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Innovative Sweden

A strategy for growth through renewal

REGERINGSKANSLIET

The Ministry of Industry, Employment and Communications

The Ministry of Education

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Foreword

Since 1994 the environment for Swedish growth and competitiveness has been improved through measures in many areas – forceful restructuring of the budget, broad investments in education, an offensive competition and trade policy and a modern family policy, to give a few notable examples.

Today the Government is devoting intensive efforts to growth issues, since growth is the key to preserving and improving welfare. The crucial short-term challenges are to put more people in jobs and to increase the number of hours worked. At the same time, we must manage to invest in growth for the future by promoting the increased productivity that will make welfare possible in Sweden in the longer term.

The "Innovative Sweden" strategy is about the long-term promotion of growth. Few countries are in as good a position as Sweden to benefit from the ongoing process of internationalisation and the emergence of the knowledge-based economy. Our tradition of openness and our broad knowledge base have given us a head start over many other countries. We face the future from a good starting point.

But we can not sit back and assume that success will be automatic. Others are making an effort to catch up and overtake us. The world is changing and the political tools that were successful until so recently no longer always have the intended effect. We must find new ways to reach our most important goal: sustainable growth and welfare for everyone everywhere in the country.

In Sweden there is overwhelming agreement not to meet the growing international competition with lower wages and basic production. We know that education and research play an ever-increasing role in economic growth. The capacity for renewal is crucial. In order to realise Sweden's potential for growth, we need to enhance our ability to generate knowledge and to translate it into sustainable growth and new jobs.

A good climate for innovation establishes conditions in which knowledge and enterprise will lead to new goods and services, or new methods of production. Innovation is frequently based on research and development, but it is often also a matter of recombining existing knowledge into new patterns. No one can foresee which enterprises will grow in the future. This strategy aims to set an offensive agenda that highlights some priority areas where we in Sweden can improve the conditions for innovation and guard our lead. The strategy takes a broad approach, even if the emphasis is mainly on issues in the education, research, trade and industry policy areas.

Neither market forces nor policies alone can create more innovation. A cohesive policy aimed at facilitating renewal requires cooperation and interaction between people, enterprises, the education system and the public sector at national, regional and local levels. As circumstances differ from place to place, it is important to take local and regional perspectives into account. In addition, active efforts are needed at international level, not least in connection with the EU's endeavours to achieve the Lisbon strategy target of making Europe the world's most competitive economy by 2010.

Our vision is for Sweden to be Europe's most competitive, dynamic and knowledge-based economy, and thus one of the world's most attractive countries for investment by large and small knowledge-based companies.

The "Innovative Sweden" strategy, which stakes out a path for further work, has been drawn up under our leadership by a working group comprising representatives of the Ministry of Industry, Employment and Communications, the Ministry of Education and Science and the Ministry for Foreign Affairs, in cooperation with other relevant ministries. In the course of the work, the group has canvassed the views of the business sector and the trade union movement, as well as representatives of the research and education community and public agencies. The strategy is intended for gradual implementation in such forms as Government measures set out in bills presented to the Swedish Parliament and instructions to central government agencies. Consultation and contacts with different sectors of society will continue during the implementation phase.

Together we will maintain and extend Sweden's advantage.

Leif Pagrotsky
Minister for Industry and Trade

Thomas Östros
Minister for Education and Science

Sweden has a good starting point...

SWEDEN TOPS THE RANKINGS

Few countries today are in as good a position as Sweden to do well in the knowledge-based economy and benefit from internationalisation. In leading international surveys of conditions for business, innovation and future growth, Sweden ranks first or among the best in the world.

In the early 1990s, Swedish business and the Swedish economy were in serious trouble. Unemployment was increasing dramatically and many companies were failing. After extensive and often painful measures to put the country's economy back on a sound footing, along with major initiatives to raise the level of skills in the labour force, the Swedish economy has grown well over the past decade. During the recovery, our economic growth rate has been closer to the high figures shown by the United States than to general EU levels. In the difficult years, there were some who rejected the Swedish model and dismissed the ability of Swedish business to compete. However, both Swedish labour and Swedish enterprises have displayed an impressive capacity to adapt to the new conditions in the world market and now Sweden is a leader both in new industries and in the use of new technology.

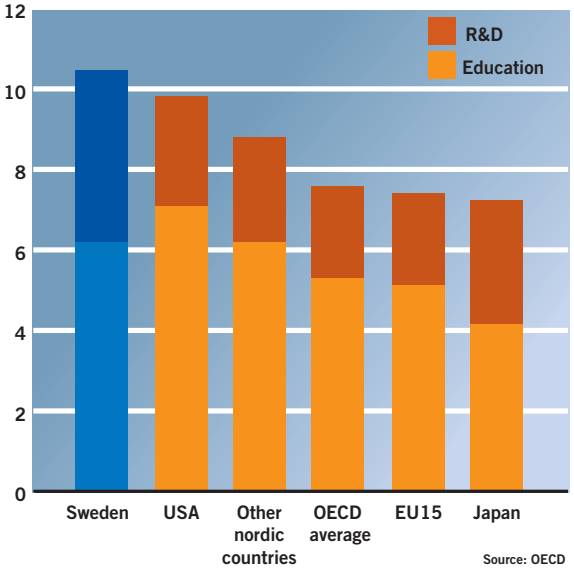
Sweden's major initiatives in education, skills development and research and development, combined with substantial IT investments and IT initiatives aimed at including all members of society, have created a favourable climate for knowledge-based enterprises. Sweden is one of the countries that have attracted most international investment over the past decade and its economy is one of the best managed in Europe. Its strong public finances and measures in labour market and other policies have helped to bring about low inflation and hence low interest rates.

Sweden's social security systems and its tradition of consensus between the social partners have put us in a good position to manage structural changes. Historically, far-reaching structural changes have been made in a spirit of consensus between the social partners born of a shared insight into the necessity of maintaining a competitive business sector. Well-functioning social security systems, combined with good opportunities for skills development, increase the prospects of achieving change without excluding significant groups from the labour market. Sweden's work and organisational culture, moreover, is characterised by a non-hierarchical structure that enables ideas from people at different levels of an organisation to be used and developed within the existing organisation.

WORLD-LEADING INVESTMENTS IN KNOWLEDGE

Sweden's investments in education have long been among the largest in the world relative to the size of the economy. In 2001 our total spending on research and development (R&D) amounted to 4.3 per cent of gross domestic product (GDP), which is the highest level in the OECD. Private and public sector invest-

Expenditure on education and R&D in 2001, per cent of GDP.

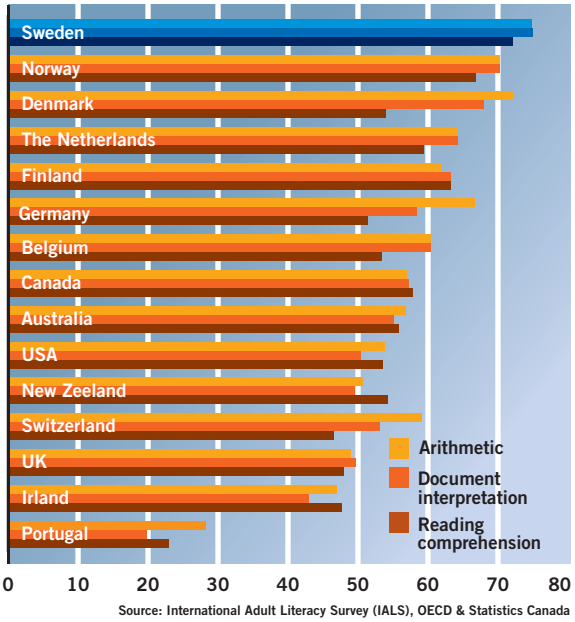


ments in R&D are among the highest in the world as a percentage of GDP.

A HIGHLY SKILLED LABOUR FORCE

Due in part to substantial investments in education over a long period of time, Sweden has a highly skilled population. This is evident in international measurements of basic knowledge, formal education and skills development in the labour force. International measurements also show that relatively good use is made of the knowledge and skills of the labour force and that opportunities for further education and training are well developed in Sweden. According to the OECD, by international comparison, Sweden has the highest proportion of the labour force in knowledge-intensive jobs.

Proportion of the population aged 16-64 with skills in arithmetic, document interpretation and reading comprehension, 1994–1998, per cent.



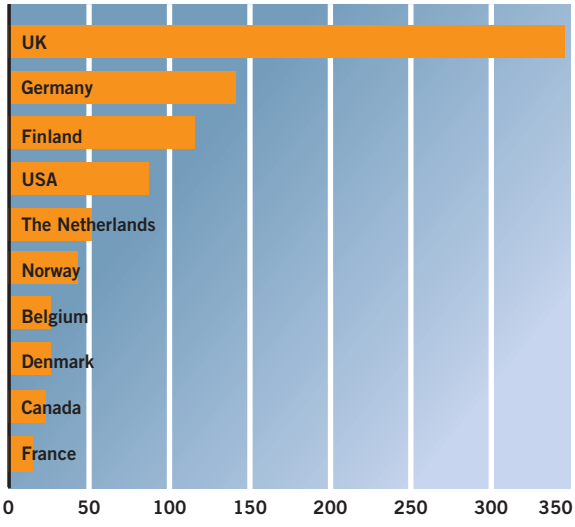
Source: International Adult Literacy Survey (IALS), OECD & Statistics Canada

ONE OF THE WORLD'S MOST INTERNATIONALISED ECONOMIES

Sweden is one of the world's most internationalised economies. Approximately 60 per cent of all goods produced are exported. In the Swedish manufacturing sector, nearly three quarters of the labour force are employed by companies with international operations.

The international dimension of the Swedish economy has grown much stronger in recent decades, as is evident, for example, from the fact that exports as a share of Swedish GDP rose from 29 per cent in 1980 to 44 per cent in 2003. Similarly, Swedish-owned groups increased the proportion of their staff employed abroad from 45 per cent in 1990 to 64 per cent in 2001. The biggest international expansion has occurred in the service sector, which frequently has strong ties to Swedish manufacturing.

Foreign direct investment in Sweden, 1999-2003, SEK billion.



Source: The Riksbank 2004

Over the past ten years, foreign companies have made substantial investments in Sweden. Since the mid-1990s, the number of people employed by foreign-owned companies has risen from around 300 000 to just over half a million. Foreign investments in Sweden are frequently made in high value-added businesses in which R&D plays a significant part. On average, foreign-owned companies have more production intended for export, higher returns on equity and

higher productivity than Swedish-owned companies.

The inflow of foreign direct investment to Sweden is more or less matched by Swedish investment abroad. In the course of the past decade (1994–2003), Sweden has had an inward investment flow of SEK 1 409 billion while the outward flow of Swedish investment over the same period came to SEK 1 320 billion.

