



PricewaterhouseCoopers
Innovation

Government's Many Roles in
Fostering Innovation

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Executive Summary



Governments around the world are broadening and deepening their support for innovation in the private sector and the economy more generally. When it comes to fostering business and technological innovation, what are the important tax, legal, and fiscal considerations for a government? And what are the important recent trends in each of these areas across individual countries?

This report, produced by the Russian and US offices of PricewaterhouseCoopers' Center for Technology and Innovation, addresses these questions. The report draws on a cross-practice group of partners and directors from PricewaterhouseCoopers' global network, for their varied and distinctive country and policy experiences.

PricewaterhouseCoopers assembled in-house research on a dozen countries and the European Union (EU), as well as several US states known for large concentrations of high-tech organizations: China, Finland, Germany, India, Ireland, Israel, Korea, Japan, Malaysia, Netherlands, Singapore and the UK; in the US, the states of California, Massachusetts, New York, North Carolina, and Texas. Details of each country appear in the Country Analysis section beginning on page 26.

Tax Policies

The report describes the current tax policies and practices of governments with regard to fostering economic modernization and private sector innovation.

Overall, we observe that most countries have been adding new tax vehicles to support modernization and innovation. This applies across both emerging and developed economies.

Two trends are motivating this greater tax friendliness toward innovative activity in the private sector. One trend stems from reduced barriers to trade across countries and regions. In a more globalized economy, the balance of power between buyers and sellers of goods and services has been shifting to buyers—especially in economies that were formerly closed to

foreign goods and services. The second motivating trend is that emerging economies have pursued manufacturing opportunities, offering low-cost labor pools as a compelling alternative for multinational corporations. This contributes to lower costs and thus lower prices over time for most manufactured goods.

The combined effect of these trends has been the inability of manufacturers to maintain high profit margins for products that lack any distinctive, proprietary, or value-added innovations. As a result, innovation that addresses customer priorities has become a more important driver of economic growth for all countries, emerging and mature. Because these trends show no sign of reversing, governments are likely to continue pursuing tax policies that foster innovation.

Our report covers the various types of tax incentives available, the trade-offs involved, and how they are used at select countries around the world. Countries that have been successful at fostering innovation have tended to build a tax platform that includes a number of elements for corporate owners and investors: low taxes (through an overall low tax rate, industry-specific low tax rates, or tax holidays); a regime of R&D tax incentives such as credits and/or deductions; an intellectual property/royalty payments (IP) tax regime; incentives for capital investment such as investment tax credits; and a holding company regime. In addition, these countries also focus on the investor side of taxes by, for instance, giving investors tax breaks.

Certain tax incentives tend to be more effective at particular stages of an economy's development. In the early-emerging stage, when modernization of the business base is a top priority, useful tax incentives tend to focus more on capital expenditure and less on boosting profits. In the later-emerging phase, fostering innovation stands as a top priority, and the tax focus moves to R&D tax credits. (To help start-ups or companies with early-stage losses, these credits can be made refundable; that is, the company gets cash in hand.) In the mature phase, governments generally want to exploit the innovative activities that have been put in place, so they focus taxes more on the output of R&D, as well as keeping it in country. IP regimes and "patent box" regimes, which lower tax rates on income from patents, are common here.

Surrounding these three phases is the overall tax regime, including the elements of low tax rates, tax holidays, and geographic tax-free zones.

One interesting observation is that emerging countries tend to use more types of tax incentives, but not necessarily different ones. Emerging countries do tend to favor super deductions of R&D expense more than developed countries; and R&D tax credits are more common in developed countries. Broadly speaking, however, the variation in tax incentives is not strongly skewed by whether the country is emerging or developed.

We do not recommend specific tax incentives over others in the report, as our review of government policies related to innovation strongly indicates that there is no single recipe for success. Instead, an individual country can leverage its comparative advantages—play up its strong assets, address its weaknesses, and tailor tax and other policies according to its unique profile.

Countries that have been successful at fostering innovation have tended to build a tax platform that includes a number of elements for corporate owners and investors.

After identifying which economic activities it wants to encourage or discourage, a government can then choose the appropriate tax incentives. For instance, to encourage large-scale production investment, the government could introduce the following: a low tax rate; extra or accelerated tax depreciation capital spend; no withholding tax on profit repatriation; and a special expatriate tax regime for skilled non-nationals associated with such a project.

By contrast, to encourage indigenous start-ups, a different mix of tax policies would be more effective: a social security tax holiday for the first group of workers; allowing individuals to write off any investment in a start-up against their personal income tax; and making any R&D credits refundable.

As for businesses themselves, they tend to prefer general tax relief or lower corporate tax rates, rather than targeted incentives to certain types of investments. In addition to lower taxes, corporations also like predictability in the overall societal and economic context that defines any country, including its tax policies.

Broader Legal and Fiscal Policies

In addition to discussing tax policies, the report reviews governments' other roles in influencing the pace, trajectory, and geographical location of advances in technology and innovation.

By innovation, we mean not only the research and development that underpins new technologies, products, and services. A healthy economy also depends on innovation in business processes (such as inventory management or advanced analytics around customer segmentation) and business models (such as online retailing and offshoring operations). Our review of PricewaterhouseCoopers knowledge-bases and our extensive case experience suggests several broad themes:

Unless baseline attributes are in place, a country will not be considered for market-based innovation and technology investments. Creating an environment that successfully supports innovation has always included a sustained effort by the government in question to address a range of inter-dependent factors prior to considering tax and financial incentives. For example, potential investors insist on having confidence in the stability of a country's banking system and the enforceability of laws and regulations around contracts and protection of intellectual property. They want to see a strong installed technical and business infrastructure.

Innovation depends on well-functioning markets, where individuals—whether investors, owners, or managers—are motivated through sufficient rewards to take calculated risks and engage in entrepreneurial behavior. The rule of law and a culture of arm's length business dealings are essential for such markets to function well. Those institutions need to be in place before tax or other incentives can be effective. Robust markets not only attract investors; they also promote innovation and modernization of the business base.

Different goals will best be achieved through a different mix of policies and incentives. A major decision facing a government is how much emphasis to put on attracting innovation investment by foreign multinationals, how much on investment in technology by indigenous enterprises, how much to modernize the entire business base, how much to encourage start-ups, or some combination of each. That's because each type of public policy or incentive, such as the capital investment tax credit, has different levels of effectiveness depending on the desired outcome.

No single strategy or approach works for all countries. Each country has distinctive assets and deficits that shape the context in which a government crafts its own strategy. Countries that understand their comparative advantages and design innovation policies to exploit those advantages raise the odds of success.

Singapore and Ireland, for instance, leveraged their comparative advantages when courting foreign high-tech multinationals: access to large nearby markets, a large cadre of English-speaking workers, and stable government regimes. By contrast, South Korea has had more success developing its innovation economy by encouraging competition among its native family-run conglomerates called *chaebols*, such as Samsung.

When a government is assessing which mix of incentives to promote, it can consider its existing mix and maturity of industries, the level and types of education in its workforce, the state of the technical infrastructure, and other broad developmental factors.

All strategies are most effective when they link funding to performance. A wide variety of government strategies that have proven successful in promoting innovation share this attribute. These countries establish metrics for performance, measure the enterprises seeking loans or other funds against those metrics, and allow the enterprises that thrive to retain their earnings, while not funding failed initiatives. Investors, owners, and managers in the successful enterprises all share the rewards.

As for businesses themselves, they tend to prefer general tax relief or lower corporate tax rates.

Among fiscal policies, support for higher education and foreign direct investment (FDI) have proven to be important. University graduates with the right technical and business skills are essential for companies to innovate and maintain competitiveness. FDI also serves to bring new technology, knowledge, or innovative processes to a country, and to accelerate a country's integration into the global economy.

Creating a Climate for Innovation



Public and Private Innovation

When considering the processes by which an economy sponsors and facilitates innovation, it's important to clarify the sources of funding for innovative activities and the motivations for funding.

Directed funding from the government typically aims to serve broader social, political, or national defense purposes. Consider the US goal, in the 1960s, of safely landing a man on the moon and returning to Earth. Success was measured against that goal, and although many hundreds of large and small innovations emerged from the effort; there was no consideration by the US government of their commercial viability.

By contrast, private innovations are driven by market competition and must return a profit on their investment costs in order to be considered successful. Companies launch many innovations, most fail, and a few prove commercially successful.

This distinction between directed and market-based innovation is critical when considering the role of government, particularly in the domain of tax initiatives. The logic behind tax incentives is to change the risk/reward calculations of market participants in order to encourage them to invest more in research, product development, and business process improvements (often supported by software). Implicit is the assumption of a functioning marketplace—multiple buyers and sellers participating in transactions without undue external influences unrelated to the value being exchanged. If markets are insufficiently developed—say, if a single large seller dominates—there will be no risk/reward calculation to promote innovation, and tax incentives will become irrelevant.

Governments thus have been most effective when they acknowledge the status of their existing markets and take steps appropriate to their individual situations. If a country's markets are insufficiently developed, the government can encourage new entrants through grants, loans, and looser policies regarding foreign

participants. It can ensure that courts enforce business contracts and take other steps that make market systems more predictable and stable. With a functioning market in place, tax incentives are more likely to have their intended effects on innovation.

How Technology and Innovation Interact

Technology and innovation are closely intertwined. Each can help to drive productivity growth by improving business processes and organizational effectiveness. Each can lead to new products and services, some of which will succeed and generate income growth, as well as benefit society. They reinforce each other by increasing the speed and flexibility of new business models.

Countries with a strong technology infrastructure (personal computer ownership, broadband and mobile phone penetration, degree of Internet security, and so on) are better positioned to innovate in business, especially in tech-based sectors. According to a study of 120 countries by the World Bank, for every 10% rise in broadband penetration, there is a 1.3% rise in GDP. In response to the recent global financial crisis, many governments are using investments in infrastructure as part of a broader stimulus package. (See the Country and US State Analysis for recent investments in infrastructure by country.)

Private innovation thrives in a functioning marketplace with multiple buyers and sellers. Thin markets with just one or two large sellers tend to stifle innovation.

The South Korean government, for instance, has announced that it intends to invest \$84.5 billion, or 2% of GDP, in green technologies over the next five years, reports the Economist Intelligence Unit. Additionally, the government aims to create a nationwide smart

electricity grid by 2030. Authorities estimate the smart grid project could create up to 500,000 new jobs annually and reduce the country's power consumption by 3% by the 2030 launch.

Capitalizing on innovation on a sustained basis is quite difficult, because success breeds imitation by companies and by countries.

Governments can pursue intelligent industrial policies in which the private sector takes the lead with support from an activist state. Government policies have been important for backing auto makers Toyota, Hyundai, and Samsung; Japanese auto makers received tariff support for almost 40 years before they were able to compete globally.

Of course, fostering new technologies and other types of innovation have been important goals of nation-states for many centuries. But the recent rise of a truly global economy, driven by advances in technology and communications, has forced far-flung companies as well as entire countries into competition with one another at a level of intensity never seen before. As capital and labor have become more mobile, the notion of innovation as a way to create new wealth at home has taken hold among government leaders.

Creating the right climate for innovation and then capitalizing on that environment with sustained business expansion remains a difficult task. By its nature, innovation creates some measure of business success, and success breeds imitation at the product, company, and country levels. What today is a distinctive and successful approach to spurring innovation may tomorrow be imitated by other countries and quickly become a baseline approach. In addition, what works for one country may not work equally as well for another country that is at a different level of economic development. There is no single recipe that will work in all circumstances; each country will attain success by formulating its own unique mix of ingredients.

An Innovation Framework: Linking Incentives to Performance



There may be no single recipe for success. However, across countries, economic development systems, and private markets, one common characteristic is worth singling out: Sustained success in fostering innovation and enhancing private markets, by encouraging the creation of new participants, always hinges on linking funds to performance.

As political economist Alice Amsden described in “The Rise of the Rest: Challenges to the West from Late-Industrializing Countries,” measuring for and rewarding good performance is the common theme that characterizes venture capitalists backing successful serial entrepreneurs, or Chinese civil servants providing capital to start-ups owned by local municipalities, or development bankers in Brazil offering credit to spin-off organizations. Each of these distinctive approaches resulted in new market entrants achieving both individual and societal success. That’s because explicit, transparent performance measures hold entrepreneurs and managers accountable, while establishing the expectation that profits earned through their initiative will be theirs to keep and reinvest.

Take the case of China. Many emerging economies have one dominant player in a specific market and lack the competition that promotes innovation and performance improvements. In most of the developed world, by contrast, there is sufficient private capital and enterprise to create those circumstances. But China has created a competitive domestic environment in part through funding of municipally owned enterprises (MOEs) competing amongst themselves and with state-owned enterprises (SOEs). What distinguished China’s treatment of MOEs, in contrast to the historical approach with SOEs, was the decision to let MOEs retain their earnings. This created incentives for further investment, productivity improvements, and higher-quality products.

China did not try to change existing SOEs directly. These highly subsidized entities had little freedom of action and primarily served a social safety net function of providing employment. Instead, China’s central and provincial governments funded the MOEs with the

proviso that they were controlling their own destiny. In many cases, competition from MOEs over time forced moribund SOEs to become more innovative and competitive, or to shut down.

Other models have also worked well. Brazil established the Brazilian Development Bank to provide credit to innovators. The Embraer Jet company, which has become one of the world’s major aircraft makers, started with funding from this bank, after engineers in Brazil’s defense industry saw a market opportunity in aviation. Like any bank, the Brazilian Development Bank analyzes the feasibility and viability of a business plan, and individual bankers are held accountable for their credit decisions. Brazil’s main goal was to grow the ranks of domestic companies. The success of their approach has even led some to be globally competitive, as is the case with Embraer.

Across countries, political systems, or markets, one characteristic of successful programs stands out: Sustained success in fostering innovation always hinges on explicitly linking funds to the ongoing performance of the borrower.

The key lesson from Brazil, China, and similar cases: Continued credit and funding to an enterprise generates the best results when it is closely linked to the enterprise’s performance, including evidence of meeting milestones for each tranche of funding. All parties know the performance metrics, and if they perform well along those metrics they live to strive for another round of success. Eventually they achieve the ultimate goal, market success, and the final link in the chain—retaining their own earnings.

The Role of the Economic Development Board

A successful strategy for attracting foreign investment and strengthening domestic innovation often includes the active participation of a country's economic development board.

Singapore and Ireland have excelled at attracting foreign investment and developing their indigenous economies over the past several decades. Their economic development boards bear some of the credit for that success. They both recruited

top local business talent for their boards, ensuring a depth of expertise and knowledge that have earned the respect of the international business executives who influence capital investment decisions.

Board staff members have several roles. Some serve as a kind of economic diplomat or missionary stationed abroad. They call on executives at multinational companies to inform them of the opportunities and advantages in their countries, and also

to listen to the companies' priorities and concerns. Others help companies navigate the paperwork and regulations involved in various application processes.

Economic development boards that position themselves as partners to potential investors can have a positive influence on investors once the talk turns to incentives.

Types of Government Incentives



When it comes to providing incentives to encourage innovation, governments step up in two ways. Direct subsidies often target certain industries, either because they are seen as strategically important (as for defense purposes) or because the government believes it can foster growth in a particular sector. Direct subsidies are best suited to encourage high-risk projects and to meet specific policy goals, and are usually allocated based on a competition among firms. This ensures that resources from the state budget are invested in the best projects within the topics defined by the political authorities. Such allocation mechanisms might be relatively costly to administer, but make it possible to target financing according to what the government has chosen as vital goals for R&D.

The other major subsidy comes indirectly, through the tax system. Generally speaking, countries that have been successful at fostering innovation build a tax platform that includes a number of elements for corporations: low taxes (through a tax holiday, an

overall low tax rate, or industry-specific low tax rates); an R&D tax regime; an IP tax regime; and a holding company regime. In addition, these countries also focus on the investor side of taxes by, for instance, removing double taxation.

For this report, PricewaterhouseCoopers assembled in-house research on a dozen countries and the European Union (EU), as well as several US states known for large concentrations of high-tech organizations: China, Finland, Germany, India, Ireland, Israel, Korea, Japan, Malaysia, Netherlands, Singapore and the UK; in the US, the states of California, Massachusetts, New York, North Carolina, and Texas.

The following sections summarize the highlights of our findings. For the details of each country, please refer to the Country and US State Analysis.

Tax Vehicles



In general, businesses prefer general tax relief or lower corporate tax rates, rather than targeted incentives to certain types of investments. In addition to lower taxes, corporations also like predictability in a tax regime.

For governments, tax incentives are also complex to administer. In the US, for example, the Internal Revenue Service has singled out the federal R&D tax credit as one of the most onerous tax provisions, because it is so difficult to enforce. Indeed, the abuse of tax credits by companies claiming sham projects or employees has plagued many countries. Governments try to deal with this issue in various ways. Canada, for instance, mandates that applications for R&D tax credits are reviewed by a board of government officials with science and technology backgrounds.

Yet perhaps because incentives are politically more feasible than reducing corporate tax rates, governments continue to promote them.

R&D Tax Incentives

Governments around the world routinely offer tax incentives to private companies for their R&D spending. A wealth of evidence has shown that even private-sector R&D has broad effects that benefit society, such as higher productivity, faster communications, safer vehicles, improvements in health, and so on. Yet there are market failures associated with R&D from the perspective of individual firms, including knowledge spillovers to competitors and business theft. Hence the use of subsidies by the public sector, which aim to overcome these market failures and encourage more innovation. As the world recovers from the severe economic crisis, governments continue to evaluate their support for R&D activities and the tax incentives and the overall trend continues to be more R&D support over time.

R&D activity also has been linked to the ability of countries and businesses to identify and adapt to new technology. Large countries heavily involved in R&D activity generally increase their use and types of innovation, while small countries tend to facilitate the transfer of technology from abroad.

Looking at global R&D activity, almost three-quarters of all R&D is conducted in the business sector. In the EU, R&D intensity measured 1% of GDP, compared to 1.7% in the US, which is the global high-tech leader. Foreign investors play a major role and in some European countries, foreign investors dominate R&D activity. In Ireland, for instance, up to 70% of R&D is performed by foreign affiliates of US companies.

Tax incentives reduce the marginal cost of R&D and thus stimulate more of it. They're usually available for a wide range of firms, and the firms themselves decide what kind of R&D to pursue. Tax incentives take the form of tax credits, tax deferrals, or allowances for related expenditures. Their value is also influenced by corporate tax rates.

Tax incentives reduce the marginal cost of R&D and thus stimulate more of it. The companies themselves generally decide what kind of R&D to pursue.

Some countries focus more on tax deductions, for which income is needed as an offset. Others provide tax credits that subsidize the cost of R&D regardless of parent company profitability. Overall, more types of credits and deductions, as well as larger amounts of each, are being incorporated in tax codes.

