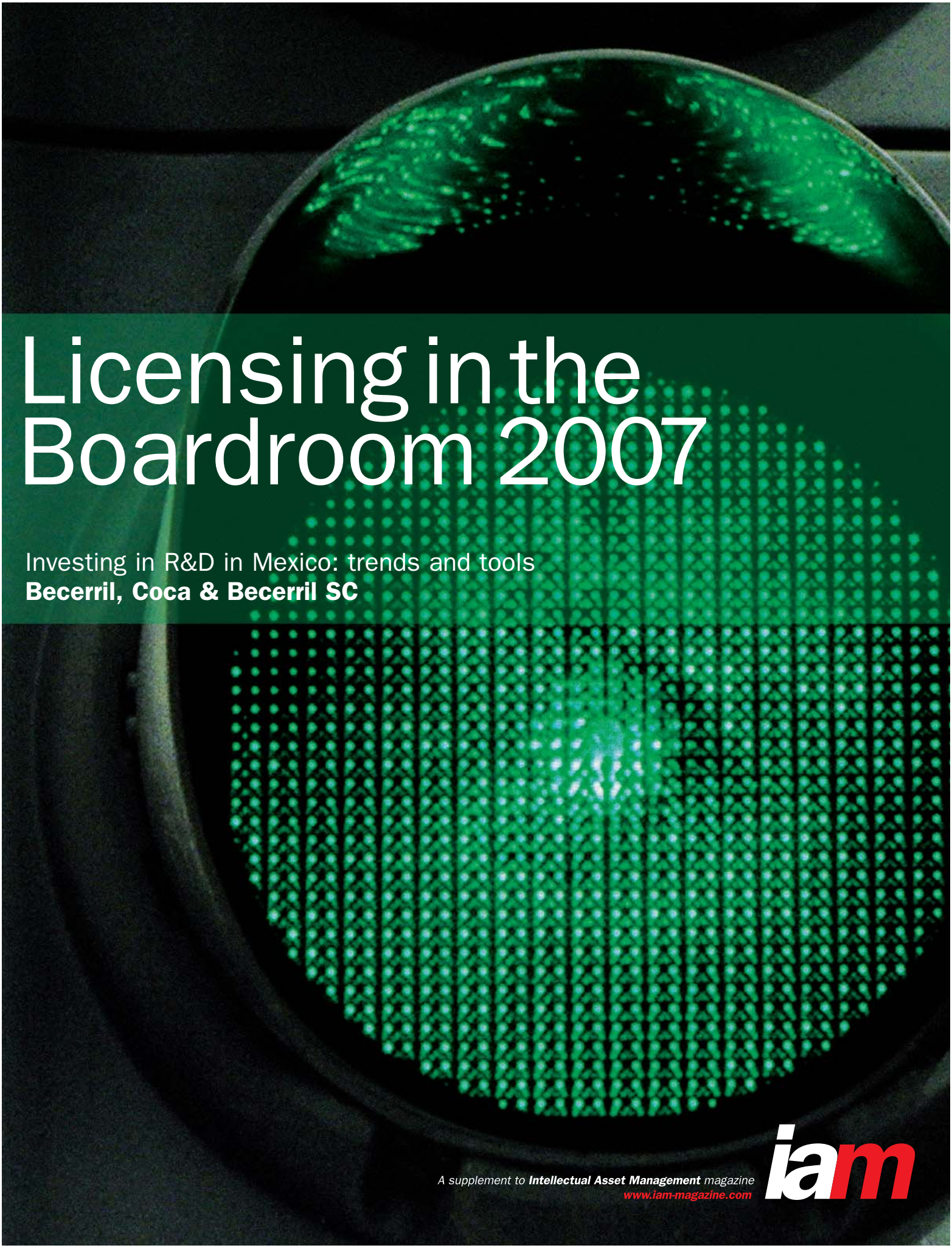

Licensing in the Boardroom 2007

Investing in R&D in Mexico: trends and tools
Becerril, Coca & Becerril SC

A supplement to ***Intellectual Asset Management*** *magazine*
www.iam-magazine.com

Investing in R&D in Mexico: trends and tools

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Traditionally, R&D in Mexico has been carried out mainly by public research institutions backed by government funding. In the past, these institutions were subject to important restrictions related to the use of resources and private funding, which did not allow the growth of R&D according to the requirements of the country. This was something which led to a loss of competitiveness, as additionally for many years these activities were erroneously not considered as a fundamental tool for business development based on technology transfer.

These restrictions included a barrier to free decision making by the officers in charge of the institutions. Probably this was the worst effect of the policy followed by the Mexican government for R&D, as such officers were not involved in technology transfer matters and, therefore, R&D was not considered as a potential income source for the institutions and for the country. This also led to a lack of interest in intellectual property and a loss of experience in negotiating skills related to technology transfer and intellectual property, in spite of the fact that many Mexican researchers and institutions are recognised internationally for their work.