Sweden has a good international reputation as a knowledge nation, a reputation based on both scientific successes and a strong international presence of known, well-established companies. In recent years Swedish successes in information and communications technology and biotechnology have attracted great interest from foreign researchers and investors. Swedish companies and the Swedish research community have good international networks. They are very active in international research collaboration and interesting partners for cooperation in strategic knowledge-building alliances. These cooperative activities and alliances enable Swedish researchers in companies, institutes and academic institutions to interact with top players in international R&D. Sweden is among the foremost participants in the EU framework programme for research and technical development and it is also one of the top recipients of funds from the framework programme.

One asset in the increased level of internationalisation is the great diversity of geographical and cultural origins among Sweden's population. More than a tenth of the population was born abroad but has lived in Sweden for five years or longer. Approximately one in four people under the age of 40 has a non-Swedish background. In Western Europe, only Luxembourg and France have higher proportions of their population born abroad. Moreover, by international comparison, Sweden's inhabitants generally have a good knowledge of other languages.

A PUBLIC SECTOR WITH ADVANCED SERVICES

By comparison with other OECD countries, Sweden has a large public sector. It accounts for a third of all jobs in the country and is distinguished by high knowledge intensity and high levels of work intensity. Half of all university graduates work in the public sector. In a historical perspective, long-term strategic interaction between the business sector and the public sector has been crucial for the emergence of knowledge-based activities. This interaction has played a very significant role in Sweden's industrial development and international competitiveness. This is true especially of telecommunications, energy and railways.

The Swedish administrative system is of a high international standard and is less bureaucratic than in most other countries. For example, Sweden has well-developed public records, which have helped make the country interesting for cutting-edge research in the life sciences. The term "life sciences" generally refers to research areas that contribute to increased understanding of life processes. This includes medicine, biology and biotechnology. Sweden is also one of the international leaders in expanding information infrastructures to cover the entire country and, in addition, tops the tables in information technology and Internet use in all sectors of society. Sweden is well to the fore in the development of public e-services for enterprises and the general public.

A DIVERSIFIED BUSINESS SECTOR WITH HIGH KNOWLEDGE CONTENT

By international comparison, Sweden has high skills levels and competitiveness in many industries. Some can look back on a long history, such as the forestry, paper and pulp industry, vehicle manufacturing, mining, the steel industry, telecommunications and pharmaceuticals. These have long been the backbone of Swedish exports. Other industries have grown out of new technological advances or the encounter between new and old activities, a major driver being the demand for renewal to promote greater competitiveness in the old industries. Sweden lies well to the fore in a dozen or so important new areas, such as information technology, microelectronics, biosciences, equipment and assistive devices for use in health care

and care of the elderly, and vehicle and traffic safety. Sweden is also a leader in delivering holistic solutions in the environmental and energy area and displays top-notch skills and creativity in areas such as music, design and food.

Sweden is internationally known for its advanced consumers, who rapidly take to new technology and new products. As a result, a number of companies use Sweden as a test market. Demanding customers are a powerful motor for the development of new goods and services.

Growth is frequently associated with newer industries. In absolute terms, however, it is Sweden's traditional basic industries and engineering industry that create the most value growth. By virtue of their size, these industries will continue to dominate Sweden's economy for the foreseeable future. Growth will depend on the interplay between old and new within and between different industries and technologies.
Sweden has a good starting point. Nevertheless, there are a number of global trends that will affect conditions for sustainable growth and bring new challenges – but also new opportunities. These trends are likely to become stronger and more prominent in the future.

...but conditions are changing

As a result, we will be increasingly required to further concentrate our strengths and bolster areas in which Sweden is or may become vulnerable in the future.

THE ECONOMY IS INCREASINGLY GLOBAL

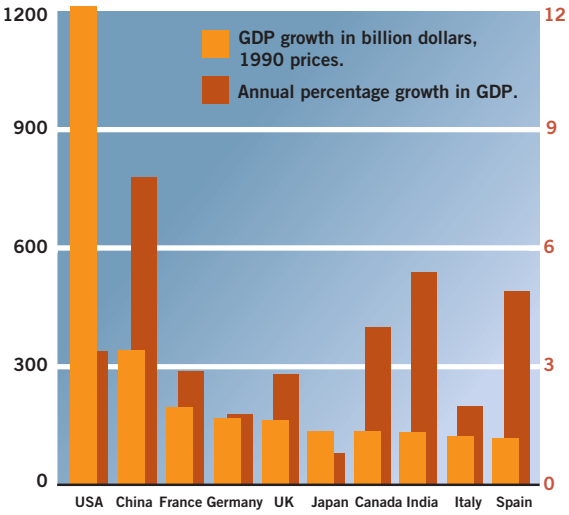
The process of globalisation, with the worldwide trade, investment and development of new technology it involves, is leading to people, capital, goods, services, information and technology moving across regional and national borders faster and at lower cost than ever before. The pace of change is accelerating and geographical restrictions on both demand and supply are declining in importance. As a result, competition is growing and the need for rapid renewal is increasing dramatically.

Investments by companies, including their investments in R&D, are becoming more and more mobile internationally and to a greater and greater extent are seeking the regions and countries that offer the best conditions. While the cost scenario plays a part, particularly in selecting locations for simpler forms of production, studies have shown that stable rules, access to growing markets and the availability of personnel with appropriate skills are key factors when choosing where to set up business. Attractive knowledge environments in concentrated geographical areas are assuming increasing significance for the localisation of investments.

At the same time, new opportunities are opening up as new and dynamic markets emerge with new partners for trade and cooperation. Many of these are close at hand: the Baltic Sea region with its new EU member states and Russia. Other countries enjoying rapid growth and great trade potential are China, India, Iran and South Korea, as well as Brazil and Mexico.

Sweden is a small country and is dependent on exports. Consequently, it is of the utmost importance that we continue to work for open international trade, particularly in the domestic European market. The enlarged EU offers potential for increased trade for our enterprises, a potential that should be exploited. By working for clear, simple rules in the internal market we create a large domestic market that provides better prospects for the business sector in Europe to assert itself in the rest of the world.

GDP growth and annual percentage growth in real GDP in the ten countries with highest absolute GDP growth, 1996-2001.



Source: UN

THE ECONOMY IS INCREASINGLY KNOWLEDGE-BASED

The importance of unique products and a higher knowledge content in production is constantly increasing. Standardised and labour-intensive operations are facing elimination or transfer to countries where costs are lower. More and more, our competitive edge will consist in a good provision of knowledge, product renewal, efficient production processes and a flexible and effective working organisation. This means that more is required of the labour force, in terms of skills, mobility and capacity for change.

This development is accompanied by the growing sophistication of consumer demand. Apart from products with a high knowledge content, demand is now steadily growing for services that are connected with these goods in one way or another. To succeed not just in developing and delivering a certain product, but also in adapting it continuously to demand and supplementing it with various forms of services, requires an ability to combine industrial expertise with systems thinking. This has been one factor encouraging large corporations to merge and redefine their core activities. In a parallel process, smaller knowledge-based enterprises are acquiring increasingly important roles as specialist suppliers and knowledge partners for the large companies.

The development of new technology changes the basic conditions for knowledge generation and value creation. The most far-reaching example, perhaps, is information technology, which affects production processes and productivity in all industries. Other areas undergoing technological revolutions are biotechnology, materials technology and nanotechnology. These shifts in technology, too, cut across research disciplines and business areas.

CALLS FOR SUSTAINABILITY ARE GROWING

In Sweden, as in other countries, there is a growing awareness that the development of society cannot be achieved at the expense of future generations being able to support themselves and enjoy a good quality of life. Sustainable growth implies economic growth without jeopardising the ecosystems on which we depend and while protecting human resources. One of the great challenges is to create conditions that allow prosperity in all countries while avoiding any resultant overexploitation of the earth's resources. A great deal of work is being done to ensure that production and consumption are sustainable in ecological, economic and social terms. Measures to make environmentally driven growth possible have high priority, partly so as to enable the industrialisation of the developing countries to be adjusted with environmental thinking as early as possible. All these processes are significant drivers of innovation and development.

The nations that lead the way in the transition to a sustainable society have much to gain. Agriculture and forestry and associated industries are a major asset for Sweden here, as is our country's great expertise in environmental technology. The major opportunities for growth lie in a global market.

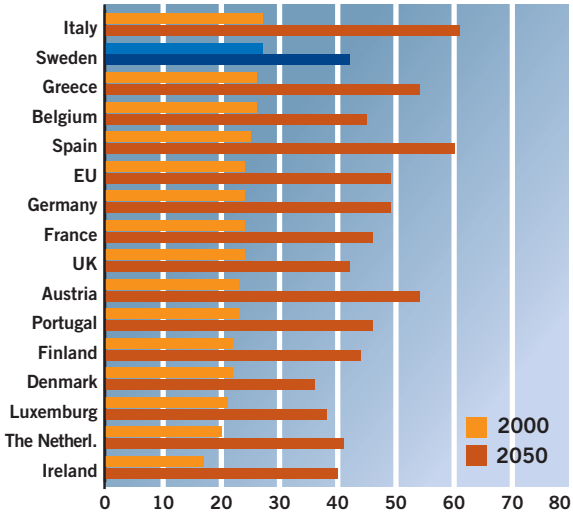
Sweden is also affected to an ever-increasing extent by what is happening in other parts of the world. International threats to security, environmental disasters and the depletion of natural resources have made society more vulnerable. These great challenges provide powerful incentives for developing new solutions drawing on new knowledge and technology, and hence also for innovation.

THE POPULATION IS AGEING

Sweden, like most other European countries, has a high proportion of older people in its population and, partly as a result of this, fewer and fewer people will

Dependency ratio for EU countries in 2000 and forecast for 2050, per cent

Dependency ratio: population over 65 as a proportion of the labour force aged 16-64.



Source: Eurostat

have to support more and more. However, we will face these challenges earlier than many other countries. Around 2010 the large groups of people born in the mid-1940s will be reaching the age of 65, retirement age in Sweden.

Twenty years later it will be time for those born in the 1960s, an even more numerous group, to retire. Combined with a general increase in life expectancy, this means that the dependency ratio will rise continuously until 2040. This situation will require a great deal in terms of higher labour force participation and greater renewal and productivity to enable us in Sweden to manage our welfare requirements in the long term. A larger proportion of older people in the population poses new demands, not least for public services in the health and care sectors. Information technology is a necessary support in making activities more effective and efficient and remedying future staff shortages in these areas. Since the growth of the older sector of the population is not solely a Swedish phenomenon but is occurring in many other countries, this development also opens up new business opportunities based on the lifestyles and purchasing power of older people.

NEW DIVISION OF ROLES BETWEEN INTERNATIONAL, NATIONAL AND REGIONAL LEVELS

The conditions for both regional development and dialogue between national and regional levels have changed. Previously, considerably more issues could be decided within national boundaries. Now, globalisation links the world's economies together. One consequence of this is that even relatively small enterprises focusing on the domestic market are now competing to a greater extent directly in a global market, since their clients are extending their international contact points and supplier networks. At the same time, the significance of local and regional environments is growing, as geographical proximity is necessary for meetings and communications between people developing, conveying and using knowledge and technology. While globalisation therefore weaves us into a worldwide network, local and regional networks are growing in importance. A recognition that this is the case has led to many local and regional initiatives for knowledge-based business development proceeding from local and regional conditions.