Most of the 30 OECD countries offer R&D tax credits, with the largest subsidies in countries such as Spain and France. In addition, Brazil, India, South Africa and China also offer attractive R&D tax credits. Targeted credits also vary by sector: Singapore is the world's most specialized country in the area of nanotechnology, while biotechnology leaders include Ireland, Belgium, Canada, and the US.

Breaking down R&D expenses into labor, operating expense, and capital, countries vary in terms of whether all three or just a subset can be expensed or credited against taxes.

Social tax reductions are targeted by three of the countries in our sample: China, India, and the Netherlands.

Some countries offer incentives only for increments in investments in R&D above a defined baseline (incremental schemes). Others cover all qualified investments (volume-based schemes). Incremental schemes seem to be increasingly favored, in part because business strongly argues in favor of this design option.

The size of the credit or deduction varies considerably, from a modest percentage of the allowable expense to more than 100% of the expense incurred. Some countries cap the total credit/deduction, others do not; some countries only credit expenses incurred inside the country and inside the taxable enterprise; others qualify expenses regardless of where the expense occurs.

Among the EU/CREST countries, some use tax incentives only for fostering the market introduction and uptake of new products and processes, such as Israel and Romania. Others such as Greece, Latvia, and Malta include R&D as one of many possible items for a general investment incentive scheme. There is no strong pattern concerning which countries do not use tax incentives for R&D at all: Some are countries with high R&D intensity such as Germany, Sweden, Finland, and Switzerland; others are countries with low R&D intensity such as Cyprus and Slovakia.

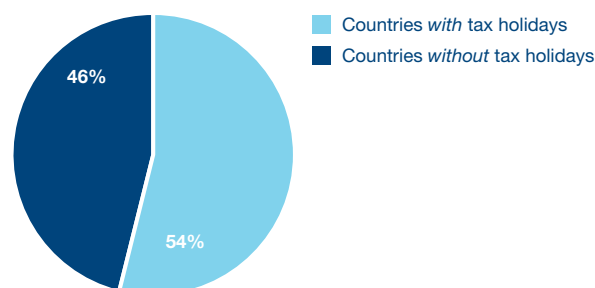
Tax holidays can focus on a particular high-tech industry or a targeted geographic area.

Tax Holidays

Tax holidays are popular with emerging countries seeking to attract new foreign and other investment in innovation. They generally offer tax-free periods for new investments by innovation- or tech-intensive companies (which are defined in various ways), often followed by reduced tax periods. These can be focused on a high-tech industry or a targeted geographic area. Tax holidays vary significantly from country to country.

China, for instance, offers two to five years complete exemption from the first income-generating year, followed by three to five years at 50%. Israel offers seven years from the year of first taxable income, but up to ten years for companies in a special economic zone. India, meanwhile, offers ten years commencing the first year of manufacture in a designated software, hardware, or export-oriented zone. The country offers 15 years (100% for the first five years and 50% for the next ten years) for companies located in special economic zones.

Tax Holiday Incentives in 13 Countries



Venture Capital Incentives

Tax incentives to encourage venture capital (VC) investments are offered by many countries to accelerate investment in technology and other priority sectors. China, Malaysia and Singapore offer direct incentives to VC firms. In China, VCs investing in new high-tech business may offset 70% of their investment against future VC income. In Malaysia, start-up or seed capital investors receive deductions equivalent to the value of their investment (alternatively a 10-year exemption of certain income) and in Singapore, realized investment losses on qualifying company may be offset against other taxable income.

Investors themselves, including VC firms, consider the capital gains tax and the tax treatment of dividends to be very important factors in creating an advantageous investment environment.

Intellectual Property Tax Relief

More countries are considering tax relief on capital expenditures incurred in the acquisition of IP. Ireland, for instance, recently enacted a law to that effect, which aims to attract further inward investment into Ireland, and ultimately lead to the creation of jobs that involve innovation.

Laws or enforcement practices that restrict the deductibility of arm's-length royalty payments stifle innovation in that country. These restrictions, which ignore the value of intellectual property created outside of the country, are particularly acute in high-tech industries and impede the licensing of foreign intellectual property into the country. Such restrictions also impair the licensing of intellectual property created inside the country, which further slows the spread of innovations.

Indirect Taxation

There are two primary forms of indirect taxation in force around the world today—value-added taxes (VAT) and customs and excise duties. Within these two major tax types exist thousands of rates, rules, and regulations that allow authorities to collect tax at most stages in the product or service life cycle. Unlike many

sales taxes (a much rarer form of indirect taxation), VAT is levied at nearly every stage in the supply chain. Customs duties are usually levied when goods cross borders.

Both sales tax and VAT are primarily designed to tax the final consumer with businesses acting as the collection agent for the state on the value added by them at each stage in the supply chain. Therefore, VAT is not normally a cost to most businesses.

Where VAT and goods and services tax (GST) systems are already well established, such as in the EU, we see developments that respond directly to the challenges of competing in a global environment. This means that direct (corporate income) taxes are in some cases being reduced at the same time that the VAT base is broadened or rates of VAT are increasing.

Tax authorities have an array of measures available that can increase or decrease the attractiveness of the country from an indirect tax perspective. For example:

- The use of Free Trade Zones, which removes most of the indirect tax burden for the manufacturing or import/export of goods
- The reduction of VAT rates on consumer transactions
- Simplification of reporting and compliance for non-resident entities

Among PricewaterhouseCoopers' clients, the key areas of concern when they assess the impact of indirect tax risks in a country are:

- Cost of compliance
- Certainty on the tax treatment of goods and services
- Overall impact of indirect tax costs on profitability
- Tax authority cooperation on areas of uncertainty or complexity
- Adherence to international norms for transfer pricing and taxation

Tax Initiatives by Country

The table below shows the varied tax strategies of individual countries. Few generalizations are relevant here, except to say that each country has a different

circumstance and chooses its strategy to fit that circumstance. In addition, most countries are now examining whether to expand or shift the mix of policy tools in order to raise economic growth.

	China	Finland	Germany	India	Ireland	Israel	Japan	Korea	Malaysia	Netherlands	Singapore	UK	US
Research and Development													
Super deduction of R&D expense?	Yes (150%)	No	No	Yes (150%)	No	No	No	No	Yes	No	Yes	Yes	No
R&D tax credit?	No	No	No	No	Yes	No	Yes	Yes	No	No	No (except for start ups - RISE program)	Yes (small and medium enterprises only)	Yes
Accelerated depreciation on R&D investments?	Yes	Yes	Yes (for moveable and tangible fixed assets and for small businesses)	No	No	No	No	No	No	No	Yes	Yes	No
Immediate deduction of capital expenditure used in R&D?	No	Yes	Yes (within the limits of the interest stripping rule)	Yes	Yes	No	No	No	Yes	No	Yes	Yes	No
Social tax reduction for R&D personnel?	Yes	No	No	No	No	No	No	No	No	Yes	No	No	No
Training tax credits?	No	No	No	No	No	No	No	No	No	No	No	No	No
Tax holidays for income resulting from R&D-related income (e.g., patent boxes)?	Yes	No	No	No	Yes	Yes, for approved enterprises	No	Yes	Yes	Yes ("Innovation box")	Yes, on a negotiated basis	No	No
Special tax incentives for R&D services, companies?	No	No	No	No	No	Yes, for approved enterprises	No	No	Yes	No	Yes, on a negotiated basis	No	No
Property tax reductions for property used in R&D activity?	No	No	N/A	Yes, subject to conditions	No	No	No	No	No	No	No	No	No
Targeted tax incentives related to geography, industries, size, etc.?	No	Yes	Yes (eastern part of Germany)	Yes	No	Yes, for approved enterprises	Yes, for small businesses	Yes, for companies located in special R&D zones	Yes	No	Yes, for small business	Yes (HIV, TB, malaria vaccine research only)	No
Sub-federal tax incentives?	Yes	No	No	Yes	No	Yes	No	Yes	No	No	No	No	Yes
ITCs (investment tax credit) on investments in "high technology" equipment and/or software	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No	No

Other Tax

Tax holidays	Yes	No	No	Yes	No	Yes		Yes	Yes		Yes	No	No
Customs duty relief	Yes	No	No	Yes	No				Yes		Yes, (no customs duty)	No	Yes

One interesting observation is that emerging countries tend to use more types of tax incentives, but not necessarily different ones. As shown in the table below, emerging countries do tend to favor super deductions of R&D expense more than developed countries;

and R&D tax credits are more common in developed countries. Broadly speaking, however, the variation in tax incentives is not strongly skewed by whether the country is emerging or developed.

Initiative	Emerging (China, India, Malaysia, and Singapore)	Developed (Finland, Germany, Ireland, Israel, Japan, Korea, Netherlands, UK, US)
Super deduction of R&D expense?	4 of 4	1 of 9
R&D Tax credit?	0 of 4	5 of 9
Accelerated depreciation on R&D investments?	2 of 4	3 of 9
Immediate deduction of capital expenditure used in R&D?	3 of 4	4 of 9
Social tax reduction for R&D personnel?	1 of 4	1 of 9
Training tax credits?	0 of 4	0 of 9
Tax holidays for income resulting from R&D-related income (e.g., patent boxes)?	3 of 4	4 of 9
Special tax incentives for R&D services, companies?	2 of 4	1 of 9
Property tax reductions for property used in R&D activity?	1 of 4	0 of 9
Targeted tax incentives related to geography, industries, size, etc.?	3 of 4	6 of 9
Sub-federal tax incentives?	2 of 4	3 of 9

In select US states, as the table below shows, R&D tax credits are quite prevalent. But apart from R&D tax credits, there are generally few incentives, with the exception of subsidies tied to investments in training and regional facilities.

	California	Massachusetts	New York	North Carolina	Texas
Super deduction of R&D expense?	No	No	No	No	No
R&D Tax credit?	Yes	Yes	Yes	Yes	No
Accelerated depreciation on R&D investments?	No	No	No	No	No
Immediate deduction of capital expenditure used in R&D?	No	No	No	No	No
Social tax reduction for R&D personnel?	Yes, in Enterprise Zones	No	Yes	Yes	No
Training tax credits?	Yes	Yes	Yes	Yes	Yes
Tax holidays for income resulting from R&D-related income (e.g., patent boxes)?	No	No	No	No	No
Special tax incentives for R&D services, companies?	No	No	No	Yes	No
Property tax reductions for property used in R&D activity?	No	No	No	No	No
Targeted tax incentives related to geography, industries, size, etc.?	Yes	Yes	Yes	Yes	Yes
Sub-state tax incentives?	Yes	Yes	Yes	Yes	Yes

Legal Environment



Building an infrastructure for technology innovation begins well before discussions around tax incentives come into play. Multinationals consider a broad array of factors—from the local business climate, to the legal environment, to the makeup of the local workforce—before they consider investing in a new market. Legal and fiscal incentives play a critical role not just in attracting foreign investment, but in encouraging innovation by local businesses as well.

Innovation gets stifled when entrenched companies, through powerful government connections, are able to have policies enacted that protect their own business models.

A robust and predictable legal environment encourages innovation by convincing foreign investors and multinational companies that a country has laws and regulations in place to protect their interests—and that the government and its courts are willing to enforce those laws. The ability to attract foreign companies, entrepreneurs, and private investors hinges on their having confidence that the benefits of their innovations will accrue to them without dissipating through piracy, corruption, bribery, or outright theft. Investor confidence in the rule of law is undermined in countries with overly broad, strict, or impractical laws that are not well communicated or inconsistently enforced. The

legal environment also benefits from enforcement that operates through modern processes and technology, rather than through bureaucratic paper-based methods.

Existing market dynamics reflect the strengths of existing competitors. Incumbents often control access to resources, sales and distribution channels, and patents on existing technologies. Problems occur when entrenched market leaders, supported by powerful government connections, stifle innovation by having policies enacted to protect their own business models. This can occur no matter how developed the economy. In the US, for instance, the recording, television, and movie industries have all sought government protection at some point, delaying the spread of innovative new technologies—ironically, through enforcement of copyright protections.

Since 2005, the EU has worked to improve the conditions necessary for innovation. For example, the removal of barriers and the implementation of the Services Directive by Member States will eliminate a broad range of legal, regulatory, and administrative obstacles to doing business, providing innovative companies with greater access to markets.

In addition, given the ubiquitous use of encryption in high-tech products, modernization of the laws concerning encrypted technology can foster greater innovation, while still addressing reasonable national security concerns. Countries can work together to promote prudent restrictions on encrypted technology and streamlined procedures for obtaining encryption technology licenses.

Protection of Intellectual Property Rights

Enforcement and protection of intellectual property rights forms a crucial component in innovation, especially for technological innovation. While all markets face similar issues, countries with weaker institutions supporting patent protections and copyright laws tend to lag in innovation on the global competitive stage. Without such legal protection and effective legal institutions for enforcement and judicial review, innovators have no recourse but to take their business elsewhere.

Just as over-regulation to protect and grow domestic companies and industries can inhibit foreign investors, slack regulation can be similarly unattractive, particularly as it pertains to issues of intellectual property rights (IPR).

Countries with weak enforcement of intellectual property rights tend to be considered as lagging in innovation.

The main types of IPR include patents, copyrights, trademarks, and trade secrets. Many emerging markets have weak records in protecting IPR, particularly for intellectual property held by foreign-owned companies. Eurasia Group notes while many countries have promised to improve their IPR enforcement records, there has been limited progress. The Business Software Alliance and IDC reported that piracy rates decreased slightly in recent years in central and eastern Europe, as well as Latin America, but actually increased in Asia, the Middle East, and Africa.

Issues with IPR are not limited to emerging markets. The failure to introduce an EU Community patent has created a European patent system that is much more costly and fragmented compared to those in the US and Japan. In addition, the cost for smaller companies to defend their IP is prohibitively high, and many small technology companies are precisely those with high levels of innovation. In Germany, to combat the problem of high cost, legislators have set up a fast-track patent litigation process.

The Internet represents an entirely new arena for IPR regulation, one which most countries have yet to fully address. While all industry sectors have seen growth over the past decade in the amount of business they conduct via online channels, e-commerce law has not kept pace. In many countries, data privacy, cybercrime, and anti-spam legislation is limited or outdated, resulting in ineffective policing of IPR violations.

The debate surrounding strong IPR protection sometimes divides mature markets and emerging markets. From the perspective of mature economies, without the ability to protect investments in new ideas, proprietary processes, new technology, and R&D, there is little incentive for private actors to spend resources on innovation.

Many emerging-market participants counter that IPR regulations actually inhibit the early adoption and quick diffusion of new ideas and technologies, while increasing the cost of R&D, thus limiting innovation in these markets. While this debate continues, statistics show that countries with weak IPR are generally not perceived as innovators, relying instead on lower-cost labor to remain competitive globally.

Patent System

Patenting trends provide a unique and detailed source of information about the state of innovation and technology within a country. There is a strong correlation between the number of triadic patent families and industry-financed expenditures on R&D: The more a country spends on R&D, the higher the propensity to patent. (Triadic patent families refer to patents filed at the European Patent Office, the US Patent and Trademark Office, and the Japan Patent Office that protect the same invention.)

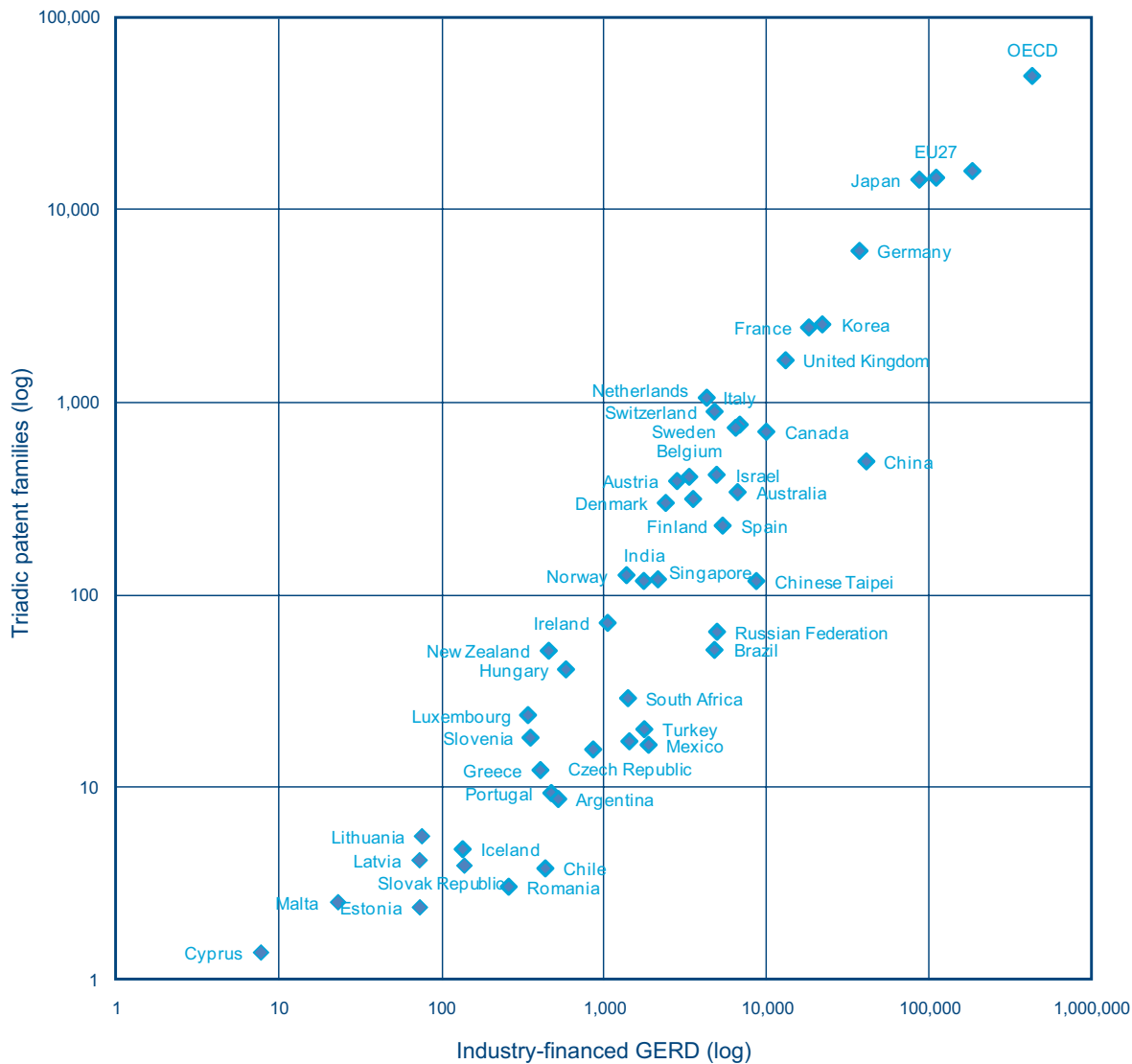
More broadly, the practice of patenting itself helps to cultivate a mindset and tradition of innovation. In order to file and win a patent, an inventor has to survey the innovation landscape in question, by researching prior patents, including how they relate to each other and to the proposed filing. That forces at least tacit engagement with competitors and collaborators alike, as seen in the growing practice of cross-licensing when products are designed in ways that incorporate clusters of patents from various patent owners. A robust patent system thus has several benefits: It discourages copycats who steal ideas without appropriate compensation, it disseminates leading-edge knowledge, and for companies owning significant patent portfolios, it delivers a “seat at the table” when new technology designs are being negotiated in standards groups.