However, in recent years, the framework existing in Mexico for the financing of R&D has evolved favourably towards a more open policy to promote private investment, focusing on two main issues: freedom to negotiate and incentivisation of researchers. This open policy has been criticised by many researchers and has faced political opposition, but nevertheless it has shown in a very short term the benefits of being friendlier to private investment.

Before these changes, the promotion of private investment in R&D was not considered at all in the Mexican system, which is why reports for the OECD consistently showed government funding of R&D as high as 80% of the total investment. The complete absence of tax benefits and of funding programmes for private projects in the late 20th century led to R&D projects that were subject to annual budgets designated by the Mexican parliament and completely unconnected to the actual needs of industry and society.

Therefore, the recent changes have created new dynamics that have made Mexico much more competitive for R&D activities and which have helped begin the process of building a country where technology may be developed at relatively low cost, with low risk of infringement of patents and with enormous potential for technology transfer and government funding for R&D projects.

Freedom to negotiate for public research centres

R&D activities in Mexico are clearly dominated by work done at public bodies – universities, institutes or research centres – based on direct or indirect government funding.

Historically, concluding collaboration, licence or similar agreements with these centres was practically impossible due to restrictions imposed by law or by the statutes of the centres that constrained their ability to negotiate with private entities on either pricing or intellectual property rights issues. Furthermore, it was completely impossible for such centres to participate actively in seed funding or other business schemes that could help to deliver innovation to society through the construction of new high-tech businesses.

However, during this century the legal framework governing such centres has been changing in order to give them the necessary freedom to enter into business relationships.

Changing statutes

One by one, the statutes of the research centres were modified from 2001 to 2003 in order to convert their funding schemes, originally based on annually approved government budgets, into self-funding schemes by which the centres were practically obligated to be financially self-sufficient through income obtained from technical services or technology transfer.

This new scheme has had a great impact on the administrative philosophy of the centres, which had been used to receiving their funding via government budget for any project of interest to the researcher. Now, by contrast, they have to think in terms of the technology market and the needs of companies outside the research centre.

This change was a real breakthrough in the dynamics of R&D in Mexico and is still in the process of consolidation. It has moved practically every government centre to seek information and training in intellectual property and technology transfer issues and these are only beginning to permeate the R&D system.

Responsibility of officers

The laws regulating potential liability of the officers in charge of managing public research centres also constituted a barrier to technology transfer. The problem was that they were not clear on the flexibility that the officers could have in determining and negotiating prices and conditions for licence agreements, assignments or the like related to R&D projects. Consequently, officers typically preferred not to enter into relationships with private entities in order to avoid any possible personal liability.

Fortunately, in August 2006, an integral reform of the system was enacted with modifications to the Law on Science and Technology, the Federal Law of Public Sector Entities, the Law on Acquisitions, Leasing and Services of the Public Sector, and the Federal Law on Administrative Responsibilities of Public Officers.

In basic terms, the modifications were aimed at giving officers the liberty to decide on the following without liability:

- Negotiating amounts and prices for the services and technologies developed by the centre.
- Negotiating the amount to be assigned to researchers from any income obtained by virtue of an invention or project performed by the researcher on behalf of the centre, including royalties or other benefits related to technology transfer.
- The possibility to participate in joint ventures, to have interests in companies or to participate in other business relationships that imply the direct economic participation of the centre.

Incentives to researchers

Although the liberties given to the managers of centres to negotiate with researchers was a valuable tool for motivating the researchers to move from basic research projects to applied research projects funded by private entities, it was also necessary to make modifications to the so-called National Researchers System.

This system recognises researchers for their work through a government-funded scholarship with different levels depending on the skills and achievements of each researcher. The levels are measured based on certain minimum performance targets that are based on what are termed “science and technology deliverables”. Historically, the system gave recognition only to deliverables such as publications of works in certain scientific or technology journals, congress presentations and the like; it did not include patents and, of course, did not include private, confidential R&D projects or trade secrets for technology transfer. Accordingly, the best Mexican scientists and researchers sought to get papers published in high-impact journals without regard to whether what they were doing was useful, patentable or potentially valuable in economic terms.

However, in the last decade, patent publication began to be considered as a deliverable that counted for the National Researchers System and very recently (in 2006 and 2007) the rules of the system were modified again to include R&D projects and technology transfer activities as deliverables.

Therefore, scientists are now able to work on projects that cannot be published, but will still give them the necessary performance rating to maintain their level within the National Researchers System. It is hoped that they could now be more willing to work on confidential R&D projects with private entities.

Incentives to investment

In addition to developing a new climate for negotiation between the public and private sectors, recent developments have also incentivised private investment in the public R&D centres.

Taxation

In 2001, the tax laws introduced incentives

to R&D by providing certain benefits to taxpayers in Mexico.

Article 219 of the Law on Income Tax now grants tax breaks to companies investing in experimental R&D based on the overall amount they invest. The costs have to be incurred but 30% can be claimed back as a tax credit.