Alongside the increasing globalisation of the economy, there is a trend towards greater international political cooperation. The development of the EU is an obvious example, which includes elements of supranational decision-making. This changes the environment for political work. Issues that could previously be decided at national level must now increasingly be dealt with by regional, national and international levels in close collaboration.

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An innovation strategy for Sweden

To date, Sweden has succeeded in managing these global trends well and better even than many of the countries with which we compete. Over the past ten years, our growth has exceeded both the EU and OECD average. Our GDP per capita is the world's eighth highest. The trade surplus today is the highest on record, as is the surplus on the current account. Despite the fact that Swedish enterprises employed people in low wage countries in the 1990s, domestic demand for highly educated labour has continued to increase. Year after year, we rank as the world's foremost IT country, and when the EU rates innovation capacity, Sweden holds a leading position.

But changes tend to accelerate, and competitive pressure continues to increase. In the Lisbon strategy, Sweden and the other EU countries have welcomed these global changes and drawn up guidelines for achieving greater competitiveness and sustainable growth. Although Sweden is in a good position both to realise the Lisbon strategy and succeed in a broader international perspective, we cannot rest on our laurels. Instead, Sweden needs to actively exploit its advantage and come to grips with the challenges of the future. Rapid global developments give rise to a number of broad challenges, which a Swedish innovation strategy must meet:

- Investment is becoming increasingly mobile internationally
- International competition is getting tougher
- The public sector is facing new demands
- Initiative and skills are growing in importance

These challenges make it more important than ever to boost Swedish society's capacity to renew itself. The knowledge content of production must continue to increase. If Sweden is to remain in the forefront and lead development, copying and modelling itself on others will not be sufficient; it is necessary to create new ideas – to be innovative.

Innovation is the major source of productivity improvement in the long term and hence of growth and prosperity in Sweden. Innovation means that knowledge is translated into new products – goods or services or combinations of the two. Innovation can also consist of new methods of designing, producing and marketing existing products. The concept is used for both the creative process and the outcome.

To build a firm foundation for a sound innovation capacity in the business and public sectors, a strong, specialised knowledge base is needed. Innovations enable enterprises to compete successfully on international markets. Innovations also generate new and better ways of providing for the needs of society. For knowledge to be built up and used to create value, it is essential that people's skills are harnessed and that their capacity for initiative is made use of. The Innovative Sweden strategy therefore focuses on four priority areas for action and initiatives:

- Knowledge base for innovation
- Innovative trade and industry
- Innovative public investment
- Innovative people

AN INNOVATIVE SOCIAL CLIMATE

Building on Sweden's strengths and dealing with weaknesses and problems on the basis of changed conditions in the world around us is not something that can be managed by the Government on its own. The interplay between public and private interests therefore needs to be strengthened. Promoting innovation is largely about encouraging dialogue and interaction between different actors in society. The common knowledge resources of this country need to be developed and turned into new products and jobs, our interaction with the rest of the world can be intensified and people's will and ability to try new things should be further encouraged. This requires a commitment from many actors in Swedish society. These efforts should also be strengthened through vigorous cooperation with actors in the world around us, not least in the EU.

THE FOLLOWING VISION SHOULD BE THE GUIDING PRINCIPLE FOR THESE JOINT EFFORTS:

Our vision is for Sweden to be Europe's most competitive, dynamic and knowledge-based economy, and thus one of the world's most attractive countries for investment by large and small knowledge-based enterprises. World-leading knowledge will flourish in a number of priority research areas. Well-developed interaction between the research community, the public sector, industry and trade unions will guarantee the large-scale transformation of knowledge into goods and services. Both traditional and new industries will be permeated by the capacity for renewal. Business product development will be extensive and rapid and innovative people will see to it that both existing companies and the new emerging companies grow. Public investment will be an engine for innovation and growth. Sweden will have the world's highest educational level, it will be best in the world at making use of the skills of its population and it will have a working environment that encourages women's and men's initiative and skills development. The points of contact with the surrounding world and between the various sectors of society will be well developed. Swedish society will combine economic development, social welfare and cohesion with a good environment.

Knowledge base for innovation

INVESTMENTS ARE BECOMING INCREASINGLY MOBILE INTERNATIONALLY

Globalisation has led to investments in entrepreneurship and research becoming increasingly mobile between countries and regions. The development of new knowledge and innovations is also increasingly taking place in partnerships between research organisations and enterprises in different countries.

For Sweden and Swedish regions to be attractive places for people and enterprises to work in, a strong knowledge base and well-defined research and innovation environments with well-developed international contacts will be necessary. A strong, specialised knowledge base is also fundamental to the three other areas of the strategy – an innovative business sector, innovative public investment and innovative people.

ENSURING THAT SWEDISH EDUCATION AND RESEARCH ARE OF WORLD CLASS

A fundamental condition for Sweden to be able to continue to compete successfully in the knowledge-based economy is that Swedish research and education are of world class. To maintain the strong international position of Swedish research, continued efforts need to be made in research and postgraduate education.

Greater international cooperation brings greater opportunities to strengthen Swedish education and research while placing stronger demands on Swedish higher education institutions and research environments to be internationally competitive. The EU framework programme for research and technological development, for instance, and the Bologna process, which deals, for example, with harmonised degree structures and quality issues, have been instrumental in strengthening European educational and R&D cooperation. It is important that student and teacher exchanges also include countries outside Europe and that the Swedish research community cooperates with top-class environments throughout the world.

Research conducted in Sweden is open to the multitude of issues existing in society and plays a major role in the development of a knowledge-based economy. The state has special responsibility for financing basic research, where the issues to be studied are decided by researchers. The state also funds research, addressing the knowledge needs of the business sector and society as a whole. New growth industries and radical renewal in existing industries arise out of close collaboration between the business sector and universities and higher education institutions in such areas as information technology, biotechnology and materials research.

Many innovations and technological discoveries have their origins in academic research. Well-functioning interaction between universities, higher education institutions, research institutes and the business sector is therefore vital. This interaction also contributes to high research standards and to the creation of interesting environments for Swedish and foreign researchers and enterprises.

A major proportion of the Swedish research profession will reach retirement age in the next 10–15 years. A large-scale expansion of research education has been undertaken in recent years to meet the greater demand for research graduates, both in higher education and society as a whole, and to ensure a continued supply of outstanding researchers.

For many years, extensive investments have been made in the Swedish education system and higher education in particular has been considerably expanded. It is vital to continue improving educational standards, from pre-school to university level. It will be crucial for future Swedish

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competitiveness that there are enough people with technical and scientific skills. A large proportion of the major expansion of higher education in recent years has taken place in science and technology. This has led to a significant increase in the number of higher education graduates in these areas. To enable this development to continue, there must be sufficient numbers of interested applicants with good basic skills from upper secondary education. Greater efforts are therefore being made to attract interest in technology and science. To increase the recruitment base, efforts to develop educational programmes and make them more attractive must continue.

The education system must respond to the need for continual upgrading of knowledge and skills in a working environment that is changing more and more rapidly. Lifelong learning over and above formal education is extremely important for society's innovative capacity. Technological development and rapid changes in organisational methods make it less likely that education early on in life will suffice throughout people's careers. A world-class education system must therefore encourage and prepare the way for lifelong learning. Within the framework of the European Social Fund Objective 3, programmes include support to employee skills development over the period 2000–2006. An evaluation has shown that these initiatives have had positive effects for the people and workplaces participating in them, in terms of enhanced professional skills and greater propensity for change.

In an international perspective, Sweden has a relatively high educational level. The proportion of well-educated people is higher in the public sector than in the business sector. Within the business sector, there is marked difference in educational level between large and small enterprises. In enterprises with fewer than fifty employees, the proportion of employees with university-level education is lower than in enterprises with more employees. During the 1990s, these gaps in educational level widened. The pattern is the same with regard to staff training. Those who are already well educated participate in training schemes more frequently than others. Public sector employees attend more courses than private sector employees and those in large enterprises receive more training than those in smaller enterprises. There are indications that are our efforts in further education that have made us world leaders are slackening.

The increasing internationalisation of knowledge development makes it important for Sweden to offer students and researchers exchange programmes with the rest of the world. There has been a considerable increase in the number of exchanges in recent years, but international student and research mobility are still hampered by differences in, for example, degree structures or credit and grading systems.

TO ENSURE THAT SWEDISH EDUCATION AND RESEARCH ARE OF WORLD CLASS, EFFORTS ARE NEEDED TO:

Create a school that gives everyone basic skills

To ensure a high educational level of the population, it is important to continue large-scale, comprehensive and long-term investments in education at all levels. Pre-school, which is the start of lifelong learning, will be developed. In 2005 a major programme will be initiated to enable more pre-school teachers and child carers to be employed in pre-schools, so as to reduce the size of children's groups.

To enable more pupils to achieve the targets and to ensure that all schools are good schools, a programme is being implemented for higher standards in schools. At the same time, initiatives to employ more teachers and other specialists in schools are being pursued.

It is also important that greater opportunities are available to allow everyone to achieve a full upper secondary school education. Upper secondary school needs to be developed so that more pupils achieve the common objectives. To enable schools to improve their capacity to respond to modern society's

demands for broad knowledge combined with a high degree of specialisation, standards need to be raised and a holistic approach, in-depth study and context need to be further emphasised.

Vocational training should be improved through greater cooperation between upper secondary school and working life. A new upper secondary apprentice training programme will be an attractive alternative in upper secondary vocationally-oriented programmes.

The expansion of higher education and the creation of at least one strong higher education institution in each county have enabled more people to study. The Government's long-term target is that 50 per cent of those born in any given year shall have embarked on university level studies by the age of 25. Broader recruitment to higher education, both socially and geographically, will continue to be promoted. To meet the growing need for advanced vocational skills, advanced vocational training should be expanded in the long term.

Promote good mathematical skills and an interest in studies in science and technology

Further efforts are needed to get more people to study technology and natural sciences. An interest in mathematics should be encouraged throughout the education system, from pre-school to higher education, and mathematics teaching developed so as to focus upon its practical importance in working and daily life. Compulsory schools should be encouraged to profile themselves in the natural sciences and technology and teachers given opportunities for skills development. More innovative and attractive courses need to be set up in the borderlands between areas such as technology, design, civics, the humanities and science.

Promote lifelong learning

The education system should be designed so that it allows everyone to acquire a good basic education when young, and to supplement their education or learn new things later on in life. The state has a special responsibility to adapt the range of courses and programmes so that the need for supplementary training on the part of employees and companies can be met in a long-term perspective. To make lifelong learning a reality, both enterprises and individuals must be given stronger financial incentives for skills development.