In short, patents are an absolute requirement for enterprises seeking to compete and collaborate in the global innovation marketplace; they are an entry ticket to commercial and technological advancement.

countries, followed by Korea and France. Since 2000, a significant upsurge in triadic patents has occurred in Asia, with average growth of 33% in China and 20% in India and Korea.

OECD data shows that the number of triadic patent families almost doubled over the past 20 years, in spite of the economic slowdown in the early 2000s. The US, Japan, and Germany are the three most active

“Triadic” patent families and industry-financed R&D
Average for 2005-2007 or closest available years



Source: OECD Science, Technology and Industry Scoreboard 2009

Intellectual Property Rights

IPR enforcement can be a problem in developed and emerging markets alike. Fragmentation of European regulatory regimes has increased both cost and complexity of enforcement in that region.

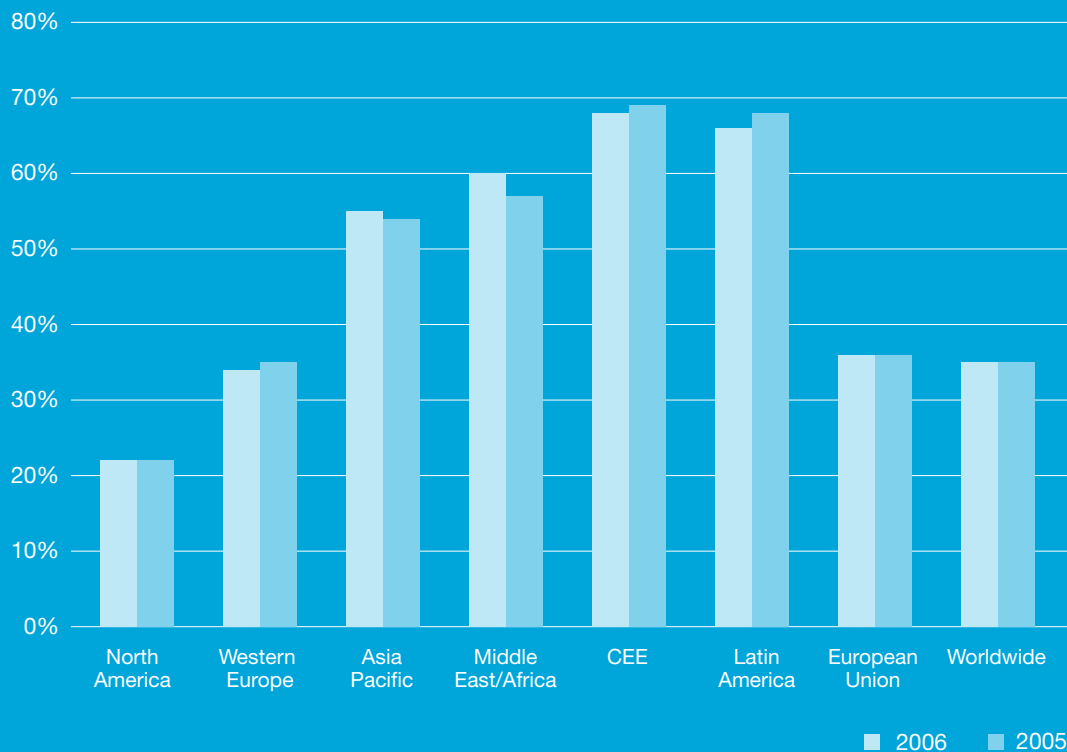
Although China and India lag with regard to legal enforcement of IPR, their records are improving. China

has pledged to support international accords such as the World Copyright Treaty and the World Intellectual Property Performances and Phonograms Treaty.

Other countries such as Brazil, Mexico, Egypt, Ukraine, and Vietnam, have all received praise for better enforcement efforts.

Source: World Bank; Commission of the European Communities, Eurasia Group; Economist Intelligence Unit

Piracy Rate by Region



■ 2006 ■ 2005

Fiscal Environment



The investments a government makes to strengthen its innovation infrastructure can have a dramatic impact on the ability to attract domestic and foreign investment. In some cases, focusing on grants for higher education and R&D can spur domestic innovation that has a longer-lasting effect on the local economy. These and other types of fiscal incentives are explored in this section.

Higher Education

Research universities have long been hotbeds of innovation. Jonathan Cole's recent history of the pre-eminent research universities in the US, for instance, calls these institutions "creative machines unlike any other" that have been responsible for such diverse innovations as the bar code, congestion pricing, and the cervical Pap smear. Fiscal investment in innovation thus can include the indirect investments to educate and train scientists and researchers, build world-class institutions and facilities, facilitate interactions with global communities to generate fresh ideas and new perspectives, and build structures to commercialize innovations.

It's not just the university institutions themselves that carry out research and drive innovation. With the transition from industrial to knowledge-based economies, a highly educated workforce is critical to support innovation in the private sector. Without skilled employees, companies cannot grow and maintain competitiveness; there is a strong relationship between the strength of a country's higher education system and its overall ability to innovate.

Globalization has accelerated the pace at which skills requirements change, as advances in technology and methods spread and companies move their operations to cheaper economies. This comes on top of the longer-term immigration trend of people seeking better opportunities abroad. The World Bank estimates that up to one-third of R&D professionals from the emerging world reside in the OECD area.

Keeping highly skilled knowledge workers at home represents a significant challenge for emerging countries. However, the repatriation of professionals provides an interesting opportunity as they return and transfer new skills and use their experiences to facilitate agreements and investments within their home countries. Both China and Israel, for instance, have experienced the benefits of returning expatriates.

Grants for Basic Research

Fiscal support for R&D is critical for any government hoping to encourage the formation and success of local companies that focus on creating new technologies. Typically, this support is provided through grants, loans, or contracts, or through investment in infrastructure. The infrastructure investment can take a physical form such as universities, buildings, labs, logistics, and transportation, or an intangible form such as university graduates.

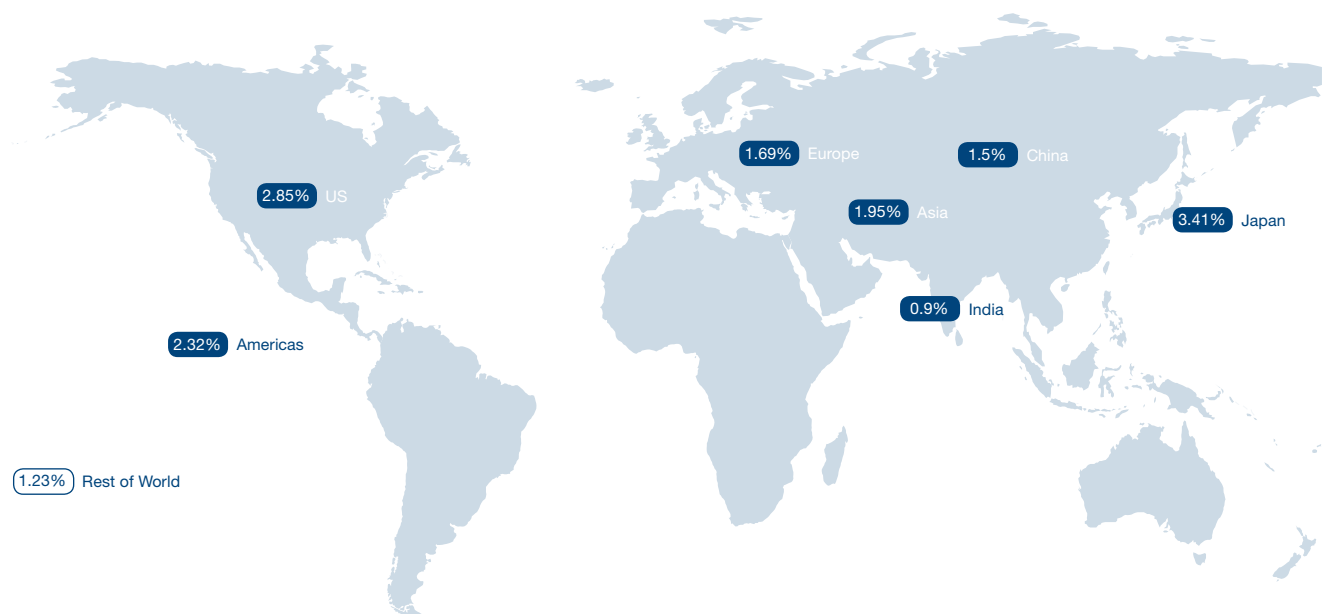
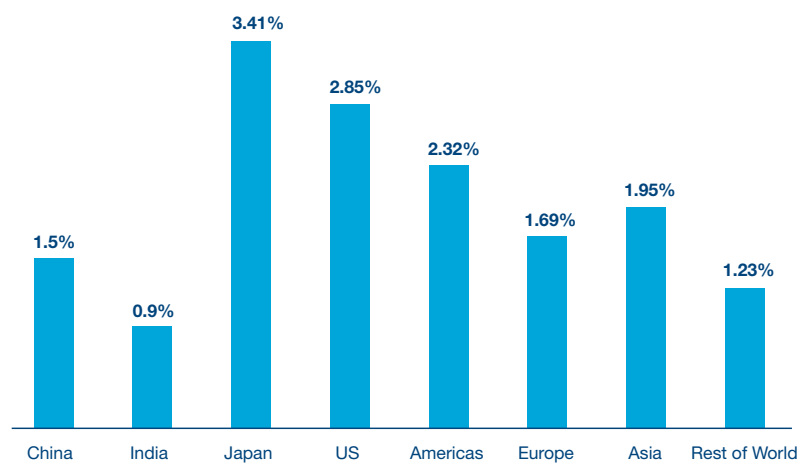
Research universities can be hotbeds of innovation. They also produce a supply of highly skilled graduates, who are critical to implementing innovative products and processes in the private sector.

Since their risk/return calculus focuses more on public interest than on short-term profits, governments are better able to support basic research. As the global financial crisis continues to dampen economies and access to credit, business R&D spending has come under pressure. Governments can focus their stimulus spending on new technologies such as clean energy technologies, to compensate for falling private investment.

R&D magazine and Battelle forecast that global R&D will increase 4% in 2010 to \$1.2 trillion, driven mostly by continued spending by China and India. R&D spending in the Americas is expected to increase 3.2% to \$452.8 billion (\$401.9 billion in the US alone), while European Community (EC) spending will likely increase only by 0.5% to \$268.5 billion. One notable trend: A

significant portion of spending of both EC and US firms is associated with foreign direct investments in new R&D facilities in China and India. Also, while Japan continues to devote a higher percentage of its GDP to R&D spending (see chart below), its total allocation for 2010 is expected to fall behind that of China.

Projected Percent of GDP Spent on R&D, 2010



Source: Battelle, R&D Magazine

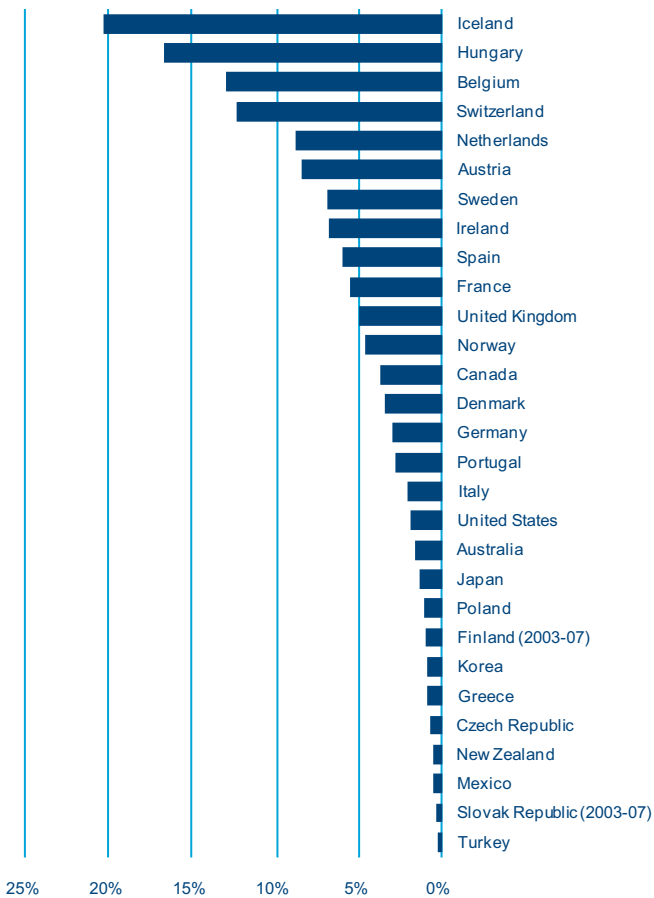
Foreign Direct Investment

Foreign direct investment (FDI), by bringing new technology, knowledge, or innovative processes to a country, can be one of the most significant channels for international technology transfer and developing the infrastructure necessary for innovation. FDI can benefit innovation activity in the host country in several ways, such as through reverse engineering or the import of skilled labor. FDI flows also indicate the degree of a country's integration into the global economy.

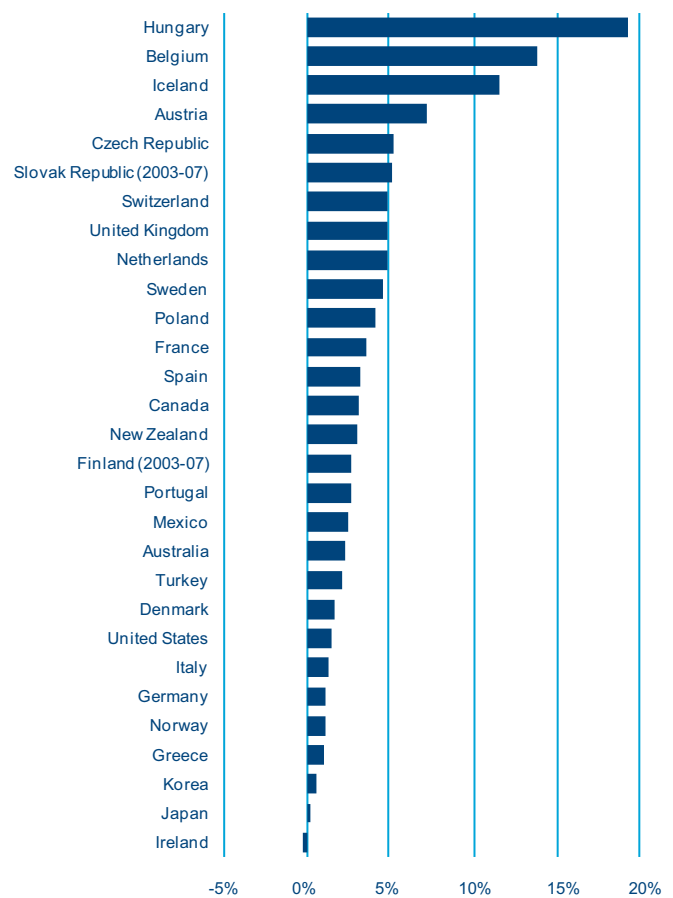
In India, for example, FDI plays a pivotal role not just in importing innovations developed elsewhere, but also in improving domestic R&D through foreign companies' creation of R&D centers. By establishing links with local businesses and universities, the centers have access to and contribute to the pool of local human capital.

Foreign direct investment can be a powerful channel for technology transfer and infrastructure development. However, FDI is currently being hindered by a wave of protectionist policies in response to the global economic crisis.

FDI outflows from OECD countries, average 2003-08
As a percentage of GDP



FDI inflows to OECD countries, average 2003-08
As a percentage of GDP



Source: OECD Science, Technology and Industry Scoreboard 2009

Many countries limit the level of foreign ownership, often to a 50% stake, in certain industries deemed vital to national security or other national interests. Such limitations apply to defense contractors, media outlets, telecommunications carriers, and other industries, depending on the country. There is a tradeoff involved: When foreign ownership cannot exceed a minority stake, we have observed that this restriction significantly limits the flow of the affected industry FDI in that country.

FDI supports a country's transition from an early stage of importing and adopting innovation created elsewhere to the next stage of enabling the local market to achieve its own level of sustained domestic innovation. We have observed a common life cycle where foreign multinationals first establish themselves for manufacturing export purposes; next they localize their products for the domestic market to some minimal level; finally employees of the foreign multinationals see opportunity in more substantive localization and establish start-ups and spin-offs for that purpose, often becoming the source of technology clusters. Maintaining an environment that fosters FDI, therefore, has in recent decades been an important component of successful innovation policy.

In absolute terms, according to the OECD, the US is both the largest foreign investor and the largest recipient of FDI in the OECD area. However, it is only sixth among the G7 countries for the value of FDI relative to GDP. The UK and France are first and second, respectively.

Outright capital grants have an immediate impact, which makes them attractive to capital-intensive companies. Grants for basic research have a longer-term focus, and aim to serve the public interest.

Unfortunately, the global recession has led many governments to revert to protectionist policies, especially in technology and other key industry sectors. If governments want to continue to attract foreign investors, it will be counterproductive to protect incumbent national champions; instead, a more productive focus would be to ensure a level playing field.

Grants and Loans for Capital Investment

For most high-tech multinational corporations considering whether to build a facility in a particular country, the most compelling type of public incentives are government grants that subsidize plant, equipment, and other physical investments. That's partly because grants have an immediate impact, and partly because high-tech companies such as Intel often lay out huge capital expenditures.

Countries looking to attract foreign high-tech firms thus often use grants. Ireland did so when wooing Intel and Dell to open major facilities, and Israel and Singapore have high grant rates currently. The governments of these countries decided that it was worth the subsidy, since attracting a few well-known multinational brands sends a powerful signal to other foreign companies that they too can confidently invest in the country. A core of multinationals then can encourage growth of an indigenous supplier network and, eventually, could lead to the rise of several homegrown multinationals.

By contrast, outright grants to indigenous organizations for investment tend to be less effective, since those companies are likely to build facilities there with or without a grant.

Venture Capital and Private Equity Support

Entrepreneurs play a pivotal role in innovation. New companies are often at the forefront of introducing new ideas, business practices, and technologies into the mainstream. Although many factors play a role in the level of entrepreneurship, availability of capital is critical for survival for these new companies. Venture capital is an important source of financing where risk is too high for banks and other secured lending and capital markets are inaccessible.