There are various rules for obtaining the incentives that make it a complex exercise, including registration requirements and the acceptance of projects by a committee formed by people from the National Council for Science and Technology (CONACyT), the Economy Secretariat (SE), the Treasury Secretariat (SHCP) and the Public Education Secretariat (SEP).

The reason behind the rules is that there is an overall cap on the incentives, which changes yearly. However, until 2003, due to the low number of projects submitted to the programme, the resources had been underused, although since 2004 the incentives have been used more intensively.

Funding

In addition, various government programmes have been put in place in order to fund different kinds of project with a view to boosting R&D and promoting the formation of new small and medium-sized enterprises (SMEs).

There are basically three government funding schemes.

There are various funds categorised by sector. Up to now, 15 sector funds have been established and these allocate resources for R&D in different amounts by industry sector. These include sectors such as health, energy, construction, the environment and transportation. But perhaps the most general fund is the so-called Sector Fund of Science and Technology for Economic Development. This is directed at SMEs in need of increased competitiveness through technology. Although this fund was once also available to large companies, as of this year it has been restricted to SMEs, but still constitutes a valuable source of funding for projects.

The rules for access to the funds vary greatly and it is therefore important to review each set of rules depending on the project in order to decide the best fund for which to apply.

There are other funds directed to the different regions of Mexico. There are various joint funds that comprise resources from the federal government and local governments. These are intended to promote R&D activities in all regions of the country. Currently there are 30 joint funds at state (province) level and two funds for municipalities. As in the sector funds, the rules are different for each and access to them should be evaluated on a case by case basis.

Finally, there is a full programme of seed funding. The programme, called *Avance,* provides funding for new enterprises based on the exploitation of scientific and technological developments, with four kinds of funding depending on the stage of development of the company that is submitting an application.

Cost

Although Mexico has an extremely low number of people with masters and doctorate qualifications in proportion to its population, it is also a fact that it has an R&D infrastructure and educational institutions at a very high level. In fact, masters and doctorate degrees are decreasing not because Mexico does not have the capability to prepare them, but rather because there is not a well-established market that would allow people with such degrees to apply their knowledge in suitable projects.

The country's focus on manufacturing activities increased the need for qualified personnel in such areas, but has reduced the opportunities for the development of people with masters and doctorate qualifications and, therefore, these people are either leaving the country or working in non-related industries or businesses.

As a consequence, the infrastructure built to develop people with high degrees is underused and research centres are working at full capacity.

In our view, this might lead to a lower cost for R&D activities performed in Mexico.

Securing ownership

The Mexican intellectual property system has been competitive in regard to appropriation of knowledge for many years now. Copyrights and industrial property rights are available for practically every kind of technology in compliance with the TRIPs agreement.

In certain sectors there are some special considerations that make more effective strategies possible or that might make it more difficult to protect certain technologies. For instance, in the pharmaceutical sector, the so-called linkage system (equivalent to the US Orange Book) should be considered in protecting intellectual property. In the case of communication technologies, computer-implemented methods or business methods, on the other hand, certain

practices and restrictions in the definition of the invention might lead to more complicated strategies for obtaining protection.

Mexico also has clear rules regarding ownership of work created as a result of collaboration and of work developed by employees.

Furthermore, Mexico is also a safe harbour for R&D activities performed with patented technologies due to clear exhaustion of rights in statutory provisions and to the fact that only around 15,000 patent applications are filed yearly in Mexico, the majority of which (around 96%) claim priority from foreign patents. The latter means that the probability that a patent was filed in Mexico is lower than in other well-developed countries with more established R&D frameworks.

The only room for improvement in the Mexican IP system is with regards to enforcement. The efficiency and effectiveness of enforcement might be very different depending on the technological field and on the kind of IP right that is being enforced. But contrary to what is sometimes said about the country, it is possible to enforce an IP right, although it might be more difficult and indirect than in other jurisdictions.

Conclusion

There have been significant changes in the R&D framework in Mexico. Both the users of R&D services and the institutions and researchers engaged in these activities have been learning how to play with the new rules.

R&D institutions were suddenly pushed to raise funds for their own projects although they were practically without skills in intellectual property and technology transfer. However, the changes have started a dynamic in the sector that will probably lead to good results soon.

The statistics show that the majority of the incentives and funding opportunities now available have been used by the Mexican branches of well-known multinational companies, which is evidence that the conditions for investment in R&D in Mexico have been improving.

Naturally there will still be some opposition from traditional researchers. They will continue pushing the authorities not to pursue the incentives to enterprises and to go back to assigning budgets directly to researchers at different research institutions. However, such a return would be a very bad decision in view of the early, yet still clear, results of the changes; many of which are still being implemented.

Researchers in Mexico need to learn that private investment in R&D is necessary and beneficial to their work, and that it will lead them to have greater control over their budgets and to be less dependent on the political variables driving government investment in R&D. The officers of official centres now have the ability to negotiate R&D projects with private entities freely, but need to develop the skills to do so.

In turn, companies will have to learn how best to benefit from the new framework in Mexico and to use the facilities and knowledge of Mexican research centres that have been underused for many years for industrial and commercial projects.

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