Ensure internationally competitive higher education institutions

Greater profiling, a clearer division of labour and collaboration will enable more efficient use of the combined resources of universities, other higher education institutions and research institutes. The establishment by higher education institutions of profiles in areas in which they are strong will enable standards of higher education to be raised. By distributing research funds on a competitive basis, agencies responsible for financing research will be able to strengthen national priorities and help concentrate national efforts.

Encourage international student and researcher mobility

To strengthen the competitiveness of Swedish higher education and increase student mobility on the international labour market, the Swedish degree structure must be more clearly defined. An internationally competitive master's degree should be introduced. The credit system should also be changed so that Swedish students and educational programmes can assert themselves better internationally. To increase mutual confidence in educational programmes and degrees, Sweden will continue to work actively for European cooperation on issues relating to quality assurance in higher education.

Swedish higher education institutions must be encouraged to profile themselves more clearly, to collaborate more and to increase the division of labour between them so as to make them more attractive to international researchers and students.

To enable universities and other higher education institutions to recruit more foreign students to

master's and other postgraduate programmes, they should be able to offer fee-paying courses to students from countries outside the European Economic Area (EEA). This will be supplemented by exchange programmes such as the Linnaeus Palme programme, giving less well-off students from the developing countries the opportunity to study in Sweden.

Continue to invest in research and research education

Conditions for the best Swedish research and innovation environments must be improved. Their international competitiveness should be strengthened by establishing priorities and concentrating efforts. Sweden's commitment to basic research should continue.

The number of research degrees awarded should continue to increase, to ensure the continued supply of researchers for institutions of higher education, the business sector and society as a whole.

Strengthen industrial research institutes

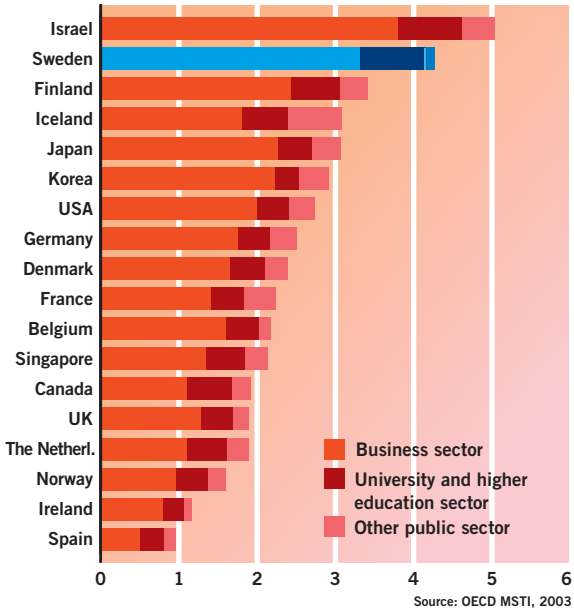
To improve the quality of applied industrial research and make better use of the results of this type of R&D, industrial research institutes need to be developed as a major supplement to universities and other higher education institutions. Greater collaboration between higher education institutions and other research institutes should also be promoted. The process, already begun, of merging industrial research institutes to create more cohesive units is being continued. Larger and more focused institutes will be able to act as a link between academic research and that of the business sector, undertake R&D for the needs of the business sector and society as a whole and act as a stronger partner in international R&D collaboration, such as EU projects, more effectively than the present institutes are able to do.

CONCENTRATING EFFORTS IN SWEDISH PROFILE AREAS

Expansive and knowledge-intensive industries, traditional industries and the public sector all need access to new knowledge in order to develop technological innovations and modernise their operations. Research provides the basis for developing new knowledge. It is vital in this process to allow great scope for the ideas of researchers themselves. Many interesting research results stem from basic research, where knowledge development is driven forward by researchers' curiosity and desire to solve practical and theoretical problems. At the same time society is permeated, both in the business sector and other areas, by problems that research can help to solve. The fact that research is put to practical use is also something that motivates researchers and advances academic research.

Publicly financed research in Sweden is heavily concentrated to universities and other higher education institutions, compared with other countries. Relatively little research is carried out at research institutes. Research institutes outside the academic system have generally stemmed from special needs for research in areas of significance for the business sector and society in general. The Swedish Testing and Research Institute, the National Institute for Working Life and the Swedish Defence Research Agency are

R&D investment as a percentage of GDP, 2001.



Source: OECD MSTI, 2003

examples of institutes with an obvious link to socially relevant issues.

The Swedish model of publicly financed research with universities and other higher education institutions as primarily responsible for research places special demands on these institutions to respond effectively to the research needs of society. Sweden is one of the countries investing most public resources on R&D. Sweden also has a very R&D-intensive business sector, which is therefore responsible for a very high proportion of all R&D investments, compared with other countries. A few large corporations are responsible for the majority of these R&D efforts. During the most recent recession, several of the largest enterprises in Sweden reduced their R&D investments, primarily in areas with longer perspectives and bolder visions. This has affected the business sector's scope for collaboration with higher education institutions and research institutes. Greater internationalisation and fiercer competition has also motivated companies to focus their efforts on narrower core operations.

In recent years, many Swedish enterprises have grown more abroad than in Sweden. Many enterprises have an increasing proportion of employees in other countries, both because of relocation of production and because their operations are expanding faster in countries abroad. In some cases, it has been a matter of the cost situation being more advantageous in other countries for certain types of production. In other cases, proximity to growing markets has been the decisive factor. At the same time Sweden is attracting international enterprises that are investing both funds and effort in operations in Swedish environments. These examples are an expression of internationalisation and the fact that investments and operations are moved to, or started in the locations in the world that are regarded as most advantageous. Large multinational enterprises make up the backbone of the Swedish economy. It is vital for our future welfare that it continues to be attractive in the long term for these enterprises to operate in Sweden, in terms both of R&D and advanced production.

KEY FACTS

Innovation systems

The term innovation systems comprises several dimensions and can refer to various levels. A national innovation system can be described in terms of important actors and components such as universities, colleges, institutes, large and small enterprises, venture capital and regulatory frameworks. The state plays an important role in national innovation systems. To a large extent, the Government is responsible for the provision of regulatory frameworks, infrastructures, interlinking bodies, and educational and research organisations. In addition to national and sectoral innovation systems, there are regional and local innovation systems. Innovation processes often occur in environments where geographic proximity and related factors are decisive. Examples of factors that can be unique to a certain place or region are the existence of specialised knowledge, local social networks and trust between the parties concerned.

Clusters

The term cluster partially replaces the old terms sector and branch. As concepts, sector has become too broad and branch too narrow. By definition, a cluster cuts across different branches. A cluster is also an aspect of competition based on different relationships; relationships between individuals working in companies in different branches, between related companies and their customers, but also between companies and research institutes, trade organisations, actors in the public sector, etc. Another aspect of cluster is based on the local production environment, or the home base, which are crucial for a company's competitiveness, since innovations are often generated as a result of specific local skills and competence.

In a global perspective, Sweden is a small country with limited resources. Creating attractive environments that support international competitiveness therefore means focusing on a number of profile areas with interesting future prospects. We will need to succeed in strengthening and developing strong research and innovation environments that can interact with the surrounding society at international, national and regional levels and that can help to form competitive clusters and effective innovation systems. Volume is needed to create dynamics and our most prominent enterprises must be on the spot and spur each other on to continued renewal of production and processes by means of lively competition, a high level of skills and strategic collaboration in developing knowledge. To achieve sufficient critical mass, a well-functioning interplay between the business sector, research and education actors and other public actors will be needed. These can prioritise their efforts collectively and concentrate a major part of private and public investments on research, education and enterprise.

Many actors, both public and private at national and regional levels, have important roles to play in identifying and contributing to the development of attractive environments. Initiatives are springing up in Sweden in collaboration with the private business sector, the research base and various stakeholders at local government (including municipalities), regional (including county administrative boards, county councils, regional autonomous bodies and cooperative bodies) and national levels. Regional growth programmes and regional development programmes are strategic tools for these initiatives. The EU structural fund programmes are also important in this context.

For Sweden and Swedish regions to be attractive in the long term for large and small enterprises, investors and highly skilled people, the attraction must be based on unique conditions that are difficult to reproduce anywhere else. Important components of this are well-developed networks, patterns of cooperation, positive attitudes and people's ability to act collectively and solve problems to realise their visions. Attractiveness is also based on companies and people finding new courses of action and re-examining established practices. An important aspect here is therefore an influx of international resources, both direct investment and cutting-edge skills. An effective internal market in the EU can contribute to this.

The expansion of higher education and the allocation of research resources to all higher education institutions have provided better conditions for these institutions to contribute to development locally. A further factor is the requirement laid down in the Higher Education Act that higher education institutions, in addition to conducting education and research, cooperate with the surrounding society. The role of higher education institutions as engines in regional development and specialisation has great potential for further expansion.

To achieve a stronger organisation for financing research, the Swedish Parliament took a decision in 2000 to establish a new agency structure, which entered into force on 1 January 2001. The aims of the new organisation were to provide scope for focusing efforts on important scientific areas, promote collaboration between research and development and improve the dissemination of information about research. It is vital that the new agencies, the Swedish Research Council, the Swedish Council for Working Life and Social Research, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning and the Swedish Agency for Innovation Systems (VINNOVA) continue to apply flexibility in giving scope to new issues and that they are able to respond rapidly and provide strong support to promising research areas. At the same time, they must succeed in reducing support to areas that are no longer as important. Research funds are distributed according to qualified assessments – this is a prerequisite for research to be undertaken at the highest international level.

It is vital that research financing is improved to allow coordinated efforts in important areas such as technology and medicine. A major point of departure, when prioritising research, should be to identify areas

in which Sweden is currently in a strong position, or is likely to be in a strong position in the future. It is not possible to foresee exactly which R&D efforts will be successful. However, well-developed procedures enable the identification of current and future areas of potential strength. VINNOVA has an important role, collaborating with other financers, in giving support to needs-based research. Efforts in various areas will be able to contribute significantly to the development of the business sector and society, and hence promote sustainable growth.

TO CONCENTRATE EFFORTS IN SWEDISH PROFILE AREAS, EFFORTS ARE NEEDED TO:

Prioritise strategic areas in research and the business sector

When allocating research funds, prioritisation between and within research areas will be necessary. Greater focus will be needed on areas in which Sweden already is, or can potentially be, a world leader in terms of research and industry in the short- and long-term. The agencies funding research in Sweden should cooperate more extensively when allocating resources.

Strategic programmes based on technological areas or industries should be introduced. To identify existing and potential areas of strength, an interactive process will be necessary between relevant stakeholders such as universities, other higher education institutions, industrial research institutes, the business sector and other institutions, led by the agencies responsible for funding research. Development of these programmes must be undertaken jointly and in collaboration. Programmes must be long-term and regularly followed up. To assess the focus and results of these programmes, international expertise and evaluation should be made use of.