Unfortunately, the economic crisis has had a chilling effect on venture capital. In the US, total venture investments in the first quarter of 2009 fell 60% from a year earlier, according to the OECD. In the communications sector, venture investments declined by more than 80% over the same period.

Some countries are responding by offering incentives directly to venture capital firms. In China, for example,

venture capitalists investing in new high-tech business may offset 70% of their investment against future income. In Malaysia, start-up or seed capital investors receive deductions equivalent to the value of investment (alternatively, a ten-year exemption of certain income). In Singapore, realized investment losses on qualifying company may be offset against other taxable income.

The Case for Industrial Clusters

Creating a successful innovation economy in a large country involves efforts on many fronts defined in a logical sequence. A country with limited human capital owing to poor education cannot simply jump into post-industrial, knowledge-centric innovation; it would first need at least a decade or two of investment in education.

There is one strategy, however, that can span the sequence of efforts: active, facilitated development of clusters and special economic zones. Decades of research have proven the value of locational choice models and industrial districts, starting with economist Alfred Marshall and continuing with Michael Porter and others. Clusters of companies in the same industry, which simultaneously compete and cooperate, play an important role in fostering and disseminating innovation. Evidence also shows that geographically concentrated clusters can improve the competitiveness of the individual firms within the cluster, as well as stimulate economic growth region-wide.

The genesis of clusters and their further development often depend on the activity of a number of players that include governmental agencies, quasi-public organizations, academic and research institutions, cooperating suppliers, and financial providers. Clusters can't be created out of thin air. Their development depends on several factors:

- An entrepreneurial environment favorable to start-up companies
- The availability of large enterprises as both suppliers and key customers of smaller firms
- Considerable regional demand for the products of a particular industry
- A qualified workforce, which in turn requires high-quality educational facilities and an attractive region to live in

One caution: There is substantial evidence that clusters thrive best amidst a diverse industrial base, at least in mature economies.

For instance, economist Edward Glaeser and colleagues, using data on 168 American cities, have found that individual industries grow more slowly in cities where they are heavily represented. And industries grow more rapidly where firms in those industries are smaller than the national average. Diversity and competition among local firms, they conclude, contribute as much or more to industry growth than regional concentration.

Clusters tend to follow a life cycle that includes decline and even disappearance; Detroit's automotive cluster has been on the decline for decades, and lacking a diversity of other industries, the Detroit region has suffered. For high-tech clusters in particular, accelerated growth in the number and size of firms tends to come during the early phases of the industry in question. Public officials risk squandering resources if their timing is wrong relative to the life-cycle stage of the targeted industry, as seen repeatedly around the world in the form of failed efforts to clone Northern California's Silicon Valley.

Legal and Fiscal Initiatives by Sample Country

The table below shows the varied fiscal and legal strategies of individual countries. As was the case with tax initiatives, few generalizations are relevant here, except to say that each country has a different circumstance and is choosing its strategy to fit that

circumstance. Once again most countries are actively engaged in efforts to determine the right mix of policy tools in order to raise economic growth.

	China	Finland	Germany	India	Ireland	Israel	Japan	Korea	Malaysia	Netherlands	Singapore	UK	US
Government grants and loans for R&D	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes, for some qualified/ approved R&D facility	Yes	Yes	Yes	Yes	Yes
Foreign investment guarantees	Yes	Yes	Yes	Yes	No	No	Yes	Yes, if the question is whether the return of the capital is guaranteed	No		Yes	No	
Rapid and easy business licensing	No (relative to investment)	No	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimal tariffs	Yes	Yes	Yes (single European Market)	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Free movement of capital	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes		Yes	Yes	Yes
Minimal IP Infringement	No		Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special economic zones	Yes	No	Yes (eastern part of Germany)	Yes	No		Yes	Yes	Yes		No	Yes	No
No foreign ownership restrictions	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes		Yes	Yes	Yes
Venture and private equity ready	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimal hire/ fire costs	No	No	No	No	Yes		Yes	Yes	Yes		Yes	Yes	Yes

Country Analysis

Summarized below are highlights of the fiscal and legal environments for the countries reviewed earlier in the tax section.



China

Large areas of China's economy are increasingly becoming more market oriented, and a smaller range of sectors and products is now under administrative control. The government is trying to address a number of challenges facing foreign investors, and is actively encouraging foreign investment, particularly in priority industries such as software and integrated circuits, or where modern technology, environmental protection, and energy and water conservation are required.

IP protection

Protection of intellectual property remains a concern of foreign investors.

Import/Export Restrictions, Currency Controls

There are certain restrictions on foreign currency exchange in China, especially capital items. After years of strong economic growth and sizeable foreign currency reserve accumulated, the relevant restrictions have been gradually relaxing gradually. However, the authorities have not loosened the management and administration of foreign exchange in-flow and out-flow. Some policies have even become more stringent.

Tax Reductions and Exemptions

Corporate income tax (CIT), with a standard rate of 25%, can be reduced or exempted on income from high-tech industries. This comes through a reduced rate of 15% for qualified high-tech enterprises, or through a tax holiday for the following circumstances:

- Qualified high-tech enterprises established in the five special economic zones and Shanghai Pudong: two years 100% + three years 50% tax holiday, starting from the first income-generating year

- New software production enterprises: two years 100% + three years 50% tax holiday, starting from the first profit-making year
- Enterprises that produce integrated circuits with a line-width less than 0.8 μ m: two years 100% + three years 50% tax holiday, starting from the first profit-making year

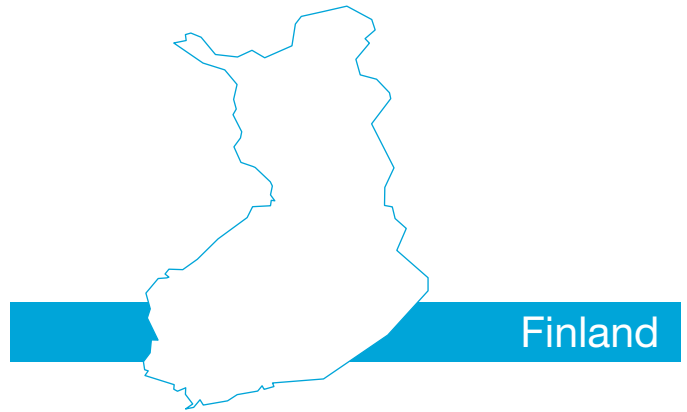
For income derived from the transfer of technology in a tax year, the portion that does not exceed RMB5 million shall be exempted from CIT; the portion that exceeds RMB5 million shall be allowed a half reduction of CIT.

Offset of Taxable Income

For a venture capital enterprise that makes an equity investment in a non-listed, small new or high-tech enterprise for more than two years, 70% of its investment amount may be used to offset against the taxable income of the venture capital enterprise in the year after the holding period has reached two years. Any portion that is not used in that year can be carried forward and deducted in the following years.

Investment Tax Credit

Enterprises purchasing and using plant and machinery specified by the state for environmental protection, energy and water conservation, or production safety purposes are eligible for a tax credit of 10% of the investment in such equipment. Any unused amount can be carried forward and deducted in the following five years.



Other R&D Tax Incentives

- Super deduction of R&D expenses
 - The company could claim a 150% deduction of the R&D expenses incurred, including design fees, technical information and translation charges, salaries and other compensation costs of R&D staff, depreciation and rental of R&D equipment and facilities, amortization of software, patent, know-how used for R&D activities, material and utility cost for R&D activities, and costs for equipment testing and trial production. Unused tax allowances can be carried forward for a period of five years.
 - R&D expenses are treated for tax purposes as expenses or capitalized, depending on whether any intangible asset is developed in the R&D process and booked as long-term assets.
 - Duty-free importation of R&D equipment
- Duty-free importation of R&D equipment is available to an R&D center with investment of over \$5 million and headcount of over 90 R&D staff.
- Local financial subsidies
 - Local authorities may provide financial subsidy in the form of tax rebates to favored R&D centers. The subsidy is negotiated on a case-by-case basis.

Finland

Finland is perhaps the most research-intensive country in the world. From 2002 to 2006, R&D activities, mainly by business enterprises, have accounted for 3.5% of its GDP, and that number is expected to reach 4% in the next few years.

Finland is also one of the world's biggest science publishers, relative to population and GDP, and has the highest percentage of the employed research personnel among the OECD countries. It also has one of the most innovative business environments, and tops all OECD countries for collaborative research efforts with large firms, SMEs, higher education institutions, and government research institutes. More than half of all large firms collaborate on innovation in Austria, Belgium, Estonia, Finland, and Slovenia, while less than one in four did so in Australia, Italy, Turkey, and the United Kingdom.

The main form of general nontax incentives to business and industry is low-interest loans. Investment grants and start-up subsidies are available for industries established within specified development areas in the northern and eastern parts of Finland.

IP Protection

Patents for new inventions are granted for a period of 20 years and are not renewable (an extension of up to five years is possible for medicine and pesticides). Industrial designs and models for all products can be registered for five years and can be renewed for four further five-year periods, resulting in a maximum protection period of 25 years.

Import/Export Restrictions, Currency Controls

In general there are no import or export restrictions.

Foreign Ownership, Nationalization, Privatization

Permission for foreign-owned companies to engage in business is generally not required. In other regulated fields, the law does not differentiate between foreigners and Finnish citizens.

Foreign-owned companies manufacturing in Finland may apply for government grants for export promotion and grants and loans for research and development activities. Foreign-owned companies manufacturing in Finland are eligible for government incentives on an equal footing with Finnish-owned companies.

R&D Tax Incentives

In Finland, there are no specific fiscal incentives for R&D. However, business expenses relating to R&D can be deducted. The law does not contain a definition for R&D expenditure. In light of case law and jurisprudence, deductible R&D expenditure includes costs aimed at development of production or marketing in the form of investigations, surveys and planning activities as well as costs incurred in designing and planning products. Examples of research activity expenditure are payroll costs, acquisition cost of material and equipment used in research activity, as well as acquisition costs of buildings, machinery, furniture, and equipment acquired for the purposes of the research activity. For deductibility, it is not required that the project to which the expenditure relates is successful.

Deductible R&D expenditure may be incurred directly by the taxpayer or indirectly through a research company or institution. In the latter case, payments to research institutions have been expected as deductible even where the payment is not a consideration for specific research results received by the taxpayer; however, when paid to a research company, the research activities must be closely related to the field of business of the taxpayer. Payments for expenditure incurred abroad are treated the same way as expenditure incurred domestically. In the case

of payments abroad within a group of companies, transactions must be at arm's length and the Finnish payer must benefit from the costs.

Expenditure is deductible in the year during which the obligation to pay it arises (on an accruals basis). Sec. 25 of the EVL repeats the same general rule specifically for R&D expenditure (other than expenditure for the acquisition of a building or construction, see below). The latter provision, however, also allows, upon a taxpayer's request, such expenditure to be deducted through depreciation allowances; in that case, the taxpayer may freely determine the number of years and the amount of allowances taken per year.

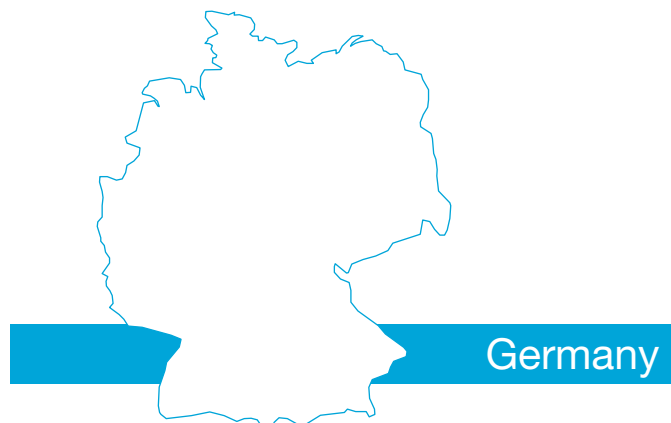
Expenditure for the acquisition of all or part of a building or construction used exclusively for research aimed at promoting a business is deductible at a rate of 20% (declining balance method).

The total deduction for R&D expenditure (whether deducted currently or through depreciation) may not exceed the amount recorded in the taxpayer's accounts during the taxable year and earlier years.

Benefits from accelerated depreciation on R&D investments are also available. A company may deduct R&D investments (other than expenditure for the acquisition of a building or construction) either in the year during which the obligation to pay them arises (on an accruals basis) or deduct the expenses through depreciation allowances, in which case the taxpayer may freely determine the number of years and the amount of allowances taken per year.

Accelerated Depreciation in Certain Developing Regions for SMEs

Accelerated depreciation may be taken for investments in certain developing regions, which include most of Northern Finland and parts of Central Finland. There, increased depreciation is allowed for fixed assets such as buildings, machinery and equipment purchased between 1994 and 1997 in connection with the



establishment or essential expansion of production facilities and tourism enterprises.

Accelerated depreciation for similar investments made from 1998 through 2011 is allowed for SMEs only (defined as a firm that employs fewer than 250 people and with net sales less than €20 million, or a balance sheet total of less than €10 million and that qualifies as a micro or SME pursuant to the European Commission recommendation 2003/361/EC (Law 1262/1993, last amended in 2008).

Accelerated depreciation may be taken at statutory rates increased by 50% for the tax year during which the investment was made and during the following two tax years.

Accelerated depreciation is not allowed for activities where subsidies are prohibited according to the EC Treaty or to which special restrictions are attached. The following activities would, among others, not qualify for an accelerated depreciation: refining of agricultural products, manufacture of car parts, steel or steel pipes, market gardens, fisheries, or building and repairing ships.

Accelerated Depreciation of Productive Investment Projects

The maximum amounts of depreciation for new factories and workshops and for new machines used in factories and workshops have been doubled during tax years 2009 and 2010. The maximum depreciation amount is now 14% for factories and workshops and 50% for machines from the depreciable acquisition cost. The amendment entered into force on October 28, 2009, after the European Commission concluded on October 14 that the increased deductions did not constitute state aid.

Germany

In order to promote investments and other types of projects realized by commercial enterprises the German government and the federal states offer several public funding opportunities for small- and medium-sized enterprises as well as large business enterprises. As a matter of principle, funding can be granted in terms of nonrepayable subsidies, subsidized loans, public guarantees or participations. In the following, we will provide some basic information concerning nonrepayable subsidies, i.e., investment bonuses, investment grants and R&D grants, as well as subsidized loans.

IP Protection

Germany is ranked among the most effective countries in providing extensive protection for intellectual property. The intellectual property is protected by a variety of laws (e.g., patent law, utility law, design law or trademark act).

Import/Export Restrictions, Currency Controls

In general, there are no import or export restrictions in Germany. Furthermore, there are no restrictions on repatriation of earnings, capital, royalties or interest from an exchange control perspective in Germany. Repatriation payments can be made in any currency.

Foreign Ownership, Nationalization, Privatization

Permissions for foreign-owned companies to engage in business are generally not required. If a business license is required, the law does not differentiate between foreigners and German citizens. This also applies to other regulated fields where a regulatory approval is required.

R&D Tax Incentives

Eligible projects can be supported with taxable investment grants according to the “Joint task improvement of regional economic structure”. In order to qualify for funding, the applicant needs to fulfill certain requirements, e.g., investments into fixed assets (including intangible assets) and creating, or at least safeguarding, a certain number of permanent jobs. The amount of funding to be achieved depends on the structure of the specific project as well as the investment location.

Other Tax Incentives

As a tax incentive, Germany offers an increased possibility of depreciation and a timely unrestricted loss carry forward.

The section 7g EStG depreciation rule allows small- and medium-sized business to considerably reduce their tax burden. Even before the purchase or production of an asset, 40% of the purchase- or production-costs can be depreciated. Furthermore, after the purchase or production an increased depreciation of up to 20% can be claimed.

A loss incurred particularly in the initial phase of a business can be carried forward indefinitely for tax purposes. In profit years, the loss carry forward can be offset to a maximum amount of €1 million. A remaining profit can be offset up to 60% with losses carried forward. Forty percent is subject to taxation.

According to the German Act on Investment Bonuses, 2010 tax-free investment bonuses can be granted for investment projects in the five federal states of Eastern Germany as well as parts of the State of Berlin. Eligible projects comprise investments into movable fixed assets (excluding intangible assets and low-value assets) and corporate buildings.

Other R&D Incentives

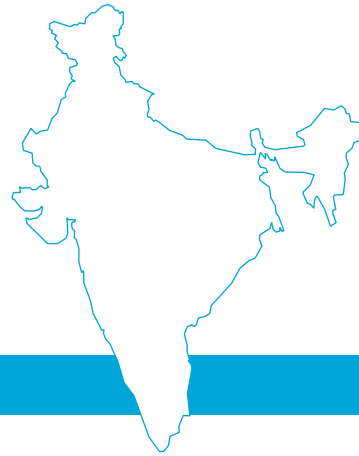
The federal system in Germany allows both the Federation and the federal states the possibility to support research activities in Germany in their respective areas. The funding by the government can be carried out by project funding (which refers to a particular research field or a particular research institution) and by institutional support (which refers to the entire operation). Furthermore, municipalities in Germany grant offices or other benefits to the investing company depending on each case.

In addition to government grants, a variety of foundations provide valuable contributions by ensuring the quality of science and research.

Foreign-owned companies manufacturing in Germany may apply for government grants or support by foundations and are eligible for such incentives on an equal footing with German-owned companies.

In addition, the KfW Banking Group provides various subsidized loans to support several activities or projects. Applications can be submitted by companies whose annual group turnover does not exceed €500 million. However, the amount of funding per project is normally limited to €5 million.

The German government and several federal states offer the opportunity to apply for various funding schemes supporting R&D activities as well as innovative projects in different industries. The type of projects eligible for funding depends on the specific intention of the responsible ministry or funding authority. Funding intentions are, e.g., to strengthen the quality of science and R&D in Germany or the respective federal state, to support innovation in specific industrial sectors, or to improve competitiveness. Eligibility for funding can be for either specific projects of individual enterprises or projects jointly realized by several enterprises, research institutions, universities etc.



Indirect Taxes

With an average VAT rate of 19.0%, Germany is popular for technology businesses. To improve cash flow costs, the German Tax Authorities use the section 13B exemption methodology as an incentive to allow major exporters of goods and services to purchase at a zero rate.

India

India has substantially removed bureaucratic controls on industry. Licensing has been abolished with few exceptions. The Special Economic Zones Act of 2005 provides an internationally competitive and comfortable environment in which to manufacture and/or provide services for export.

State financial assistance (usually in the form of grants) is administered by different government agencies and available for manufacturing or internationally traded services. Availability and level of grants are mainly based on geographical location, project, activities and skill levels of people to be employed.

IP Protection

India is working on improving protection of intellectual property.