Increase interaction between research, industry and the public sector

The state has an interest in enabling R&D projects to be undertaken at the absolute cutting-edge of knowledge and technology in close collaboration between the business sector, higher education institutions and research institutes. Several good examples already exist of jointly financed research programmes with participants from various sectors of society, where academic research is collaborating with the business and public sectors. These can be further developed. The importance of higher education institutions to the business sector can be enhanced by giving strong focus on the commercialisation of research results, generating more collaboration with the business sector and research institutes and by further stimulating and making use of local and regional strengths. This must be undertaken with a view to international competitiveness in the research community and the business sector.

Promote regional specialisation in combination with national priorities

A precondition for generating strong clusters and innovation systems is that account is taken of each region's specific conditions and particular specialisations. Greater interaction between national and regional priorities therefore makes it easier to concentrate effort on Swedish profile areas.

SEIZING THE OPPORTUNITIES PRESENTED BY GLOBALISATION

Sweden's business sector, the research community and the public sector have extensive international networks, knowledge exchange and business relations. It should be possible to develop these and use them even more effectively to strengthen and consolidate strong Swedish profile areas. We are in a unique position, based on the high degree of internationalisation in this country. The successful campaign to attract foreign investments to Sweden must continue. The development of cooperation with international partners will provide greater scope for both small and large enterprises and researchers throughout Sweden to benefit from globalisation. This may apply, for ex-

ample, to client and supplier relations and to strategic alliances for R&D collaboration. A higher degree of specialisation and ever-shorter product cycles require enterprises and organisations to make use of opportunities for establishment and marketing in strategic markets and cooperation with demanding international clients.

A fundamental condition for continued successful international exchange is a good knowledge of foreign languages apart from English. More extensive international contacts with trade and knowledge partners in new markets give rise to a need for greater language skills. This applies, for example, to language skills for closer contacts with countries where strong growth is foreseen in the next few decades.

A clearly defined, well-underpinned and attractive image of Sweden and Swedish areas of expertise is important to strengthen the Swedish economy and trade. Sometimes the image of Sweden projected by Swedish actors is overly self-critical. To convince foreign and domestic actors of the potential for long-term development in localising in Sweden and Swedish regions, actual conditions must be described. Particular focus must be given to strong points and clear ambitions for the future in the areas where Sweden is potentially capable of being a world leader, industrially and in terms of research.

TO SEIZE THE OPPORTUNITIES PRESENTED BY GLOBALISATION, INITIATIVES ARE NEEDED TO:

Promote good language skills

To provide the basis for successful future international exchange both when studying and in the working environment, it is important that children and young people are encouraged to study foreign languages at school.

Promote Swedish business establishment in strategically important markets

Efforts to make it easier for Swedish businesses, particularly small and medium-sized enterprises, to internationalise must be even more clearly characterised by prioritising, focusing and the ambition to be at the forefront of development. These efforts are intended to consolidate and strengthen Sweden's standing as a whole and the position of Swedish enterprises and Swedish skills in markets and areas where we are particularly able to compete. There should be a clear focus on dynamic and rapidly growing markets. This applies both to countries in our immediate vicinity in the Baltic Sea region, with the new EU member countries and Russia, and to more distant countries that are enjoying rapid growth and have great trade potential in Asia, including China and India. More advanced initiatives and new projects will be implemented to market strategic industries and areas in which Sweden has cutting-edge skills. This applies both to traditional industries and new ones.

More frequently than it does today, Sweden should make use of the opportunities offered by EU membership for negotiations with third party countries on reaching trade agreements and establishing research collaboration with interesting markets.

Promote Sweden's attractiveness as a cooperation partner for research and development

A continued high level of participation in international research collaboration, both within and outside the EU, is important for Sweden. This participation strengthens both Swedish and European industries' competitiveness and our own R&D base. The participation of Swedish actors should be encouraged so that they have a chance to influence the direction of research projects.

Attract foreign direct investment and top skills

Initiatives must continue to market internationally high-tech areas and new industries and clusters in which Sweden has special skills in order to attract foreign investment to Sweden. Skills from different sectors in society must be brought together in efforts

that strengthen Swedish profile areas so as to achieve greater impact and improve Sweden's attractiveness in international competition. Sweden's ability to interest foreign labour in working in Sweden depends on many factors, including personal taxation. An expert tax rate was introduced in 2001 as a major incentive for attracting key persons, experts and researchers to Sweden.

Ensure an internationally competitive corporate tax rate

An internationally competitive corporate tax rate must be ensured to attract foreign investment. It is important that the Swedish corporate tax rate does not differ essentially from euro countries in our vicinity. Such a development could pose a threat to Swedish growth and welfare.

Develop the image of Sweden as a country of innovation

Developing and drawing attention to Sweden as a country of innovation is one of the priority remits of all Swedish promotion, including export and investment promotion, tourist promotion and cultural promotion. Promotion of Sweden focuses on drawing attention to Sweden, Swedish values and the opportunities they present. Initiatives will continue to demonstrate that Sweden is a reliable trade and cooperation partner, an attractive market for foreign direct investment, a leading high-tech and R&D nation and a country that is appreciated by both women and men as a place in which to live, work, study and pursue their research.

Innovative trade and industry

INTERNATIONAL COMPETITION IS BECOMING INCREASINGLY FIERCE

Growing international competition places more and more pressing demands on the business sector. The knowledge content and pace of renewal of products and processes must increase to enable enterprises to meet the needs of their clients in a more satisfactory manner than their competitors.

In the longer term, new and growing knowledge-based enterprises are an important source of renewal, new jobs and sustainable growth. The capacity of enterprises to develop new, attractive products with high value-added levels and to introduce them on the market will be decisive for growth and prosperity in Sweden in the long term.

Activities based on new technology and knowledge are extremely important for creating new jobs and increasing value-added levels. To be able to compete successfully with countries with more advantageous cost levels, enterprises in Sweden must raise productivity and the knowledge content of production. In newer, knowledge-intensive industries, productivity growth is considerably higher than that of traditional industries. Knowledge-based enterprises are therefore important to raise productivity in the business sector as a whole and to renew traditional industry.

Sweden's basic industries, which include the timber, forestry and pulp, metallurgy and motor vehicle industries, are internationally very advanced. The continued development of basic industry is crucial for Sweden's long-term competitiveness.

Great attention must be directed in the next few years to the development of industrial production in Sweden. Over the last ten years, low-productivity jobs that have disappeared have been replaced by a greater number of, and more qualified jobs. This trend must continue. But because industry plays a vital role for regional economic development, strong pressures to restructure risk having dramatic regional effects. The renewal of services and products must therefore be strengthened, particularly in small and medium-sized enterprises.

STRENGTHENING THE INNOVATIVE CAPACITY OF EXISTING SMALL AND MEDIUM-SIZED ENTERPRISES

Over time, our entire production structure has been altered towards products with a greater knowledge content and greater productivity, which has resulted in a higher added-value level. Against the background of global competitive pressure, which increasingly involves knowledge-intensive competition, we must continue to promote and stimulate this development. To succeed in this, the business sector's product range must continually be renewed and the development potential of Swedish enterprises must be strong.

A unique pattern in the Swedish business sector that has developed over the years is the strong link between the large, international, R&D-intensive companies and their subcontractors. The skills for developing more complex product design for international markets have largely been found in the bigger companies, which are mostly concentrated in the traditional and basic industries. It is these industries that will be responsible for most value creation in Sweden in the foreseeable future. Renewal in these industries is conditional on it being attractive for companies to continue operating in Sweden. Their Swedish subcontractors will need to be even stronger to be able to assert themselves in international competition. Both together and on their own, these subcontractors must be skilled knowledge partners for the large companies and be able to expand their markets internationally. Part of the challenge lies in smaller companies becoming better at learning about developments in knowledge at higher education institutions and research institutes.

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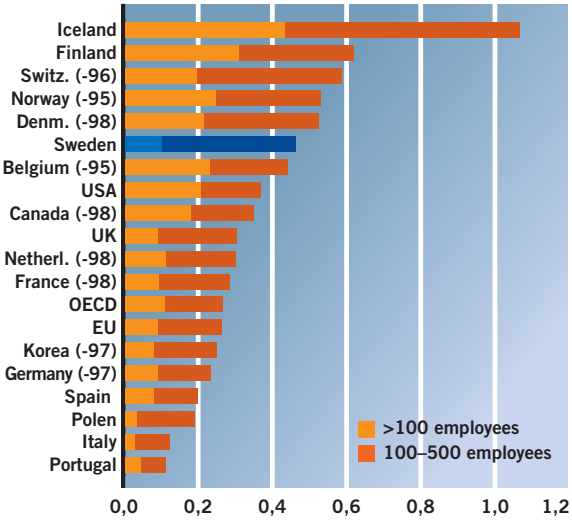
Experience has shown that this ability to keep informed is frequently linked to the ability to interact in networks with other companies, large and small.

The knowledge-based element of the Swedish business sector, in international terms, is unusually strongly concentrated to a few large multinational enterprises that are active in high or medium-to-high technological sectors with great long-term growth potential. Six large corporations are responsible for almost 60 per cent of the R&D investments of the business sector. The employees of larger enterprises show a higher level of education than those of smaller ones. Sweden has a long tradition of collaboration between academic research and the large industrial enterprises. This collaboration must be administered, further developed and expanded to include smaller enterprises and new industries.

Small and medium-sized enterprises' R&D as a percentage of GDP.



Source: OECD, SME Outlook 2002

The industrial research institutes, which are small in Sweden compared with the rest of the world, have the potential to play a considerably greater role as research actors for knowledge and technology development in the business sector, particularly for small and medium-sized enterprises.

Good access to knowledge, a skilled labour force and advanced technology in production technology and production systems – particularly within the field of automation, production of short series and complex products – strongly affect competitiveness in many small and medium-sized manufacturing businesses in Sweden. Development of a working organisation for flexible production is also of central importance for the manufacturing industry to be able to defend its position in international competition and to meet the increasingly varied and sophisticated demands of clients.

Internationally speaking, the R&D activities of small and medium-sized enterprises are small. On average, the formal educational level of their employees is lower than in many of the countries with which we are in competition. Strengthening the capacity of small and medium-sized enterprises to undertake product development and increase the knowledge content of their products and processes is therefore of central importance. Design is an important aspect here. Increasing R&D investment by small and medium-sized enterprises is vital for Sweden. Several countries use tax deductions as an incentive for small and medium-sized enterprises wishing to make investments in R&D.

By expanding their market horizons and coming into contact with international competitors and clients, there are more incentives for individual enterprises to increase the knowledge content of, and renew their goods and services. Good opportunities for exporting and developing markets are therefore essential to strengthen the innovative capacity of small and medium-sized enterprises.