Foreign Ownership, Nationalization, Privatization

Generally, FDI of up to 100% is permitted for new and existing ventures without prior approval. Foreign technology induction is encouraged both through FDI and through foreign technology collaboration agreements.

Tax Incentives

The government is in the process of revamping the direct and indirect tax regimes with a view to create a simpler tax environment for multinationals to operate in.

The tax incentive provisions normally have conditions applicable to the period within which the preferred activity should be undertaken, and the period for which the tax incentive is available. It may also be necessary to fulfill certain other conditions such as forming a new undertaking or earning foreign exchange.

The export profits from a new industrial undertaking satisfying prescribed conditions established in a Software Technology Park (STP), Electronic Hardware Technology Park (EHTP), or a 100% export-oriented undertaking are exempt from tax for a period of ten years, commencing with the year in which the undertaking begins its activities. However, this exemption is available only until the Indian financial year 2010–2011 (March 31, 2011).

Such companies are subject to a 16.995% minimum alternative tax on their accounting profits after making certain adjustments. The taxes paid under MAT are allowed to be carried forward for a period of 10 years and set off against normal profits.

The export profits from a new industrial undertaking satisfying prescribed conditions established in a Special Economic Zone (SEZ) are eligible for a tax exemption of 100% of profits for the first five years, from the year of commencement of manufacturing, followed by a tax exemption of 50% of profits for the next five years and a further tax exemption of 50% of the profits for the five years after that, subject to an amount being transferred to reserves. Units located in an SEZ are exempt from minimum alternative tax.

Certain conditions need to be satisfied in order to qualify for these tax holidays:

- The undertakings should not have been formed by the splitting up or reconstruction of an existing business.
- The undertaking should not have been formed by assets previously used in India.
- The undertaking earns foreign exchange from its exports.

All these regimes also provide indirect tax benefits such as an exemption from customs duties on imports, exemption from excise (manufacturing) tax and abatement of sales tax. In addition, certain states may provide incentives for companies operating under these regimes.

The proposals in India's draft Direct Taxes Code in 2009 seek to restrict the tax holiday per the regimes noted above. However, tax benefits for units set up in SEZ before DTC comes into force is intended to be protected by grandfathering, although there is no specific regulation in the DTC to this effect.

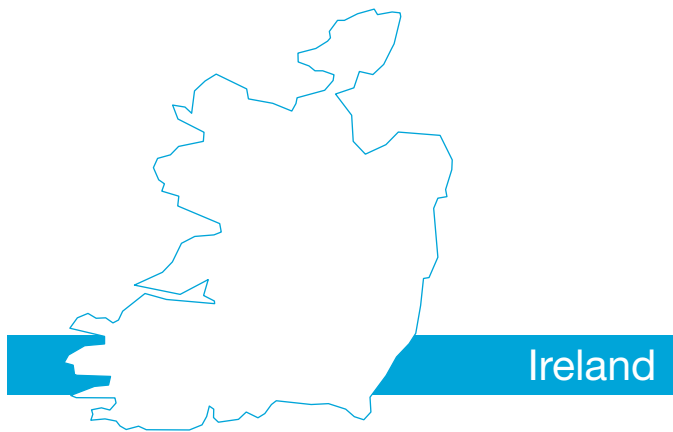
R&D Tax Incentives

Domestic tax law permits a company engaged in the business of manufacture or production of any drugs, pharmaceuticals or specified article or thing to claim a tax deduction of 150% of the expenditure incurred by it through a scientific R&D facility, subject to certain conditions.

In general, R&D expenses should be deductible in the year in which they are incurred. However, to the extent that the expenses result in the creation of an intangible (such as know-how, patents or copyrights), depreciation should be available on such assets at the rate of 25%.

Indirect Taxes

India was one of the last major economic powers to replace the sales tax with a VAT system. However, there are still significant difficulties for businesses operating domestically. Many surveys have shown that India is seen by tax professionals around the world as being complex and uncertain. The Indian government has recognized this and has reduced the tax costs for Indian companies (especially in the service sector) to export at a zero rate. However, with 28 internal states competing for tax revenues and other countries aggressively seeking to be seen as centers of excellence for offshoring, challenges remain.



Ireland

The Irish Government has long supported the idea of a “smart economy” which would position the country as a center for development of new technologies in such industries as life sciences, financial services, communications, and digital media. It reconfirmed this in its 2009 Programme for Government. Through the use of fiscal assistance and tax policy the Government has sought to encourage local R&D and attract further R&D activity from foreign direct investment.

According to the OECD, between 1998 and 2008 the level of government-backed R&D increased over 10%, which underlines the overall efforts in both the public and private sector to increase R&D activity. The Government offers fiscal incentives such as grants for capital expenditure on machinery and equipment and industrial premises, training of employees, creation of employment, R&D, manufacturing and exporting products. Companies operating in Ireland are eligible for grants from the IDA or other Irish agencies as well as European grants administered by the EU.

IP Protection

Ireland is ranked among the most effective countries in providing extensive protection for intellectual property.

Import/Export Restrictions, Currency Controls

From an exchange control perspective, there are no restrictions on repatriation of earnings, capital, royalties or interest. Repatriation payments can be made in any currency.

Foreign Ownership, Nationalization, Privatization

Permission for foreign-owned companies to engage in business in Ireland is generally not required. Where a business license or other regulatory approval is required, the law does not differentiate between overseas and Irish investors.

In tandem with this fiscal assistance, tax policy also encourages activity in this sector. Together with the low corporate tax rate of 12.5%, withholding tax exemptions, and the favorable IP regime which provides for a deduction for the acquisition cost of IP, the R&D tax credit is a key.

R&D Tax Credit

In addition to a trading deduction at 12.5% for costs incurred for the purposes of a company's trade, an R&D tax credit of 25% of the incremental qualifying expenditure over the qualifying expenditure in the base year (2003) is also available to companies. The R&D tax credit is available on both capital and current expenditure, but qualifying expenditures will be net of any relevant grants received. Under IFRS and US GAAP the credit may be accounted for “above the line,” thereby reducing the unit cost of R&D spend.

Qualifying R&D activities under the Irish legislation are defined as the systematic, investigative or experimental activities in a field of science or technology, being one or more of the following:

- Basic research, namely experimental or theoretical work undertaken primarily to acquire new scientific or technical knowledge without a specific application in view
- Applied research, namely work undertaken in order to gain scientific or technical knowledge and directed towards a specific practical application
- Experimental development, namely work undertaken which draws on scientific or technical knowledge or practical experience for the purpose of achieving technological advancement and which is directed at producing new, or improving existing, materials, products, devices, processes, systems, or services including incremental improvements

Activities will not be deemed to be research and development activities unless they:

- Seek to achieve scientific or technological advancement, and
- Involve the resolution of scientific or technological uncertainty.

Activities which would not be deemed R&D would be market research, sales promotions, routine testing and analysis for quality control, and research in social sciences.

Subcontracting of R&D can only qualify for an R&D tax credit in limited circumstances:

- Where a company subcontracts to a university or institute in Ireland or EU Member State (relief in this case subject to a restriction of 5% of expenditure incurred by the company itself on R&D activities)
- Where a company subcontracts to an unconnected party in Ireland or in the EU Member State (relief in this case will be restricted to 10% of the expenditure incurred by the company itself and the other company cannot claim R&D on this activity)

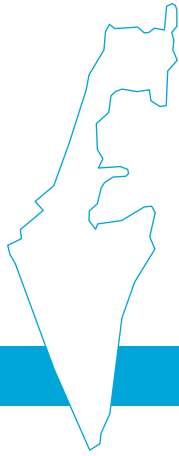
The R&D tax credit is available on both capital and current expenditure. Expenditure on buildings or structures used for R&D activities (either wholly or to a certain threshold, i.e., minimum 35% R&D usage over four years) will be fully creditable (at a rate of 25%) in the year the expenditure was incurred. Other capital expenditure incurred, i.e., on plant or machinery, will (if qualifying) be included in the qualifying expenditure for the R&D tax credit claim in the year it was incurred.

An important feature of the Irish R&D tax credit system is that unused tax credits can be used in three ways. The unused credits can be carried forward indefinitely, can be offset against profits which arose in the previous year to generate a refund, or alternatively can be claimed to be refunded over three years. The amount to be repaid cannot exceed the greater of either the corporation tax payable by the company for the 10

years prior to the accounting period in which the R&D claim arose or the amount of payroll taxes the company was required to pay in the period when the credit arose.

Indirect Taxes

With a below-average corporate income tax rate (12.5% on trading income), Ireland is still popular for technology businesses despite its above-average VAT rate of 21.5%. Incentives used by the Irish Tax Authorities include the section 13B exemption methodology that allows major exporters of goods and services to purchase at a zero rate. This can dramatically improve cash flow costs as well as benefit local Irish businesses that support the large manufacturing and service companies that reside in Ireland.



Israel

Israel

The economy of Israel has transformed over the past decade and become heavily reliant on technology. This is primarily due to the tax incentives it offers to foreign investors, some of which are available in the form of grants or tax benefits. The R&D incentives are generally available to all firms and legal forms, and R&D activities that qualify for incentives need not be performed in Israel and can be contracted out to a foreign service provider that owns intellectual property rights resulting from the R&D.

Compared with other OECD countries, Israel is a leader in high-tech research, but ranks at the bottom when it comes to overall innovation. Its economy has grown from one relying heavily on agriculture to one relying on technological developments, and its R&D intensity based on GDP reflects that (ahead of other innovative countries such as India, China, Russia, Taiwan and South Korea). From 1997 to 2007, there was a decrease in government-financed R&D activities, while business-funded R&D in higher education and government increased. Other countries showing a similar trend include Germany, Hungary and the Russian Federation. Direct financial flows between government and businesses likely influence this pattern, as well as increasing adoption of other policy instruments to stimulate innovation, such as R&D tax incentives.

Nontax incentives consist of:

- Grants for investment and R&D
- Assistance by way of infrastructure, reductions in rent for factories in development areas and training of labor
- Higher rates of depreciation for fixed assets and R&D expenditure for approved activities
- BIRD funding: Funding available to contribute, over two to three years, up to 50% of the approved cost of R&D projects undertaken jointly by enterprises in Israel and the US

- Grants of 50% of the approved expenditure are available for beta sites (test the product in real-life situations, through being operated by selected end-users who supply technical feedback).
- The MAGNET program supports the industrial R&D of generic precompetitive technologies—a broad spectrum of common technologies, components, materials, design and manufacturing methods and processes, standards and protocols with wide-ranging applications in numerous industries. A 66% grant goes to the approved budget for expenses of dedicated equipment.

Import/Export Restrictions, Currency Controls

Government policy is to reduce subsidies and the scope of price controls. There are now almost no subsidies on products. Restrictions on exports from Israel apply to strategic goods and materials and certain types of know-how, especially where government grants were used to development such know-how.

Labor Laws

The liabilities for employees' severance pay and pensions under the law are frequently funded with approved severance pay and pension funds, and only the net amounts (excess of liabilities over funds or vice versa) are shown on balance sheets. Whenever the liability for employee rights upon retirement is funded by way of regular deposits with a severance pay or pension fund or by way of purchase of insurance policies in the employee's name under an agreement that stipulates that the fund relieves the company of its liabilities under the Severance Pay Law, the amounts so funded need not be reflected in the balance sheet, since they are not under the control and management of the company.

There are no Israeli accounting standards for stock-based compensation. Most Israeli companies would

not recognize the compensatory component of their employee stock option plans, as required by US GAAP.

R&D Tax Incentives

In general, without the special relief provided under Section 20A of the Income Tax Ordinance (ITO), which was enacted for the purpose of encouraging taxpayers to invest in R&D activities, R&D costs should generally not be deductible for tax purposes when they represent capital costs. The Section generally distinguishes between two types of investors in R&D projects:

- The R&D project is conducted or sponsored by the owner of an enterprise in the fields of industry, agriculture, transportation and energy and it is intended to develop this enterprise; or
- The R&D costs are borne by a taxpayer that is not the owner of an enterprise in the abovementioned fields or the taxpayer participates in R&D costs of another developer in consideration for a reasonable return, when such R&D projects also enjoy government grants.

With the first group of taxpayers, the R&D expenses are deducted in the tax year incurred when such expense has been approved as an R&D expense by the relevant government department (the approval for industrial projects is generally granted by the Office of the Chief Scientist, or OCS). When such OCS approval is not obtained, the expense is deducted over three tax years.

R&D expenses incurred by the second group of taxpayers are generally deducted over two tax years. The deductible expenses allowed to a participant in R&D costs of another developer generally may not exceed 40% of the taxable income of the investor in the year in which the expenses had been incurred.

R&D common expenses include salary costs of employees engaged in R&D activities and indirect expenses that support and assist the employees

in their R&D functions. Section 20A specifically disallows the deduction of R&D expenses relating to a depreciable fixed asset (alternatively, the taxpayer is allowed to depreciate such assets).

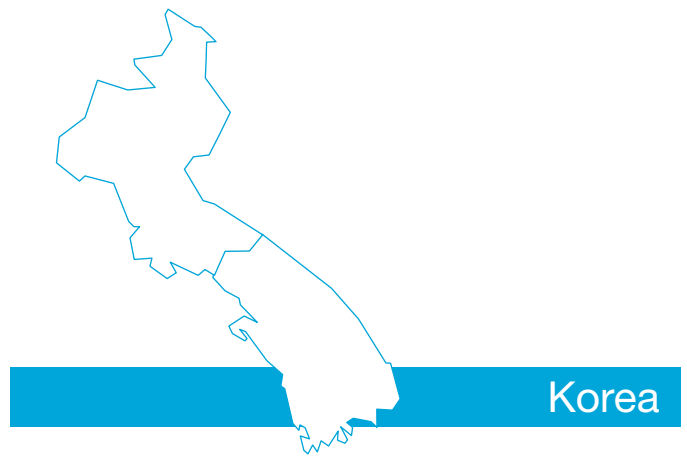
The government's primary statutory measure for encouraging both domestic and foreign capital investments is embodied in the Encouragement of Capital Investment Law. Under this law the government grants substantial benefits in a variety of forms to approved enterprises (AEs). The law was recently amended with the intention to simplify the bureaucratic process involved. The law provides that subject to fulfilment of certain conditions, capital investments in new or expanded production facilities may be designated as an AE. Each AE relates to a specific investment program delineated both by its financial scope, including its capital sources, and by its physical characteristics, such as equipment to be purchased and used pursuant to the program.

Principal benefits of the AE regime include:

- Grants which vary in amount according to the geographic location of the enterprise in Israel and the nature of the enterprise
- Significant tax benefits generally for a period of seven to ten years with reduced tax rates ranging from 10% to 25% depending upon the percentage of foreign ownership

A company can elect to forego all government cash grants and receive instead a total exemption (tax holiday) from company tax on undistributed profits of the AE enterprise for two to ten years (depending upon the location of the company). Should a subsequent distribution or deemed distribution (detailed rules apply) of such profits occur, corporate tax and dividend withholding tax will be imposed on the income distributed, at the rates which would have been applicable if the tax holiday had not been elected.

Dividends are taxed at a 15% rate (subject to a possible reduction under a tax treaty).



Under an “Israel Track”, companies having an AE in certain priority development areas only pay an aggregate corporate and dividend withholding tax of 15% for a foreign resident shareholder.

A “Strategic Investment Track” allows for an exemption during a ten-year benefit period from company tax and dividend withholding tax, for a company located in certain regions which have significant investment and revenue levels.

The OCS provides grants for a variety of R&D projects conducted by existing and start-up companies. The maximum amount of such grants and the percentage of approved costs that they may cover will vary, depending on the nature of the project. Grants are provided to projects approved by the OCS research committee. When the sponsored research is successful, repayment of the grants is generally required by means of payment of royalties to the OCS expressed as a percentage of the revenue generated from the resulting product depending on the specific terms of the grant received. Limitations are also imposed on the use of the IP abroad or the transfer of the developed technology or know-how to a foreign entity, subject to obtaining approval from the OCS, which likely results in additional payments having to be made to the OCS.

The amount of any OCS grant received to finance the R&D is subtracted from the amount of expenses qualifying for the R&D deduction for tax purposes.

Korea

The Republic of Korea tops the list of OECD countries in percentage of business enterprise funded from abroad. On a measure of innovation (gross domestic expenditure on R&D divided by GDP), in 2007 only four OECD countries exceeded 3%: Finland, Japan, Korea, and Sweden. The average for OECD countries was 2.3%, and that of the EU was 1.8%. In non-OECD countries China had a rate of 11.5% and Israel had a rate of 4.7%.

Korea’s fast-growing economy has benefited from attracting foreign investment, which is primarily responsible for increased employment and technological development. Present commercial and political legislation has been influenced by laws prevailing in the United States and Europe.

IP Protection

Foreign patents, trademarks and copyrights are protected for 20 years, which can be extended up to five years.

Import/Export Restrictions, Currency Controls

Exports and imports are fully liberalized with few exceptions.

Foreign Ownership, Nationalization, Privatization

All properties of foreign-invested enterprises are protected from expropriation or requisition by various Korean laws. A variety of policy measures actively encourages foreign investment, to protect foreign-invested enterprises and facilitate their smooth operation. Various incentives and guarantees are included in these measures, such as tax benefits and guarantees on the overseas remittances of dividends and principal, royalties, and proceeds from the sale of stock.

To attract large-scale foreign investment, the Foreign Investment Promotion Act (FIPA) also introduced the Foreign Investment Zone (FIZ) system. Unlike in the past when the central government granted tax incentives to foreign direct investment (FDI) in designated areas, the FIPA grants local governments the autonomy to designate FIZ for FDI upon request from foreign investors. The FIZ system allows foreign investors to designate an ideal site for their business and to receive benefits available to those qualified.

Tax Incentives

For activities related to R&D, Korea offers generous tax incentives for domestic as well as foreign R&D activities.

Tax Holidays

Under the Special Tax Treatment Control Law (STTCL), qualified R&D facilities set up in a designated foreign investment area or economic free trade zone are eligible for tax exemptions on income taxes and local taxes. There are some conditions on the volume of foreign investment and the number of R&D researchers working at such facilities to be eligible for such tax exemption. For a qualified R&D facility in a designated foreign investment area, 100% exemption of corporate income tax is applicable for up to five years, and 50% exemption for the following two years. For a qualified R&D facility in an economic free trade area, 100% exemption is granted for three years and 50% exemption for the following two years.

R&D Tax Incentives

The Special Tax Treatment Control Law (STTCL) describes the tax incentives for R&D activities in Korea. Incentives are available for virtually all firms, regardless of size or legal form. However, there are limitations based on business type (e.g., prohibiting the R&D tax credit for consumptive service businesses). The R&D activities need not be performed domestically, as

STTCL offers incentives for expenses generated from activities performed jointly with domestic or foreign research institutes. The tax incentives apply to R&D activities derived from research, related manpower development expenses, and associated investments in facilities and special tax treatment on income from the transfer of technology.

Costs incurred for the following activities, however, would not be treated as qualified R&D expenses: general administration and support; market study, marketing promotion and routine quality test; recurring information gathering; survey and analysis of business and management efficiency; legal and administrative service including application or protection of patents; search and exploration of mines or sites of mineral resources; R&D consigned by a third party.

R&D Tax Credit

Companies presently claim a tax credit for qualifying R&D expenditures to the extent of either 3-6% (25% for SMEs) of the current R&D expenses or 40% (50% for SMEs) of the incremental portion of the current R&D expenses over the average of the previous four years. The tax credit will be extended to include R&D for core technologies as authorized by the government as well as designated strategic growth industries until the end of December 2012. For these industries, the credit rate for the current R&D expenditure would be 20% (30% for SMEs). Unused tax credits can be carried forward for five years.

R&D Reserves

Companies can set up an R&D reserve (for use as R&D expenses) for the tax years ending on or before December 31, 2013, which are deductible within the limit of 3% of the annual revenue for the year in which the reserves are initially accounted. Such R&D reserves shall be used for the following three years, and the actually used R&D expenses are subject to corporate income taxes (added back) after three years (from the date R&D reserves were initially accounted) throughout



Japan

a three-year period in installments. Any remaining unused R&D reserve shall be added back to the taxable income in the third year with some interest charges.

Tax Credits on Investment in R&D Facilities

For investments made no later than December 31, 2012 on R&D facilities (excluding any investment in used facilities), an amount equivalent to 10% of such investment is eligible for tax credit in the taxable year when the investment is completed. The tax credit is applicable for investment in equipment as prescribed by STTCL (e.g., equipment for R&D, equipment for training, business assets for commercialization of new technology).

Tax Credit on the Acquisition of Intellectual Property

If a domestic company (or individual) obtains a patent right, utility model right, secret know-how or technology on or before December 31, 2012 from another domestic third party (either corporation or individual) who has developed, registered and held such patent right, an amount equivalent to 3% of the acquisition value (7% in the case of an SME) is allowed for tax credit (in case of an individual national, income tax on his/her business income only) for the taxable year concerned. In this case, the deductible amount may not exceed 10% of the income tax or corporate tax for the taxable year concerned. Unused tax credits can be carried forward for five years.

Japan

Japan first instituted the R&D credit in 1967, and it was a key contributor to Japan's success in the manufacturing sector. During the 1980s, Japan was at its height of innovation, but during the 1990s when the high-tech boom evolved, Japan's inability to compete with Asian competitors and the United States resulted in its diminished role in the world economy. Nevertheless, R&D activities have remained key to the Japanese economy, and today, account for 3.2% of GDP.

During recessions, when measured against OECD countries, Japan ranks second to Luxembourg in R&D financing by businesses, whereas countries such as the Russian Federation and Greece receive R&D financing predominantly from government sources. In the EU27, companies financed 7.4% of all R&D performed in public institutions and universities, compared with 3.2% in the United States and 2.2% in Japan. Japan also ranks at the bottom among OECD countries when comparing government-financed and business-funded R&D in higher education and government.

Based on regional development laws, certain regional and local governments provide incentives for companies locating in their areas, whether domestic or foreign. These incentives include subsidies, preferential local tax treatment, preferential financing, and the availability of industrial parks. Loan guarantees are available through the Industrial Structure Improvement Fund.

IP Protection

Protection is available for intellectual property.

R&D Tax Incentives

Tax subsidies for R&D in Japan have increased slightly between 1999 and 2008, counter to countries such as France and Norway where subsidies have increased significantly.

R&D incentives are available for all companies, however there are greater incentives available to SMEs (generally defined as having stated capital below JPY 100 million). Generous tax relief goes to industry R&D projects contracted to universities and public research institutes.

R&D expenditure must be deductible in computing Japanese GAAP profit for Japanese tax purposes, hence should be treated as general business expenses rather than as expenses that must be capitalized. To qualify for an incentive, R&D activities need not be performed in Japan, but must be paid for by a Japanese entity and the intellectual property must be owned by that entity.

Japanese tax law itself does not contain a clear definition of R&D activities. Instead, the law provides taxpayers with flexibility to make discretionary judgments as to whether certain expenses qualify as R&D for tax purposes, taking into account whether such expenses are also properly reported as R&D expenses for Japanese GAAP purposes.

Tax law defines qualifying R&D expense for income tax purposes as expenditure incurred for the conduct of experimentation and research concerning the manufacture of products; or the improvement, design or invention of certain specified technologies.

Generally, the main types of expenditure qualifying for relief include:

- Raw materials
- Labor costs
- Other costs required to conduct experimentation and research (such as gas, water, medical costs)
- Expenditure on subcontracted R&D

In practice, the interpretation of R&D for Japanese tax purposes covers pure research, applied research and experimental development. However, once a

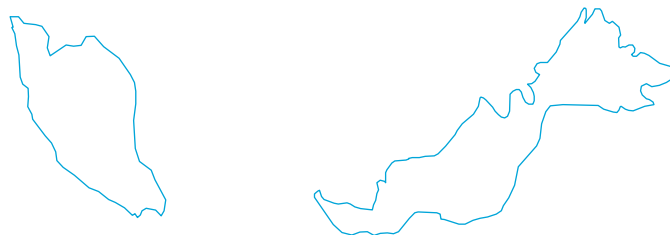
proper determination has been made in a company's profit and loss accounts for Japanese GAAP purposes, the judgment as to scope of R&D activities for tax purposes will generally follow from these taxpayer financial reporting decisions. Therefore, the consideration of what activities may belong within a category of tax-incentivized R&D activities should begin prior to the time judgments should be made regarding the correct financial reporting classification of these expenses.

The Japanese system is both incremental and volume-based. R&D tax credits are calculated by adding the tax credits calculated on a gross R&D cost base and the tax credits calculated on an increased R&D cost base. The Japanese system involves judgments to be made in various respects.

R&D incentives are not available in the form of tax allowances, but as credits. As a statutory business tax, the current maximum creditable amount is limited to 30% of the corporate tax due per annum for a tax year beginning on between 4/1/2009 and 3/31/2011. Unless this special measure is not extended, the maximum creditable amount will be 20% of the corporate tax for a tax year beginning on or after 4/1/2011. Currently any unused tax credits may be carried forward for one year. As a part of the Japanese fiscal stimulus package, unused tax credits for a tax year beginning on between 4/1/2009 and 3/31/2011 can be carried forward by a tax year beginning on or before 3/31/2013.

While the Corporate Tax Law does not provide accelerated depreciation specifically for R&D investments, accelerated depreciation is allowed for certain assets that could relate to R&D investments, such as machinery and devices acquired by SMEs. Capital expenditures are not fully deductible for R&D in the year they occurred, unless R&D investments fall into certain limited types of assets (e.g., small value assets acquired by small companies) for which expensing is allowed.

Tax incentives to hire R&D personnel by including labor costs for R&D activities into the creditable R&D



Malaysia

expenses are also available. For purposes of this provision, employees are qualified as R&D personnel only when they are engaged solely in R&D activities.

R&D credits are generally not allowed for training unless the cost for the training is necessary to conduct experimentation and research. However, a different type of tax credit could apply if the training cost is incurred for purposes of training the company's employees to learn skills and knowledge necessary for its business. No tax incentives resulting from patents or similar R&D-related income (e.g., patent box deductions or tax holidays) are available.

Indirect Taxes

Japan has a low VAT rate at 5% and a relatively simple indirect tax regime. The Japanese Tax and Customs Authorities have measures allowing for indirect tax holidays for foreign entities that allow them to minimize tax compliance during the first two years of trade.

Malaysia

A primary goal of the Malaysian government is to improve its national competitiveness and establish itself as a leader in the manufacturing industry. These objectives are outlined in the Ninth Malaysia Plan for 2006 to 2010, and R&D activities are among its priorities. Compared with other OECD emerging economies, Malaysia is active in areas of innovation, and focuses on investments to build value-added knowledge, mainly through R&D and technology. Since 1993, it has been a leading publisher of scientific journal articles along with other emerging economies such as Indonesia, the Philippines, Thailand, and Vietnam.

Certain areas designated as Free Zones are deemed to be located outside Malaysia. Within these Free Zones, goods and services can be brought into or provided without payment of indirect taxes or duties. In addition, manufacturers that export 80% or more of their finished products can apply for licensed manufacturing warehouse (LMW) status. Qualifying raw materials, components and machinery used in the manufacturing process are exempted from import duties and sales tax subject to conditions imposed.

Issuance of Manufacturing Licenses are administered by the Malaysian Industrial Development Authority under the Ministry of International Trade and Industry and subject to conditions imposed. Small companies are exempted from licensing.

Import/Export Restrictions, Currency Controls

There is no foreign exchange control restriction for a resident to pay any amount in foreign currency to a non-resident for any purpose and for the settlement of import of goods or services. Certain foreign exchange control is imposed on investment abroad and borrowings.

Foreign Ownership, Nationalization, Privatization

There is no foreign investors equity ownership restriction for new investment in manufacturing projects. Foreign investors equity ownership is imposed on specific national industries such as power generation, telecommunication and tourism.

Labor Law

Manufacturing companies (except small companies) are required to contribute to the Human Resource Development Fund (HRDF) an amount equivalent to 0.5% of employees' monthly salary. Manufacturers that have contributed to the HRDF can receive financial assistance at rates ranging from 50% to 100% of the allowable costs incurred for purpose of training employees in Malaysia.

R&D Tax Incentives

In Malaysia, the Promotion of Investments Act of 1986 of the general tax code describes tax deductions relating to R&D. Any incorporated company located in Malaysia or that performs Malaysia-related R&D (in Malaysia or by foreign contractor) can qualify for available incentives. If a company is not incorporated in Malaysia, government approval, on a case-by-case basis, is needed in order to claim any R&D incentive. Additionally, contract R&D companies providing research and development services in Malaysia to third parties may also qualify for incentives. Contract companies may receive income tax exemptions of 100% for five years or an investment tax allowance of 100% on the qualifying capital expenditure incurred within ten years to be set-off against 70% of the company's statutory income for each year of assessment. With special government approval, some incentives can extend for up to 15 years.

R&D incentives are generally limited to studies carried out in the fields of science or technology with the objective of using the result of the study for the production or improvement of materials,

devices, products, produce or processes. Special incentives and credits are available for R&D activities in underdeveloped regions, in high technology and biotechnology industries, and activities carried out by SMEs. Exclusions apply to the following areas:

- Quality control of products or routine testing of materials, devices, products or produce
- Research in the social sciences or humanities
- Routine data collection
- Efficiency surveys or management studies
- Market research or sales promotion

There are tax incentives available for operational headquarters, international procurement centers, international trading companies, regional distribution centers, foreign funds management, shipping, resource-based industries, manufacturing-related services (e.g., logistics, marketing support), companies trading via Malaysian-based websites, Islamic financing, and real estate investment trusts.

The tax treatment of R&D expenses depends on the nature of the expenditure (i.e., revenue business expenses or capital). Such expenditures could range from raw materials used in research, manpower costs, technical service, transportation costs, etc.).

While there are no tax credits available, incentives are available for accelerated depreciation from accelerated depreciation in the form of allowances. For example, buildings used for approved R&D activities qualify for industrial building allowance at the normal rate available for other eligible industrial buildings in other industry sectors.

Capital is not fully deductible in the year occurred, but expenditures incurred in acquiring patents, industrial design and trademarks qualify as a deduction in the computation of income tax. This deduction is given in the form of an annual deduction of 20%



Netherlands

over a period of five years. There is also provision for a 200% deduction on expenses incurred in respect of registration of patents, trademarks and product licensing overseas in a year of assessment. Expenses incurred in the registration of patents and trademarks in the country will be allowed a deduction in a year of assessment for SMEs from the years of assessment 2010 to 2014.

Grants are also available for the hiring and training of personnel and general training incentives for approved training programs are deductible by up to 200%.

A company can also benefit from tax allowances, depending on the incentives elected. They include:

- Pioneer status, which is a five-year income tax exemption, or
- Investment tax allowance of 100% on the qualifying capital expenditure incurred within ten years. The allowance can be offset against 70% of the statutory income for each year of assessment. Any unused tax allowance can be carried forward to subsequent years until fully used against that business source, or
- There is a potential 200% deduction on revenue expenditure for research directly undertaken.

Rules vary depending on whether the entity undertaking R&D is a third-party R&D contract company, a group R&D company or in-house research, and is subject to appropriate government agency approval.

Unused tax allowances may be carried forward indefinitely provided that the business source still exists.

Netherlands

Compared with other OECD countries, the Netherlands has very little government financing of R&D activities, and a much higher percentage of business-financed activity in areas of education and government. The Netherlands also has one of the higher rates of tax subsidies for SMEs and one of the lowest rates for large firms. It also is considered to be average when comparing how well it collaborates with businesses, education and government.

Like most EU countries, the Netherlands is focused on reforming its system of innovation to achieve economic growth. To achieve this, the government plans to increase the science and engineering workforce, and to increase R&D spending.

Regional incentives are available in the form of cash grants, low-interest loans, government capital participation, and export guarantees for selected areas. For innovative R&D projects, a grant of 37.5% of the project cost is available.

More efficient use of energy is encouraged by the central government. Some of the possibilities are feasibility studies, R&D, and demonstration projects and investments. Grant percentages can be as high as 50% of the project cost.

Grants are available for environmental investments. In addition, feasibility studies, research and development, and demonstration projects are encouraged. The grant can reach 35% to 90% of the project cost, depending on the nature of the project.

IP Protection

A patent may be obtained on a product or a process. Theoretical systems, such as computer programs and calculation systems, are not patentable.

Import/Export Restrictions, Currency Controls

In general, except for certain products, import licenses are not required in the Netherlands. Export incentives consist of special loan agreements and export credit insurance.

R&D Tax Incentives

The country uses tax incentives to promote R&D activity such as a reduced tax rate and a credit relating to payroll activities. The R&D incentives available for all firms of all size and all legal forms that are subject to Dutch corporate income taxes. Generally, R&D expenses are treated as business expenses and can be deducted in the year that they are incurred.

The two R&D tax incentives are:

- An innovation box included in the Dutch corporate income tax act, which provides for an effective taxation at a rate of 5% of the qualifying income (income that relates for more than 30% to the obtained patent and/or R&D declaration). To qualify, IP must either be patented or obtain an R&D declaration in the Netherlands.
- The R&D deduction facility included in an addition to the Dutch wage withholding tax act, which allows a deduction of payroll tax and social security premiums of R&D personnel to be remitted by the employer to the Dutch tax authorities. An employee should have direct involvement with qualifying R&D activities to be regarded as R&D personnel. To qualify for these incentives, an IP R&D declaration must be obtained.

The tax benefit can be applied to R&D wage costs. The R&D wage costs can be calculated by multiplying the (fixed) average R&D hourly wage by the allotted R&D hours. Further, it is subject to a wage limit (per employee) and a ceiling (per employer). The tax incentives are generally not available for training or hiring of personnel, and are limited to the R&D deduction facility benefits.

For patented IP, the R&D should be developed in the name of the Dutch taxpayer, though the R&D does not have to be performed in the Netherlands. For IP for which an R&D declaration has been obtained, at least 50% of the R&D should be performed in the Netherlands or the Dutch entity should have a decisive coordinating role (as when the R&D takes place in a foreign branch).

The form of the tax allowance is that the taxable base is reduced to 5/25.5 part of the qualifying income, resulting in an effective tax rate of 5%. Through this mechanism, no unused allowances should exist. Benefits from accelerated depreciation are unavailable, and while capital expenditures are not fully deductible for R&D in the year they occur, "creation costs" of qualifying IP can be deducted.

Substantial logistical and import measures, extensive sea and airport facilities, combined with a central EU location has allowed the Netherlands to implement import simplification processes. These measures simplify the import, storage and handling of goods destined for the EU market places for non-resident businesses. In addition, the removal of many common compliance procedures has meant the Netherlands is one of the premier distribution hubs in the EU. Nearly all other Member States have introduced (or will soon) methods of simplified business-to-business transactions as well as various import and export relief measures that reduce the customs costs of international trade.



Singapore

Singapore is a leader when it comes to innovation and competitiveness, particularly relating to technology. As part of its national effort to increase R&D activity to account for more than 3% of its GDP, Singapore actively targets foreign investment as an essential part of its strategy. In addition to infrastructural advancements, it relies heavily on tax incentives for attracting investment. Some R&D incentives include a double deduction for expenses and a full exemption from tax for a period of 5 to 15 years. Compared with OECD countries, Singapore is the most specialized in nanotechnology.

International orientation is a key element of government policy. Singapore aims to become a global city with linkages to major centers of the world and a home base to leading international corporations and international talents. The government is focused on removing unnecessary restrictions on entrepreneurial activity.

A number of programs to assist business are available:

- The capital assistance scheme provides long-term fixed-rate loans for up to 0% of the cost of productive assets to investors. The scheme is normally applicable to projects of technological or economic benefit to Singapore.
- The equity participation scheme, administered by the Economic Development Board (EDB), provides capital assistance to potential investors through an equity share in the investment. Such equity participation is not intended to be permanent but only to provide initial support and confidence to the investor. The EDB's equity in the company would not normally exceed 30% of the total paid-up.
- There are a number of government-sponsored venture fund programs to assist local companies in acquiring new technology to support local entrepreneurship and innovation. Investments may be based in Singapore or overseas (e.g.,

EDB Ventures, Singapore Bio-Innovations and the Technology Development Fund).

- The market and investment development assistance scheme (MIDAS) assists local companies by defraying the initial costs of their export development efforts, such as setting up overseas marketing offices, improving product and package designs, overseas marketing trips, participating in trade fairs and missions, producing promotional brochures, and bidding for overseas contracts. The scheme provides grants on a reimbursement basis. The products or services should have at least 25% Singapore content.
- The product development assistance scheme (PDAS), is aimed at encouraging local product design and development capability and building up indigenous technological know-how. Dollar-for-dollar grants are provided to help local companies develop new or improved products and processes.
- The National Science and Technology Board has a number of programs to promote R&D activity, such as R&D assistance, Research incentive, Software development and Software quality improvement.

A comprehensive listing of available government assistance programs can be found at <http://www.business.gov.sg/EN/Government/GovernmentAssistance/>

Singapore has entered into investment guarantee agreements (IGAs) with a number of countries. The list of Singapore's IGAs is available at <http://app.mti.gov.sg/default.asp?id=2785>

IP Protection

The government grants patents for up to 20 years, provided they are renewed annually from the end of the fourth year of the date of filing.