TO STRENGTHEN EXISTING SMALL AND MEDIUM-SIZED ENTERPRISES' INNOVATIVE CAPACITY, EFFORTS ARE NEEDED TO:

Strengthen strategic collaboration between enterprises

New forms for strategic collaboration between large and small enterprises, and between small enterprises themselves, should be examined in order to create

mutual exchange and to enhance the skills and development capacity of smaller businesses. National and regional cluster initiatives are interesting in this context. Skills development for company executives in smaller businesses should be encouraged, as should knowledge building through the exchange of board representatives between large and small enterprises.

Strengthen cooperation between company networks, higher education institutions and research institutes

Businesses need strong incentives to collaborate in networks and better information about how such collaboration can be brought about. Larger and internationally more competitive industrial research institutes should be able to function as a link between universities, other higher education institutions and smaller enterprises more efficiently than they do at present.

Develop support for product development and design

Well-functioning supportive structures for smaller enterprises' product development, product renewal and use of design should be built up. Vigorous outreach activities should be an important element of this.

Develop production technologies and production systems

To boost the competitiveness of Swedish manufacturing industry, forms for supporting the development of production technology and production systems should be considered for areas in which Sweden has favourable prospects.

Encourage small and medium-sized enterprises to invest in R&D

A review should be made of different means of encouraging R&D investment by small and medium-sized enterprises. International competition has meant that increasingly pressing demands are placed on the capacity of small and medium-sized enterprises to undertake R&D of their own. Continued renewal through R&D investments by these companies will be necessary. In many cases, this will also be required for companies to be interesting knowledge partners vis-à-vis larger contractors.

Promote the capacity of small and medium-sized enterprises to operate internationally

The participation of small and medium-sized enterprises in international cooperation should be promoted. The capacity of smaller companies to break into new markets should be strengthened to make use of the great potential for new exports and operations in foreign markets. Greater exports will be promoted by offering smaller enterprises the opportunity to bridge initial barriers to participation in strategically important markets abroad.

INCREASING THE COMMERCIALISATION OF RESEARCH RESULTS AND IDEAS

In the R&D-intensive business sector, there is considerable potential for hiving off new enterprises. There are also opportunities to form even more new enterprises based on outstanding research at universities and other higher education institutions. At present, there are hardly any sustainable structures for advice or meeting places at an early stage between the creators of ideas, entrepreneurs and financers.

Inventors and individual innovators need both advice and help with financing at early stages in order to turn good ideas into successful products. What they need is advice on such matters as patents, design, marketing, economics, legal aspects, packaging and distribution. Innovation advisors, working in networks with each other and other experts, can give rapid access to a broad and extensive knowledge base and have a very important role to play in promoting commercialisation of research results and ideas.

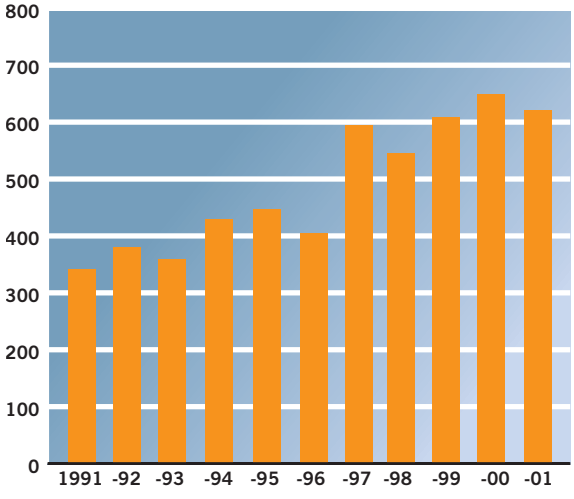
The greatest potential for industrial renewal is to be found in existing industry. Existing enterprises embody enormous capital in terms of organisation, experience and routines. This must be made use of as

extensively as possible by strengthening the forces for renewal in these enterprises.

The steam turbine, the adjustable spanner, the AXE telephone exchange, the three-point safety belt, Losec and the C-Pen are just a few examples of Swedish inventions. Sweden has a long tradition of enterprises that have been started on the basis of an invention, such as SKF, Tetra Pak and Aga. Companies are still being started around new inventions. Other ideas are transformed into products in existing companies. Favourable conditions must be in place to give innovations with development potential a chance to become commercially viable. But it is often impossible initially to predict which innovations may lead to commercial success.

An important requirement for enterprise, entrepreneurship and innovation is risk-taking, which in turn requires good financial opportunities throughout the country. Even though there is a well-developed risk capital market in Sweden, the scope for financing businesses and enterprises at early stages of their development is frequently insufficient. At this preliminary stage, public financing has an important role to play as a supplement since private actors show limited interest when commercial risks are high and difficult to assess. Studies and international experience show, however, that this type of investment yields large financial returns for society. In recent years, capacity for public financing at this stage has declined in Sweden.

Spin-off activities from universities and other higher education institutions, institutes and R&D-intensive enterprises in Sweden, 1991-2001.



Source: SCB and VINNOVA 2003

A precondition for obtaining access to external financing is frequently that the invention is covered by intellectual property protection. This type of legal protection is also important for innovative activities, by enabling the inventor, designer and originator to profit financially from his/her achievement. This generates funds for investment in development and marketing of new goods and services. In the long term therefore, intellectual property rights are of vital importance for growth and employment. Intellectual property protection is also important from a number of other perspectives. Registration of intellectual property rights such as patents and design protection (patterns) contributes to the dissemination of information. Patenting makes it easier, for example, for enterprises to find technical and economic information on competing technologies and businesses.

The need for intellectual property protection increases in pace with the growing globalisation of markets and the sale of products in more and more countries. In recent years, the service content of the economy has become more important and the deregulation of the services markets requires new methods for dealing with financial risks. Intellectual property rights have thus become more important for assessing business risks and the future value of investments. This has become clear through the almost explosive development of intellectual property rights in recent years. Patents, copyrights and trademarks represent significant values in today's knowledge-based economy. Because of this, the importance of ensuring intellectual property rights has markedly increased since the beginning of the 1990s. This applies particularly to patents, where rapid technological developments and the globalisation of markets have greatly increased the need for effective protection.

The opportunities given by the regulatory framework to transfer and place rights, such as patents, at the disposal of others represent increasingly important values in global trade. The international trade in patents and licences has, however, led to the use of patents becoming more complex than in cases where the inventor alone manufactures, markets and exports a product. The need for expedient rules for intellectual property rights issues has increased as a result of this development. The fact that the process has become more complex also leads to a greater need to strengthen companies' awareness of these issues.

An effective competition policy enables small and newly established enterprises to set themselves up on the market. Reforms that have been implemented have been instrumental in improving competition conditions on the Swedish market. However, several important markets, such as the food and construction industries, are still noticeable for their lack of competition.

Within the EU, a transparent and predictable system for administrative cooperation is important. Swedish and foreign enterprises must be able to rely on an effective, common administrative system when they transform their ideas into goods and services on the market in various ways. A well-functioning administration and supervision to ensure sound conditions for competition help create a good business climate, both for established enterprises and for newly started businesses wishing to operate in the common market. Expanding knowledge-based enterprises must be given the opportunity to make use of the fact that Sweden has the EU internal market as its domestic market.

TO INCREASE THE COMMERCIALISATION OF RESEARCH RESULTS AND IDEAS, EFFORTS ARE NEEDED TO:

Transform research results and ideas more effectively into businesses and enterprises

The structures for looking after business ideas, spin-offs and inventions originating from small and large enterprises and individual innovators need to be better developed. Early stage advisory services need to be strengthened so that the ideas of more people get a chance to be transformed into new products and services and hence new jobs. Efforts should be made to ensure that better use is made of opportunities for spin-off activities from large enterprises' development work outside core operations. Business-generating activities associated with higher education institutions need to be developed to take up research results and transform them into commercial operations and new enterprises. The new structures developed should be based on existing structures in the form of university holding companies and technology bridge foundations. Bringing about greater collaboration between existing actors to make better use of available resources is vital. In order to give institutions of higher education incentives to support their researchers in their efforts to commercialise their research results and to create better conditions to make use of researchers' results and ideas without them being required to become entrepreneurs themselves, the "teachers' exception", which means that the teacher alone owns the right to his/her inventions, will be reviewed.

Increase financing at early stages of business and company development.

At the earliest, pre-commercial stages of new knowledge-intensive business concepts, the state must play a clearer role, since these are operations involving great risks and where private actors only operate to a limited extent. A sustainable long-term structure for good state financing at this stage needs to be developed and state funds for initial support increased. Seed financing should include projects both in traditional industries and new spheres. The role of the state vis-à-vis private actors should be more clearly defined.

Design workable ground rules and promote the use of intellectual property protection

Measures should be taken to increase the awareness

of smaller enterprises of the importance of patents and other intellectual property protection. Sweden must have appropriate ground rules to enable it, to at least the same extent as the countries with which we are in competition, to create incentives for innovation. Sweden will therefore continue to actively promote the introduction of effective intellectual property protection at the EU level and in other international contexts.

Create sound conditions for competition that favour the growth of new enterprises

Efforts to fight against cartels and the abuse of dominant positions must continue. Initiatives are needed to strengthen competition in industries that are not sufficiently competitive. In new markets, structures and regulations must support the evolution of balanced and well-functioning competition. Sweden should also continue to actively pursue effective legal cooperation in the EU's internal market.

Innovative public investment

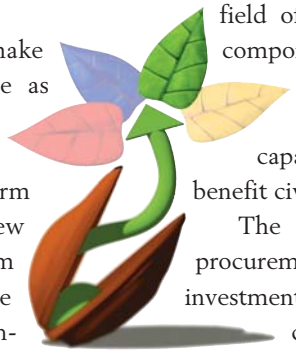
THE PUBLIC SECTOR IS MEETING NEW DEMANDS

Demographic developments, greater internationalisation, deregulation, regulatory changes and technological developments make for changed conditions and place new demands on the capacity and procedures of the public sector. The public sector has an influence on the climate for innovation and growth through publicly managed operations, procurement and regulation. It is important that the central government administration, municipalities and county councils contribute to greater innovation and competition for sustainable development and show innovation and renewal in their own operations to meet the needs of society better.

USING THE PUBLIC SECTOR AS AN ENGINE FOR SUSTAINABLE GROWTH

Sweden has outstanding public sector operations in several fields that are interesting for other countries. This applies, for example, to administrative services and systems, environment-friendly public transport solutions and education. It also applies to innovative solutions in health care and the social services, safety, energy and environmental technology. Goods, services and systems that were originally developed for the Swedish public sector have greater export potential to other markets than is presently achieved. More developed cooperation between the public and business sector could lead to greater export opportunities.

Another major opportunity is to make better use of the public sector's role as buyer and specifier of goods, services and systems. The public sector is responsible for guaranteeing long-term common interests. The growth of new and innovative activities benefits from competent procurement driven by large demanding clients. The central government administration has, for example, contributed to the innovation and development of environmentally sound solutions through local investment and climate investment programmes.