Import/Export Restrictions, Currency Controls

Singapore operates as a free port with virtually no import or export duties on raw materials, equipment or products. Only a few imports are controlled for health, safety and security reasons. Five free-trade zones provide facilities for the storage and re-export of dutiable and controlled goods.

Foreign Ownership, Nationalization, Privatization

There are few restrictions on foreign ownership of Singapore companies. No monopoly or antitrust legislation is in force in Singapore. Singapore has a Competition Act and a few industries such as telecommunications, public transportation and electricity are closely regulated. There is no policy of nationalization, but rather a move toward privatization.

R&D Tax Incentives

R&D is limited to “any systematic, investigative and experimental study that involves novelty or technical risk carried out in the field of science or technology with the object of acquiring new knowledge or using the results of the study for the production or improvement of materials, devices, products, produce, or processes.” It excludes the following:

- Quality control or routine testing of materials, devices or products
- Research in the social sciences or the humanities
- Routine data collection
- Efficiency surveys or management studies
- Market research or sales promotion
- Routine modifications or changes to materials, devices, products, processes or production methods

- Cosmetic modifications or stylistic changes to materials, devices, products, processes or production methods
- Development of a computer software that is not intended to be sold, rented, leased, licensed or hired to two or more persons who are not related to each other and to the person who develops the software or on whose behalf the development of the software is undertaken

Incentives are generally available to all Singapore taxpayers, e.g., special R&D tax deductions. This includes individuals, partnerships and companies.

Certain R&D tax concessions are only available to companies. The R&D Tax Allowance Scheme (RDA) is targeted at encouraging businesses that enjoy profitability to engage in qualifying R&D activities in Singapore. The R&D Incentive Scheme for Start-up Enterprises (RISE) is targeted at R&D intensive start-ups that may not be profitable in their initial years of set-up.

The RISE is available only to qualifying start-up companies whose total share capital should be held by no more than 20 shareholders: all of them are individuals; or at least one of them is an individual holding at least 10% of the total number of issued ordinary shares of the company.

The RISE enables loss-making start-ups spending annually at least \$150,000 on R&D done in Singapore to convert up to \$225,000 (based on 150% of \$150,000) of tax losses arising from the R&D expenditure to cash grants at a rate of 9%, translating to a grant of up to \$20,250. Start-ups can also choose not to convert their tax losses into grants and instead, carry forward their losses to offset against future years' taxable profits.

For tax purposes, R&D activities are treated as business expenses. However, they will be capitalized if they relate to capital expenditure on plant, machinery,

land or buildings (including alterations, additions or extensions) or in the acquisition of rights in or arising out of R&D.

In general, R&D must be physically performed within the country to be eligible for tax incentives, and especially in the case of concessionary tax rate incentives which specify having R&D activities in Singapore. If the outsourced service provider performs R&D in Singapore, the taxpayer can qualify for a 130% to 150% tax deduction, or up to a 200% tax deduction for approved R&D projects. If the outsourced service provider performs R&D outside Singapore, the taxpayer can qualify for a 100% tax deduction if relating to existing trade or business.

The intellectual property rights resulting from the R&D do not necessarily have to be owned by the entity carrying out the R&D activities. For a taxpayer who outsources R&D, there is generally a requirement for any intellectual property rights resulting from the outsourced R&D to be owned by the taxpayer.

R&D incentives may also depend on the volume of spending, and may be deducted as current or capital expenditures such as wages and salaries of R&D personnel and equipment costs. Accelerated depreciation related to plant and machinery is available as well. Concessionary tax rate incentives that are negotiated may contain conditions on the number of R&D personnel hires. Training grants are available. Tax holidays and concessionary tax rate incentives are available on a negotiated basis. Concessionary tax rate incentives are available on a negotiated basis.

There are also R&D grants available, in addition to R&D tax incentives.

Allowances on expenditures can be deductible by up to 100%. Enhanced R&D tax deductions of an additional amount of 30% to 50% and special tax deductions for approved R&D projects of an additional amount of up to 100% of qualifying R&D expenditure are available. In addition, RDA is available, up to 50% of the first

\$300,000 of income chargeable to income tax (i.e., cap at \$150,000 per year). Unused amounts can be carried forward to offset taxable income in subsequent years, subject to certain limitations.

Limited tax credit is available under the RISE and the R&D tax allowance schemes. The RISE scheme allows qualifying start-up companies to surrender their tax adjusted losses in exchange for a cash grant computed at a prescribed rate, subject to certain conditions. The RDA scheme provides for an additional tax deduction up to an amount of 50% of the first \$300,000 of the company's chargeable income, claimable in subsequent years of assessment to the extent of incremental R&D expenses incurred.



United Kingdom

Research & Development (R&D) tax credits were introduced in the UK in April 2000 for companies that qualified as Small and Medium-sized Enterprises (SMEs). The scheme was extended in April 2002 to include large companies. An additional scheme, Vaccines Research Relief, was introduced in April 2003, giving extra relief for expenditure on drugs and vaccines for TB, malaria and AIDS/HIV.

R&D Tax Relief

Broadly, an activity qualifies as R&D if it would be treated as R&D under Generally Accepted Accounting Practice as qualified by guidelines issued by the Secretary of State for Trade & Industry. The guidelines state that R&D takes place when a project seeks to achieve an advance in science or technology. Activities which directly contribute to achieving such an advance in science or technology through the resolution of scientific or technological uncertainty are R&D. Certain qualifying indirect activities related to the project may also qualify for relief.

Small and Medium Companies' R&D Tax Relief Regime

The Government introduced R&D tax relief for SMEs with the objective of providing a funding mechanism for small and start-up businesses carrying out R&D. Relief is therefore given to SME companies incurring the cost of carrying out R&D, regardless of whether the company carries out the R&D itself or subcontracts out the work, provided the SME is not itself being paid for its R&D activities. Relief is available to all small- and medium-sized companies within the charge to UK corporation tax wherever the expenditure on R&D is incurred.

An SME is currently defined as an enterprise which:

- Has fewer than 500 employees; and
- Has an annual turnover not exceeding €100m and/or an annual balance sheet total not exceeding €86m.

An SME is entitled to claim a greater than 100% deduction in computing profits for corporation tax purposes for its qualifying R&D expenditure. For qualifying R&D expenditure the rate of relief is 175%, or 150% for expenditure incurred before 1 August 2008. Lower rates of 130% and 125%, respectively, apply to qualifying subcontracted R&D expenditure (please see below for the meaning of subcontracted R&D expenditure).

If an SME incurs a trading loss it may surrender that loss to claim a cash payment from the UK tax authorities equal to 14% of the surrenderable loss (16% prior to 1 August 2008). The amount of cash payment the SME is entitled to claim is restricted to the total employment taxes and social security payments made in respect of the company's employees for the period.

Claims must be made in a company's tax return within two years of the end of the accounting period in which the expenditure was incurred.

A small- or medium-sized company may qualify for relief in respect of R&D it undertakes itself, either on its own account or on behalf of others, or in respect of R&D that it pays others to do. Specifically, the following types of expenditure qualify for relief:

- Qualifying R&D expenditure;
- Qualifying subcontracted R&D expenditure; and
- Qualifying additional SME expenditure.

Qualifying R&D expenditure is expenditure that meets the following conditions:

- It is incurred on:
 - Staff costs
 - Software or consumable items
 - Payments to volunteers participating in clinical trials (from 1 August 2008)
 - Externally provided workers (broadly, workers not employed by the company but paid by the company through someone else, such as an agency or fellow group company)
 - Qualifying expenditure on subcontracted R&D
- It is not capital;
- Any intellectual property created as a result of the R&D to which the expenditure is attributable is vested in the company, alone or with others (this condition is likely to be removed in the near future);
- It is not incurred in carrying on R&D contracted out to the company; and
- It is not subsidized.

Where the R&D is contracted out to an SME by a large company or by a person otherwise than in the course of a UK taxable trade the SME may be able to claim relief for this qualifying sub-contracted R&D expenditure.

However, to the extent that this, or any other R&D carried out by an SME, is subsidised, the SME is only entitled to make the claim under the large companies' regime. The company can only claim for costs that would qualify under the large companies' scheme (see below). In addition, the rate of relief is lower (130%, or 125% before 1 April 2008) with no cash back claims available in relation to these costs. This is qualifying additional SME expenditure.

Large companies' R&D Tax Relief Regime

The Government introduced R&D tax relief for large companies with the objective of encouraging investment in R&D in the UK in order to grow and retain the skills base. Large companies can therefore claim relief regardless of whether they are being paid by customers. Some rules prevent duplication of claims for the same costs where the customer is a UK SME.

Large companies' R&D tax relief is broadly similar to small companies' relief, the key differences being the lower rate of relief (130%, or 125% before 1 April 2008) and no provision in the large companies' regime for companies to surrender tax losses for cash payments from the UK tax authorities.

There are several further differences to the two regimes as follows:

- Large companies are unable to obtain relief in respect of R&D they subcontract out, unless it subcontracts R&D to individuals, partnerships or certain qualifying bodies such as hospitals, universities and charities;
- There is no restriction in claiming for projects where the expenditure on R&D is subsidized or a grant is received in respect of it;
- Unlike SMEs, large companies can claim for contributions to independent research carried out by individuals, partnerships or qualifying bodies, provided the R&D relates to the company's trade;
- There is no restriction in claiming for projects where the intellectual property created as a result of the R&D vests outside the company.

Tax Relief for Capital Expenditure

Companies incurring capital expenditure on carrying out R&D or providing facilities for carrying out R&D may be entitled to 100% Research and Development Allowances (RDAs) on that expenditure. Accelerated

relief may be available on assets such as plant and machinery, for which standard tax depreciation rates are significantly lower than 100%. In addition, relief may be available on assets such as buildings which would not otherwise be entitled to tax depreciation relief. There may be a clawback of allowances if an asset representing qualifying expenditure is sold, demolished or destroyed but there is no clawback if the use of the asset changes.

Vaccines Research Relief

Vaccines research relief (VRR) is available in respect of expenditure on R&D relating to:

- Vaccines or medicines for the prevention or treatment of tuberculosis and malaria;
- Vaccines for the prevention of HIV infection; or
- Vaccines or medicines for the prevention of the onset of AIDS, or the treatment of AIDS, resulting from infection by HIV in certain prescribed clades.

Broadly, relief is given by means of a greater than 100% deduction in computing profits for corporation tax purposes for its qualifying VRR expenditure. The rate of relief is 140% of a company's qualifying expenditure for an accounting period, or 150% for expenditure incurred before 1 August 2008, for both SMEs and large companies. If an SME incurs a trading loss it may surrender that loss to claim a cash payment from the UK tax authorities equal to 16% of the loss surrendered.

Depending on the circumstances a company may be entitled to both R&D and VRR tax relief on the same expenditure, or relief under just one of these regimes.

UK Government Investment in R&D

The UK R&D tax relief schemes support over ten thousand businesses. In 2007-2008 the large companies' regime supported approximately 2,000

companies which made claims totalling £530m. In the same period, the SME scheme provided £250m of support to approximately 6,000 companies. Of this £250m, £190m related to cash credits paid to small- and medium-sized companies which would have otherwise been loss-making and would not have received any immediate cash benefit through the tax system for their investment in R&D.

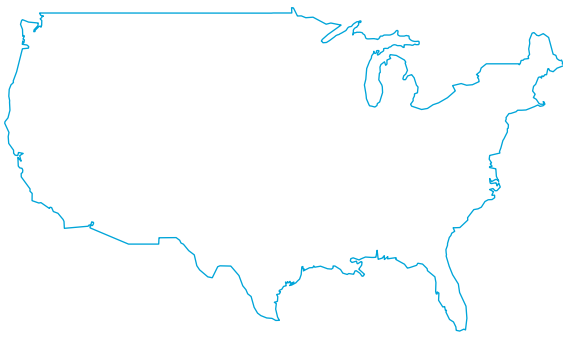
The UK government's investment in innovation through the R&D tax relief regime has increased year-on-year since the introduction of the relief. Relief provided to companies has increased from £400m in 2002-2003, the first period in which the large company and SME regimes were running together, to £790m in 2007-2008.

Proposed Patent Box Regime

Proposals were announced in December 2009 for a "patent box" regime, applying a reduced 10% corporation tax rate to income from certain patents. The aim is to strengthen the incentives to invest in innovative industries. Income stemming from certain UK patents registered after summer 2011 may attract the reduced 10% corporation tax rate from April 2013. The Government will consult with business during 2010 with the aim of designing a practical and competitive regime.

Future Developments

The new UK coalition government announced in June 2010 that they would consult with businesses to review the taxation of intellectual property, R&D tax relief and the proposals of the Dyson Review. The Dyson Review suggested R&D incentives should be refocused on high-tech companies, small businesses and start-ups and that the rate of relief could be increased to 200% (presumably compared to the 175% for SMEs currently) without this leading to an increased cost to the exchequer. It is therefore possible that future changes to the R&D regime could include increases in the rate of SME relief, perhaps funded by reductions in the availability of claims in certain industry sectors.



United States

United States

The United States is a leader among OECD countries in venture capital investment in R&D activities. It has also accounted for over 40% of pharmaceutical patents during the mid-2000s, but lags behind in terms of overall R&D intensity, and falls below average when comparing tax subsidy rates. This is likely due to the burdensome and costly administrative procedures involved in establishing and claiming the credit, which has resulted in contentious disputes between the IRS and taxpayers. As a result, United States taxpayers have migrated research activities abroad and made more foreign direct investments. A 2009 OECD Scoreboard report ranks the United States second-to-last in total exports and imports, showing poor economic integration, and ranks it second to the European Union in terms of cross-border trademarks, showing high foreign product and marketing innovation.

IP Protection

The United States affords strong intellectual property rights.

Import/Export Restrictions, Currency Controls

There are no controls to limit legitimate currency exchanges or imports or exports.

Foreign Ownership, Nationalization, Privatization

There are limited restrictions on foreign ownership.

R&D Tax Credit

In a period of economic turmoil with an aging population, R&D activities are becoming increasingly important in the United States. The research tax credit is available on the federal and state level and has been available since 1954. It is now part of the Economic Recovery Tax Act of 1981 under which the United States Congress created the research credit

to encourage businesses to conduct more research. The credit has never been made permanent in the Internal Revenue Code (IRC), but has traditionally been extended with amendments. The temporary provision of the IRC provides a non-refundable credit for qualified research expenditures.

While virtually any business taxpayer can claim the credit, the most current data available, for 2005, shows 65% of the research tax credit available was claimed by large corporations. The greatest period of growth in R&D was from 1994 to 2000, when R&D expenditures rose from \$169.2 billion to \$264.4 billion, and the United States was the world's top producer of high-technology products.

Companies may also qualify for significant target incentives depending on location or industry. For example, in the pharmaceutical industry companies may qualify for an "orphan" drug credit. Other credits are available depending on geographical regions or economic zones.

The United States provides two fiscal incentives with regard to investment in R&D. Current expensing treatment for expenditures incurred in connection with the taxpayer's trade or business which represent R&D costs in the experimental or laboratory sense. Taxpayers can elect to capitalize and amortize R&D expenditures ratably over a period of not less than 60 months. Research and experimental expenditures generally include all such costs incident to the development or improvement of a product. However, only allocable depreciation related to R&D equipment may be currently deducted (as opposed to immediate deduction of the full cost of the equipment). The credit can be carried back one year or forward for 20 years.

In order for an activity to qualify for the research credit, the research must be conducted within the United States, Puerto Rico, or a US territory by a US taxpayer. An exception to this general rule is for members of foreign-controlled groups. If a foreign-based multinational company fully funds a US-based controlled foreign corporation's R&D activities and

enjoys the intellectual property rights resulting from the R&D, the corporation can, nonetheless, enjoy the R&D tax credit.

In addition, the taxpayer must show that it meets all the requirements of a four-part test to determine whether research qualifies for the credit.

The following exclusions describe activities that are not qualified research:

- Research after commercial production
- Adaptation
- Duplication
- Surveys, studies, research relating to management functions
- Internal-use software
- Foreign research
- Research in the social sciences, humanities, or arts
- Funded research

Internal-use software may be qualified research provided that it meets an additional three-part test.

What follows is detail on five key US states.

California

The State of California offers an income tax credit for increasing R&D expenditures.

The credit rate is 15% of the excess of current year research expenditures over a computed base amount plus 24% of basic research payments. Basic research payments are those made to a qualified university or scientific research organization for research performed in California pursuant to a written contract.

California also provides for an Alternative Incremental Credit that taxpayers may elect to claim in lieu of the Regular credit described above. The Alternative Incremental Credit uses a different fixed base percentage than the Regular credit and smaller credit rates of 1.49%, 1.98% and 2.48%. The Alternative Incremental Credit is generally elected by businesses that do not have current research expenses that exceed the Regular Credit base period. R&D expenses are deductible as current expenses, but taxpayers may elect to capitalize the expenses and deduct the costs over either five or ten years. The credits are not refundable; however, they may be carried forward and used against future tax liabilities until exhausted.

California conforms to the federal definition for qualified research expenses and their tax rules generally follow the US federal tax rules.

R&D incentives are available to all size and legal form of businesses, but the research should be conducted within California in order to receive the tax credit. 65% of qualified contract research expenses performed by a service provider and conducted within the State of California are generally allowable for the credit calculation.

There are no specific provisions for accelerated depreciation for capital assets used in R&D. Rather, the subject assets would be depreciated in accordance with California's normal depreciation provisions, which allow for accelerated depreciation.

There are no specific provisions to encourage the hiring of R&D personnel.

However, there are tax credits available at the state level for hiring certain individuals within targeted Enterprise Zones. There are also cash grants available at the state level through the California Employment Training Panel and local training grants available through Workforce Investment Boards. California does not have property tax incentives specifically targeted to R&D activities. Property tax abatements are used sparingly in California and would be negotiated at

the county or city level. There are over 40 Enterprise Zone, Targeted Tax Area and other jurisdictional designations in the state. These incentives are generally targeted to manufacturers; however, tax credits in these locations may also be eligible for non-manufacturing business operations. There are certain enhanced benefits available for biotechnology and biopharmaceutical companies.

Various incentives can be negotiated at the local level including: infrastructure grants, property tax abatements, sales/use tax abatements, and local wage reimbursements. Such incentives are normally much more difficult to obtain in California relative to other states.

Massachusetts

Massachusetts has an existing excise tax credit for increasing R&D expenditures.

The credit is divided into two categories:

- A 10% credit for any research expense incurred which would qualify for the Federal R&D tax credit.
- A 15% credit available to basic research payments for costs related to donations and contributions to research organizations such as hospitals and universities.