Large public investment has traditionally functioned as an engine for renewal and enterprise. Deregulation and regulatory changes in many important areas have altered the division of roles and hence the situation concerning responsibilities and interests. This applies to areas such as railways, telecommunications and power supplies. We now have fewer large manufacturers and a larger number of operators. At the same time, focus has shifted from technological development to business development. System solutions and overall responsibility have been shifted forwards in the value chain and are now increasingly close to the market. With these changes, the division of roles has become better defined, but the question of who has overall responsibility and who is responsible for coordination is unclear. Better coordination of development and commissioned projects could contribute both to more efficient use of common resources and to the emergence of innovations and new enterprises.

The Swedish defence industry represents an important part of the technological base of Swedish industry as a whole. The role of the central government administration as a buyer in this context makes it possible to undertake R&D activities at the absolute forefront of knowledge and technology. R&D in the field of defence and security is an important component of many strong research and innovation environments. Moreover, the Swedish defence industry possesses great capacity to develop new knowledge that will benefit civil society.

The regulatory framework and customary procurement procedures affect both the type of investments made and the bodies that are given the chance to deliver them. A central issue in

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this context is identifying the options that give the best value for money and elaborating what we mean by "best" and "cheapest" in procurement processes. What is important is to develop long-term thinking towards desired results, rather than identifying the body that can undertake a well-defined task in the cheapest manner in the short term. This entails inter alia the need to design procurement and investment procedures so that they do more to promote more widespread creative renewal and innovation while taking into account demands for cost-efficiency.

TO USE THE PUBLIC SECTOR AS AN ENGINE FOR SUSTAINABLE GROWTH, EFFORTS ARE NEEDED TO:

Ensure that publicly financed activities contribute to creating products and services for export

Goods and services developed for the Swedish public sector should be sold more extensively to other countries as well. More deliberate and systematic efforts should be initiated to transform this potential into sustainable growth.

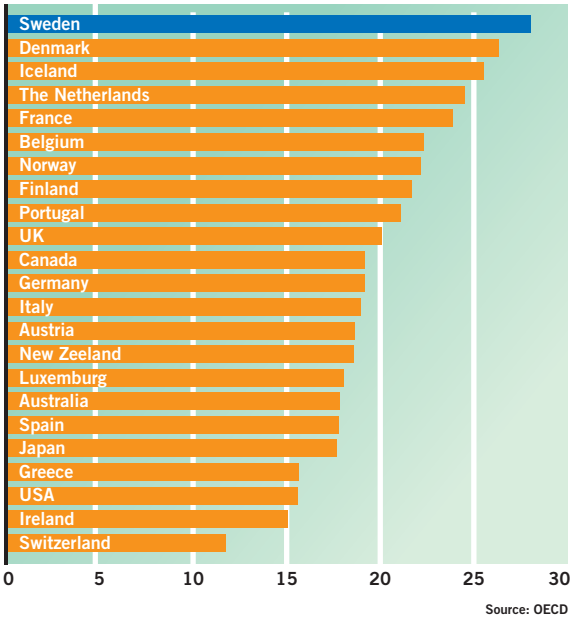
Make use of the industrial and technological potential of the defence and security sector for civil applications

Building creatively on the industrial and technological potential existing in the defence and security sector for civil applications represents a major challenge and opportunity for Sweden. This should be done in such a way as to strengthen existing industries and enterprises and promote the growth of new ones.

Develop more forceful, demanding public procurement

In their role as buyers, the public sector must promote technological development and business potential more energetically, while meeting the needs of society as a whole. Structures should be considered for enabling small and medium-sized enterprises to participate more in public procurement of technology and knowledge-intensive products and services. Procurement instruments should be more stringent and more extensively coordinated by clearly defined clients, who can articulate the requirements to be met. Special instruments have been drawn up for ecologically sustainable procurement. The regulatory framework for public procurement needs to be changed so that it will be easier to place specific demands, which can encourage the growth of new technologies. There is a great need and great potential, for example, for solutions that raise standards and increase efficiency in the health system, the social services and civil security. Many clients in these areas could be better coordinated in order to force the pace of new and more effective solutions.

Public consumption as a percentage of GDP, 2002.



Source: OECD

Develop regulations that force the pace of renewal

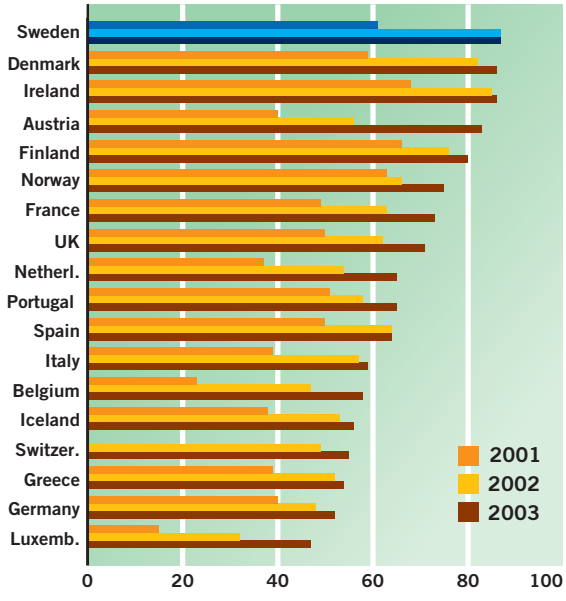
Stakeholders from the public sector should work even more actively to promote sustainable growth and renewal through functioning regulations that as well as

being appropriate are also conducive to innovation, and thus growth. In their regulatory role, actors in the public sector should be given a clear remit to promote renewal and force the pace of new solutions that have a commercial value on international markets. One example of this is environmental technology, where regulations and performance requirements from public procurers have been two factors that have led to a competitive Swedish industry in this field, though here there is more to be done. Another example is the construction sector, where appropriately designed regulations can contribute to better, cheaper and environmentally sound housing construction.

PROMOTING RENEWAL AND EFFICIENCY IN THE PUBLIC SECTOR

The public sector must meet the needs of society well and efficiently. In the near future, this sector will face an enormous pressure of demand, primarily in terms of health care and care of the elderly, owing to the growing numbers of older people. Staff shortages are predicted in several of the areas that today are the core operations of the public sector, such as health care and social services. This greater demand can partially be met by more efficient use of new technologies and innovative solutions, such as changes in working organisation. To attract skilled labour, the public services must also be attractive working places, which is the joint responsibility and interest of both employers and employees.

Available on-line services in public agencies, 2001-2003, per cent.



Source: Cap Gemini Ernst & Young 2004, EU Commission follow-up of eEurope2005 targets.

TO PROMOTE RENEWAL AND EFFICIENCY IN THE PUBLIC SECTOR, EFFORTS ARE NEEDED TO:

Operate public services more effectively and innovatively

Information technology is an important force for change that should be made use of in strategic, coordinated programmes in such areas as health care, the social services and public administration. Important issues to be considered in this context are working organisation, coordination and the division of roles and responsibilities between public actors at different levels. It is also vital that ordinary people, i.e. the users of public services, are able to exercise strong influence on the design of these services.

Develop new solutions to meet the needs of society

In the fields in which Sweden is in a good position in terms of research and industry to develop new and better solutions to its domestic needs, a greater focus and concentration of efforts is needed. Strategic, long-term investments in R&D will enable the public and business sector partnership to find better solutions to Swedish needs and will create competitive products and services that can be offered on world markets. The Green Car, Brain Power and Nationellt Flygtekniskt Forskningsprogram (NFFP) are examples of such programmes. These programmes aim at strengthening Sweden's industrial and scientific base to deve-

lop more environment friendly vehicles (Green Car), enable earlier diagnoses and offer better treatment of, for example, dementia, stroke, Alzheimer's Disease and other neuro-related diseases (Brain Power) and produce new aviation technology for national security and industrial competitiveness (NFFP). Other potential areas may be civil security, traffic safety, energy and environmental technology.

DEVELOPING INFRASTRUCTURE THAT PROMOTES RENEWAL AND SUSTAINABLE GROWTH

Well-functioning transport and logistics systems are an essential condition for long-term sustainable development. Through its prime responsibility for providing transport infrastructure, the central government administration has a very important role in promoting innovation in the transport sector. This applies both to road transport, railways, marine transport and aviation and combinations of more than one type of transport. Sweden is at the forefront with regard to efforts to develop the interplay between vehicles and infrastructure. This is especially important in the traffic safety area. Telematics Valley in Göteborg is a good example. By providing electronic infrastructure such as the National Road Administration's digital road database, unique conditions are created to attract foreign development capital while generating innovative transport and logistics services.

If people are not limited to small labour markets it will be easier for individuals to find employment and for employers to find staff. Larger, sustainable local labour market regions are therefore important for supplying skills and ensuring renewal. In the last few decades, commuting has increased in extent and importance, which in practice means that the number of local labour market regions has declined, but that these regions have grown in size. A larger recruitment area also reduces regions' vulnerability.

The IT policy objective established by the Swedish Parliament aims to make Sweden the first society in the world in which information technology is universally available. Sweden is at the forefront, both as regards the expansion of its IT infrastructure with high transmission capacity and the IT skills of society. However, it is extremely important that we continue to work energetically to maintain and develop this leading position. Efforts in the field of infrastructure must be supplemented with efforts in other IT policy areas, such as IT skills, to achieve the best results for ordinary people and companies.

Swedish infrastructure and IT skills provide great scope for rationalisation of the public sector and development of business opportunities on global markets. Research and development of mobile and network-based services are an important component in this context. The public sector has a major role in developing and ordering services that give citizens the best and most efficient social services possible. The development of services for the public sector can also be an engine for actively generating services for the private market. Good security is crucial for confidence in the services of the information society.

TO DEVELOP AN INFRASTRUCTURE THAT PROMOTES RENEWAL AND SUSTAINABLE GROWTH, EFFORTS ARE NEEDED TO:

Develop effective systems for transport and logistics

The central government administration should exploit its strong commitment to the infrastructure sector to promote renewal and innovation by developing effective systems for transport and logistics. By working in partnership with the Swedish vehicle and component industry, solutions will be created that optimise the use of vehicles and infrastructure and benefit both citizens and the business sector.

Increase mobility in and between local labour market regions

Conditions should be promoted for greater geo-

graphical mobility to help create a more dynamic, diversified and innovative business sector and reduce regional vulnerability.

Develop an IT infrastructure for the future

Current efforts to encourage the expansion of a high transmission capacity IT infrastructure in the entire country should continue. Central government financing for expansion in sparsely populated and rural areas will continue until the end of 2006.

The IT infrastructure is important in itself, as is the use of network applications that give greater accessibility to information society services. Boosting IT skills, increasing confidence and accessibility to the IT infrastructure are important for this development.

Innovative people

INITIATIVE AND SKILLS ARE GROWING IN IMPORTANCE

Companies and business ventures are set up, develop and succeed thanks to innovative individuals who believe in their own and other people's ability and potential for development. Making the most of people's initiative and skills is therefore becoming an increasingly important factor in efforts to enhance the competitiveness of countries and companies in our global knowledge-based society.