The R&D tax credit is available to any foreign or domestic corporation and applies to expenses, and not assets that are capitalized based on the increased volume of qualified expenditures over a base period amount. A sales tax exemption may also be available to qualified R&D corporations and manufacturers for qualified purchases of tangible personal property used in conjunction with R&D or used in manufacturing. In addition, Massachusetts provides an income tax credit to certain R&D companies based on any assets purchased for use in Massachusetts that have a useful life of four or more years. A company cannot deduct from its taxable income more than it actually spent on

R&D, and R&D expense deductions must be reduced by the amount of R&D credit that it generates that year. R&D credits are not refundable, but may be carried forward for 15 years, or indefinitely based on the rules set forth below. A company can use R&D credits to reduce its income tax due by offsetting 100% of the first \$25,000 of income tax and 75% of any remaining Massachusetts income tax due.

Massachusetts requires that the research be conducted within the state in order to receive the tax credit. 65% of qualified contract research conducted within the state is generally allowable as a component of the credit calculation. The intellectual property rights resulting from the R&D do not have to be owned by the entity carrying out the R&D activities.

There are no specific provisions for accelerated depreciation for capital assets used in R&D or for capital expenditures being deducted fully in the year incurred. Rather, the subject assets would be depreciated in accordance with Massachusetts' normal depreciation requirements. Massachusetts has a training grant program to encourage the training of employees provided the company meets the qualified criteria outlined under the program. Qualified training is eligible for a cash grant.

Massachusetts does not have property tax incentives specifically targeted to R&D activities. However, it provides exemptions from sales tax for certain purchases of personal property used in R&D. For qualified manufacturing corporations, Massachusetts provides an exemption from local property tax for all property of such qualified manufacturing corporation.

Massachusetts has increased tax benefits available for companies that locate or increase activities in certain cities and towns, Economic Target Areas. The corporation need not be a manufacturing or a business corporation primarily engaged in research and development.

Various incentives can be negotiated at the local level including: infrastructure grants, property tax

abatements, sales/use tax abatements, and local wage reimbursements.

New York

New York State has an existing Investment Tax Credit (ITC) for investment in qualified R&D property. The credit rate is 9% of the amount of investment in qualified property for corporate taxpayers and 7% for non-corporate taxpayers. The treatment of R&D expenses are similar to that of federal tax treatment whereby they are treated as a business expense. If R&D property qualifies for the ITC, the property is depreciable. If other costs are capitalized into the cost of the property, they would qualify for the ITC, but the costs could also be expensed.

New York requires that the research be conducted within the state in order to receive the tax credit. A contract service provider's research activities must take place in the state in order to take credit. Property leased to others does not qualify for the tax credit. The credit is based on investment in qualified R&D property placed into service in a given tax year and possibly wages and salaries of research personnel and the cost of materials. There are no specific provisions targeted to R&D capital expenditures being deducted fully in the year incurred.

The credits may be carried forward for 15 years from the initial tax year generated. If the business qualifies as a "new business" under the statutory provisions of the credit, a portion of the unused credit may be refunded.

There are no specific provisions for accelerated depreciation for capital assets used in R&D. Rather, the subject assets would be depreciated in accordance with New York's normal depreciation requirements.

There are no specific provisions to encourage the hiring of R&D personnel. There are tax credits available at the state level for hiring certain individuals within targeted Empire Zones. Further, for qualified emerging

technology companies conducting R&D in New York that are creating jobs, there is an employment credit of up to \$1,000 per employee.

There are also cash grants available through the New York State Department of Labor along with training grants that may be offered through local economic development agencies.

New York does not have property tax incentives specifically targeted to R&D activities. There are property tax credits available at the state level for businesses located within 85 targeted Empire Zones. Empire Zones offer a more enhanced version of the ITC and a related Employment Incentive Credit, which in combination can yield total tax credits of up to 19%. The tax credits in these areas are not directed toward any particular company size and are not differentiated by US versus foreign owned.

Various incentives can be negotiated at the state and local level including: infrastructure grants, property tax abatements, sales/use tax abatements, reduction in utility rates, and training funds. However, such incentives are normally difficult to obtain in New York relative to other states.

North Carolina

North Carolina has several income tax credits available for R&D expenditures. The R&D tax credits are based only on the amount of current year qualifying expenses and are available to all size and legal form of company; however, enhanced credit amounts are available to small businesses. Additionally, all businesses seeking to claim R&D tax credits must meet certain employment and environmental standards. The R&D tax credit applies to expenses, and not assets that are capitalized; however, there is a separate ITC for qualifying capital investments in real and personal R&D property.

Research has to be conducted within North Carolina in order to receive the tax credit. Contract research

conducted within the state is generally allowable as a component of the credit calculation. 65% of qualified contract research expenses are allowable for the credit calculation.

In addition to a credit for R&D expenses, there are separate tax credits for investments in real and tangible personal property that are targeted specifically to R&D and a limited number of other eligible activities. The credit for investing in qualifying facilities requires an eligible taxpayer to invest at least \$10 million in real property within a three-year period and create at least 200 new jobs within two years at an establishment located in an economically distressed county. The credit for investing in qualifying equipment in most areas requires the taxpayer to exceed a certain capital investment threshold during the taxable year in order to be eligible for the investment credit.

A company cannot deduct from its taxable income more than it actually spent on R&D. The amount of tax credit allowed varies as a percentage of qualified expenses depending on the county (favoring economically challenged counties), the amount invested in R&D (increasing percentage as the expenditure increases) and offers additional benefits for North Carolina university research expenses. All tax credits combined, including R&D credits in North Carolina, cannot exceed more than 50% of the taxpayer's income tax liability.

There are no specific provisions for accelerated depreciation for capital assets used in R&D. Rather, the subject assets would be depreciated in accordance with North Carolina's normal depreciation requirements. There are no specific provisions targeted to R&D capital expenditures being deducted fully in the year incurred.

There are job creation credits for companies engaged in R&D as well as several other targeted industries (manufacturing, wholesale trade, information technology, call centers). The incentive is an income tax credit for new job creation that ranges from \$750 to \$14,500 per job, depending upon the relative economic

strength and demographics of the county where the taxpayer creating the jobs is located.

The Customized Industrial Training program provides specialized training at no cost for new and expanding businesses (not limited to R&D) to help businesses maintain competitiveness through a highly skilled workforce.

There are no property tax incentives specifically targeted to R&D activities; however, a taxpayer seeking to establish a new R&D facility may be able to negotiate a reduction in its property taxes with the local taxing jurisdictions.

The amount of benefit available for several of the income tax credits in North Carolina is based on the economic strength of the county in which the business is located. Additionally, economically distressed and rural counties may be more likely to offer a larger property tax incentive or other non-tax incentives to attract an R&D investment project. North Carolina offers enhanced income tax credits for businesses in certain economically distressed counties and economic zones. Additionally, investments in such areas may be given priority for discretionary grant funding. The tax credits are not differentiated by United States versus foreign owned.

Various incentives can be negotiated at the state and local level in North Carolina including: cash grants or subsidies for job creation; employee training and capital investment; subsidized public infrastructure assistance; utility discounts; property tax reductions; and bond financing.

Texas

Texas does not offer a general R&D tax credit. Texas enacted a new "margins tax" and does not have a general corporate income tax. The margins tax is a gross receipts tax based on the total revenue of a company. R&D credits formerly existed, but were repealed under the new margins tax. To date, no

new R&D investment tax credit programs have been implemented under the new margins tax regime.

Texas does, however, offer other credit and incentive options for companies making investment in the state or creating jobs. These programs could technically be used in conjunction with R&D investments and include:

- Property tax abatements on real and personal property placed into service, including R&D equipment
- Sales/use tax rebates/exemptions on equipment placed into service in Texas by combining job creation
- The Emerging Technology Fund that awards cash grants to companies developing new and innovative products
- Credits against the new margins tax for companies investing in clean energy projects

Local cities may offer cash grants to companies investing in R&D activities in their jurisdiction. Texas incentives increase based upon the value of new investment and/or new jobs. An increase in investment or jobs over the previous year could increase an incentive package. New investment, jobs and wages are critical factors in receiving incentives.

There are no specific provisions for accelerated depreciation for capital assets used in research and development. Rather, the subject assets would be depreciated in accordance with Texas' normal depreciation requirements.

The new Texas Margins tax allows for companies to deduct cost of goods sold or payroll from the corporation's sales in the year incurred.

Job creation incentives are available in Texas and vary by jurisdiction. Wage levels, skill levels, and employee benefits packages are all considered for these incentives, which range from \$3,000-\$10,000 per

new job. There are cash grants available through the Texas Workforce Commission and local training grants available through local Workforce Investment Boards. The incentives are cash grants to qualified institutions offering the training to a qualified company. The incentive may range from \$300-\$1,000 per employee trained, depending on the type of training and job being created.

Texas does not have property tax incentives specifically targeted to R&D activities. However, property tax incentives are available for business investments in certain cases. Texas law may allow for property tax abatement of real and personal property for a period of up to ten years and up to 100% of the value. This incentive is negotiated between the local city and the company and is based upon the quality of the project. Texas maintains enterprise zone areas that offer more beneficial terms on incentives and local jurisdictions offer incentives in some cases based on location. The incentives are not differentiated by US versus foreign owned.

Various incentives can be negotiated at the state and local level including city, county and special purpose districts in Texas and may be in the form of: infrastructure grants, property tax abatements, sales/use tax abatements, and local wage reimbursements.



European Union

European Union Fiscal Incentives

European, national and regional governments want to stimulate a wide range of activities.

Grants and incentives are available to entities that invest in capital investments, research and development, training and employment, sustainability and international cooperation.

- Grants and incentives are offered in different forms, such as cash money, soft loans, free depreciation and tax incentives.
- Applications for benefits are submitted before the project is initiated and only costs within the project period mentioned in the application are eligible.

Eligible costs—depending on the programme—are capital goods, time and travel involved of human resources, consumables, patents and third-party experts. Anything related to commercial activities is not supported.

- Grants and incentives may be awarded through a tender procedure ('beauty contest') and most require reports (interim) and proof of accountability.
- A project can accumulate contributions from different grants and incentives programmes. The maximum amount (%) of subsidy that can be obtained for a certain project is fixed between 40-50% of the eligible costs. If the project receives substantial amounts of subsidy, then the European Commission needs to be notified.

Main Differences and Parameters

	Europe	National	Regional
Support amount	High €5 million-€15+million	Intermediate €100K-€10 million per company	Low €30K-€5 million
Procedure	Usually 6-12 months. Project start after grant approval	Usually 3-6 months. Project start after submission of application (in some cases pro-forma applications may allow a project start)	Usually 3-6 months. Project start after submission of application
Success	High return-high risk	High return-medium risk	Medium return-medium risk
Partners	3-15 partners from different member states	1-5 partners, preferably knowledge institutes	1-3 partners in region of applicant
Regulation	Very strict with regard to application and execution of the project	Strict in application, flexible after awarding	Flexible during application and after awarding
Awarding	Tender	Tender/open entire year	Tender/open entire year
Type	Cash	Cash and/or Tax	Cash
Publication	Results and general information disseminated on European level	Results and general information occasionally disseminated on national level	Results and general information mostly not disseminated

- Tax incentives are not always considered in the accumulation since tax is the prerogative of the individual member states.
- Grants and incentives can be obtained from regional and national governmental entities as well as directly from the European Commission. They are always based on governmental policies and can be clustered in a number of subjects.

EU Budgets for Potential Grants and Incentives

Capital Expenditure

- Regional Development is mainly funded through the European Regional Development Fund (ERDF).
- The budget totals €347 billion over a period of 2007-2013.
- The budget is allocated to regions according to their economic performance related to the EU average.
- Although the funding is European, the funding is managed by the member states or, in some cases, by the regions.
- Support intensity will vary from 10% in the most developed areas to 50% in the less developed areas.
- Projects relate to capital expenditures, job creation or infrastructure.

7th Framework Programme for Research and Development (FP7)

- The European Commission channels its incentives through the 7th Framework Programme for Research and Development (FP7).
- Total budget of €50.5 billion 2007-2013.
- Typical support intensity is 50% by means of a cash grant.
- The program is thematic and can be applied for through calls for proposals, usually once per year.

Theme	Budget
Health	€6,100 million
Nanosciences – technologies materials & new production materials	€3,475 million
Transport (incl. aeronautics)	€4,160 million
Food, Agriculture & Biotechnology	€1,935 million
Energy	€2,350 million
Socio-economic sciences & humanities	€623 million
Information & Communication technologies	€9,050 million
Environment	€1,890 million
Security	€1,400 million
Space	€1,430 million

EU Budgets for Potential Grants and Incentives

Competitiveness and Innovation Framework Programme (CIP)

- The Competitiveness and Innovation Framework Programme (CIP) aims to encourage the competitiveness of European enterprises in particular SMEs.
- Total budget of €3,621 billion for the 2007-2013.
- Typical support intensity is 50% by means of a cash grant.
- The CIP programme is complementary to the FP7 programme.

Sustainability

Programme	Budget
Entrepreneurship and Innovation Programme (EIP)	€2,170 million
Information Communication Technologies Policy support Programme (ICT PSP)	€724 million
Intelligent Energy Europe(IEE)	€724 million

- The European Commission is promoting a strategy for a more secure and competitive energy market in Europe with a goals of reducing greenhouse gas emissions by 20%, the use of 20% renewable energy sources in energy consumption and a 20% reduction of EU energy use by 2020.
- The strategy identifies wind, solar, bio-energy, CO2 capture, European electricity grid and nuclear energy as industrial initiatives.

Established a financing instrument for the development of projects in the field of energy in the EU. The call for 2009 included:

- Gas and Electricity Infrastructure (interconnections) projects: €2365 million
- Offshore Wind Energy (OWE) projects: €565 million
- Carbon Capture and Storage (CCS) projects: €1050 million
- Maximum of 50 % of eligible costs
- Appreciation of:
 - Technical adequacy of the approach
 - Soundness of the financial package for the full investment phase of the action

European Union Indirect Taxes

Now comprising of 27 Member States, the EU was the original implementer of a VAT system. In place for over 30 years, it has consistently developed to deal with new challenges (the Internet as an example) and has been used as the basis for VAT systems all over the world.

While all countries must follow the scope of EU VAT legislation when implementing domestic rules, Member States have successfully used measures to stimulate growth and attract new business.

the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 12.5 million (12.5% of the population).

There are a number of reasons for this increase. One is that the public sector has become a more important part of the economy. Another is that the public sector has become more efficient. A third is that the public sector has become more attractive to workers. A fourth is that the public sector has become more diverse.

The public sector has become a more important part of the economy. In the 1990s, the public sector accounted for 12.5% of the UK's GDP. This was an increase from 10.5% in 1980. The public sector has become a more important part of the economy because it has become more efficient and more attractive to workers.

The public sector has become more efficient. In the 1990s, the public sector's productivity grew at a faster rate than the private sector's. This was due to a number of factors, including the introduction of new technologies and the implementation of new management practices.

The public sector has become more attractive to workers. In the 1990s, the public sector's wages grew at a faster rate than the private sector's. This was due to a number of factors, including the introduction of new benefits and the implementation of new recruitment practices.

The public sector has become more diverse. In the 1990s, the public sector's workforce became more diverse in terms of age, gender, and ethnicity. This was due to a number of factors, including the implementation of new recruitment practices and the introduction of new benefits.

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Conclusion

When it comes to innovation and technology, governments may have several goals. They may want to encourage the formation or growth of entrepreneurial ventures that create new technologies capable of competing on a global stage. (In many cases, a government targets particular technologies such as medical instruments, renewable energy, or high-performance computing.) Governments may also want to encourage their existing indigenous enterprises to take steps to modernize their business processes and technology infrastructures.

Across both broad goals, there are overlaps in the economic and policy elements that can help a country progress toward each goal. The first area of overlap is to develop robust markets where multiple sellers pursue customers, and customers are free to make buying decisions that meet their price/performance/quality requirements. This may sound obvious, but in many immature markets, there is a dearth of qualified and innovation-minded sellers to respond to customer demand.

Government initiatives that encourage new entrants focused on innovative products or services have an additional, bracing effect of putting pressure on existing market participants to compete, through modernization and innovation. These incumbent players will respond only when they feel the consequences of their decisions; if they continue to lose money but know the government will rescue them anyway in order to preserve jobs, they will have little motivation to compete or innovate.

Another area of overlap is the use of R&D tax credits to overcome the spillover effects of R&D and loss of control of innovations to competitors. Both start-ups and existing companies benefit from such tax credits.

In contrast to the areas of overlap, there are other areas where individual policies will have different levels of influence on start-ups versus incumbents. For instance, government initiatives to assure that start-ups have the needed capital to fund themselves through their formative, pre-revenue and pre-profit stages are less relevant to established enterprises. They may also need government support to make sure they have the capital to underwrite the cost of IP licensing and patent

submissions. Finally, the private investors who provide some of that capital need healthy exit opportunities to recoup their investment.

Incumbent companies, for their part, more typically face the challenge of modernizing in order to be competitive internationally. They will respond better to incentives such as investment tax credits for information technology, including the full cost of implementation and change management. For companies above a certain size, linking funds to performance matters a lot: The existence and

Some policies and incentives influence all businesses equally. Others affect start-ups and incumbents quite differently. A country that understands its economic profile, and designs the strategy to suit that profile, raises the odds of success.

continuation of subsidies to cover loss-making operations will be most effective at yielding modernization results when they are contingent on year-over-year improvements on benchmarks considered most important by the government—productivity, share of revenue from products introduced in the past two years, and so on.

Each country has distinctive assets, deficits, and industries at various stages of economic maturity. All of these shape the environment in which government policies and incentives will play out. Countries that understand their particular economic profile, and design the right strategy to suit that profile, stand to raise the odds of success in fostering innovation.

Glossary of Tax Terms

Accelerated depreciation: Accounting method of writing down a fixed asset so that the amount taken each year is higher during the earlier years of an asset's life. This encourages businesses to purchase new assets.

Immediate deduction of capital expenditure: Allows companies to write off the entire expense of an asset in just one year.

Incremental scheme: Tax incentives only for increments in investments in R&D above a defined baseline.

Investment tax credit: Permits companies to deduct a share of certain investment costs from their tax liability, at the time the asset is purchased, in addition to the normal allowances for depreciation. Often used to **stimulate demand for high-tech equipment.**

R&D tax credit: A cash credit for expenses incurred in designing, developing, or improving products, processes, techniques, formulas, inventions, or software. Usually applies to businesses of all sizes.

R&D tax deduction: An offset of income generated by the same activities.

Tax holiday: A temporary reduction or elimination of a tax, usually for a period of years.

Tax incentive: A generic term for a variety of government-sponsored initiatives, including credits, deductions, holidays, and accelerated depreciation, that aim to stimulate a certain type of business activity.

Super deduction of R&D expense: Allows companies to deduct more (say, 150%) than the actual cost of R&D activity.

Social tax reduction: Lowering of taxes on the payroll of scientists, engineers, or other qualified technology workers.

Volume-based scheme: Tax incentives that cover all qualified investments in R&D, not just those above a defined baseline.

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