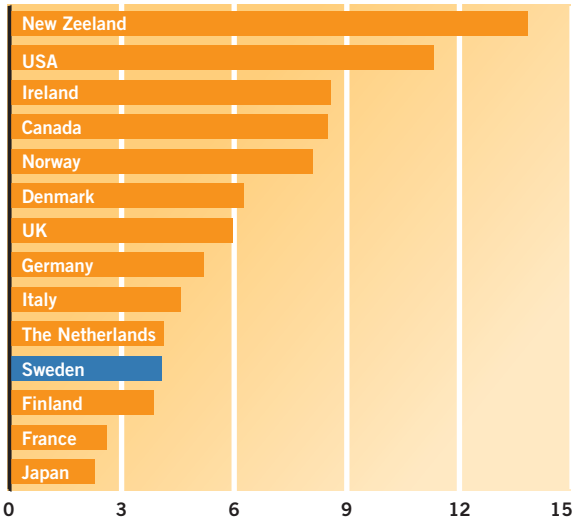
STIMULATING ENTREPRENEURSHIP AND ENTERPRISE

Working life in Sweden is characterised by large companies in the business sector and a sizeable public sector which accounts for a major proportion of employment. At the same time, it is important that we create a climate where people consider starting and running their own businesses an interesting and natural option. Small and knowledge-intensive enterprises account for many innovations and play a key role in creating new jobs. The larger companies, which often purchase services from smaller enterprises, are dependent on a surrounding structure of creative partners for cooperation.

By international comparison, few companies are started in our country. From the point of view of Sweden's long-term development, it is important that both women and men regard it as positive and natural to set up and run their own companies and business ventures, and that attitudes towards failure change. Trying again and learning from mistakes must be regarded, to a greater extent than today, as signs of vitality and willingness to take business-related risks.

An important aspect in the challenge to create better conditions for enterprise, entrepreneurship and innovation is promoting positive attitudes towards starting and running new enterprises. It is important, therefore, that the regulatory framework surrounding enterprise is felt to be expedient in terms of formulation and application. According to a survey by the World Bank, Sweden ranks among the ten countries that regulate the business sector the least. The same survey reveals that Sweden is also among the ten countries that, in practice, have the best functioning regulations and is one of the countries where it is easiest to set up a new business. Nevertheless, there are many people who regard the regulatory framework as complicated, and this indicates that even if this is a well-functioning area, there is much room for improvement. Among other things, we need to speed up and improve the application by public agencies of existing regulations. Many competing nations are also striving to simplify and improve their regulatory frameworks. Continued improvements are therefore crucial in enhancing Sweden's competitiveness.

Proportion of the active population to set up new enterprises, 2003, per cent.



Source: Global Entrepreneurship Monitor 2003 (selection).

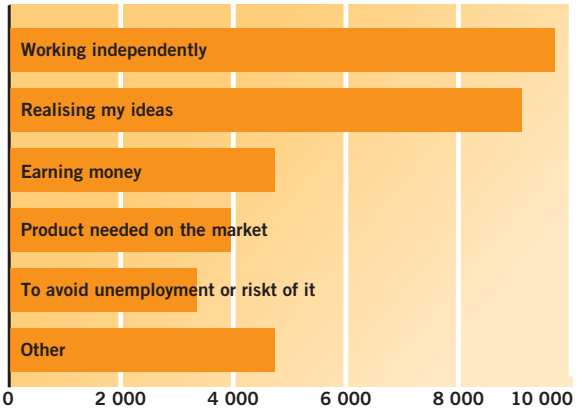
GETTY IMAGES

TO STIMULATE ENTREPRENEURSHIP AND ENTERPRISE, EFFORTS ARE NEEDED TO:

Promote positive attitudes towards entrepreneurship

To promote positive attitudes towards entrepreneurship, joint efforts are required from different sectors of society – the political establishment, the business sector, the education system and public agencies – at a national, regional and local level. Both broad, opinion-shaping measures and more targeted actions are necessary.

Number of new entrepreneurs and motives for starting up, 2001.



Source: Global Entrepreneurship Monitor 2003 (selection)

For more long-term results, it is necessary to arouse interest in entrepreneurship as well as curiosity and a spirit of adventure from an early school age. In order to increase awareness of enterprise among young people and to foster positive attitudes, entrepreneurship needs to be given a natural place in school curriculums and the interchange between schools and enterprises developed. Upper secondary schools should help to prepare pupils both for future employment and for running their own businesses.

Measures will be taken to promote creativity and awareness of enterprise among young people. In the long term, this action should lead to both a greater number of new enterprises and to growth in existing companies. The national programme for entrepreneurship, which is being run by the Swedish Business Development Agency (NUTEK) in 2002–2004, targets young people and schools. NUTEK has been commissioned by the Government to prepare a proposal for an expanded national entrepreneurship programme. It is to focus on concrete measures and will be based on cooperation with other agencies and organisations.

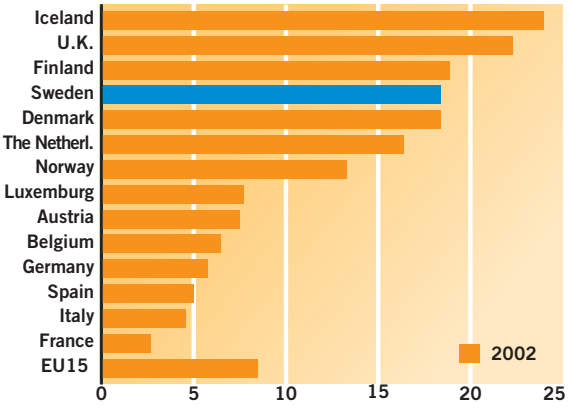
Secure a simple and expedient regulatory framework that facilitates enterprise

Work on the regulatory framework affecting enterprise and its application will continue to receive high priority. A broad action programme is being implemented, with the purpose of simplifying regulations and improving government agencies' services and availability. The action programme is a result of the combined efforts of all ministries and 46 public agencies, in accordance with a Government decision in the autumn of 2003. The assigned task was to review existing regulations relating to business activities and to present a set of measures to reduce the administrative costs faced by enterprises. A method for measuring the administrative burden on enterprises is being developed. Agencies are to provide better service by speeding up their administrative procedures.

MAKING THE MOST OF PEOPLE'S SKILLS

Innovation requires a climate in which employees can renew their skills, and organisations can pursue efficient processes of change. Efforts are needed to encourage the development of workplaces where both women and men are able to reach their full capacity and where new ideas, which can lead to new working methods and products, are stimulated. In a climate of global competition, where industry is under strong pressure to restructure, this is crucial for Sweden.

Proportion of the population, aged 25-64, to have participated in skills development in the four weeks preceding the survey, per cent.



Source: Cap Gemini Ernst & Young 2004, EU Commission follow-up of eEurope2005 targets.

Studies show that enterprises, irrespective of their field, can boost their economic growth by developing strategies and systems for learning and knowledge development. A good working organisation is fundamental to achieving efficient and competitive enterprises and organisations. Sweden has an excellent tradition in the field of working organisation, and we need to make the most of this. There is no contradiction between a good working environment and efficient production. There is a strong correlation between companies' capacity for organisational change, investments in skills and their capacity to make full use of new technology. New forms of working organisation can also encourage the development of more appropriate technical solutions.

Sweden has a unique asset in the diversity that exists in our society, but we currently fail to make adequate use of the available skills and competence. Today many people are excluded from the labour market or are engaged in tasks that do not match their skills. This is an enormous waste of resources and is highly unsatisfactory for the individuals affected. It also creates a divide between different groups in society. A vital challenge for Sweden's employers in the public and private sectors is, therefore, to recognise and make better use of people's skills, regardless of gender, age or origin.

By international comparison, there is little mobility between different sectors of working life in Sweden. There is, for example, little movement between the business and academic sectors, or between the public and private sectors. Switching from one organisation to another is an important means of exchanging know-how and is also important in ensuring an efficient match in the supply of and demand for skills. Poor mobility means a locking-in of knowledge and can also lead to a lack of understanding for other sectors' conditions and needs. It is also essential that Sweden, together with other EU member states, continues to promote a genuine free movement of persons in the Union. There are many direct and indirect obstacles, today, to an efficient internal market for EU citizens.

TO MAKE THE MOST OF PEOPLE'S SKILLS, EFFORTS ARE NEEDED TO:

Develop working organisations that encourage renewal

There must be a greater exchange of knowledge between researchers studying working organisation and its applications. The social partners play a decisive role here. Best practices need to be spread and knowledge of factors with a positive effect must be boosted. Further knowledge is needed about the link between technology and working organisations. The development of new technology in production must be coordinated with the development of working organisations. There should be better training opportunities for existing managers, but management issues should also be accorded greater importance in the education system.

Make better use of everyone's skills

Better use must be made of the full range of skills, experience, contact networks and cultures and the diversity among women and men in our society.

Increased participation and influence should be stimulated in order to give new impulses and to enhance opportunities to promote creative and dynamic labour markets. Opportunities for foreign students who have studied in Sweden to remain and work here will be reviewed.

In order to make better use of people's knowledge, validation of qualifications and recognition of vocational skills need to be improved in cooperation with trade unions and employers.

Increase mobility between the business and academic communities, the public and private sectors

People need to be given greater incentive to switch between jobs and tasks in the business sector, politics, the academic community, the public sector, the NGO community and other spheres of activity. Individuals have experience, knowledge and skills which, through interaction with new environments, can generate new ideas and innovations. Further efforts will also be made to remove direct and indirect obstacles to the free movement of persons in the EU.

Moving forward

The "Innovative Sweden" strategy sets out the direction of efforts in the next few years to create a strong climate for innovation throughout the country. Certain measures are relatively easy to implement, while others will take more time since they require further investigation, organisational changes, cooperation between many different actors or special funding.

The aim is to present the measures required for the implementation of the strategy gradually, on multiple occasions. The Government can do this partly by means of special bills, such as the forthcoming research policy bill and budget bills, but also in the form of instructions to central government agencies and other actors.

As conditions in Sweden and the rest of the world change, work with the innovation strategy may need further development. It is important that both the theoretical basis and the practical tools for the implementation of the Innovation Strategy are gradually developed and refined. An active exchange of experience with other countries is also significant, as is Sweden's participation in the EU's innovation policy efforts.

Several policy areas have an impact on the development of the climate for innovation. The emphasis of the strategy makes it clear that education and research policy, industrial policy, export policy, regional development policy, transport policy, IT policy, defence policy and environmental policy are some of the most important areas in an innovation policy context. Developing the forms for coordination and cooperation between policy areas will be a key task in efforts to implement the strategy.

The strategy is characterised by the need for more intensive dialogue and collaboration between relevant parties – among others the Government – which can jointly develop the climate for innovation in Sweden. This cooperation can take various forms and take place in different forums. Special groups will, for example, be appointed with time-limited mandates and with specific tasks relating to well-defined problem areas. It may involve relations between large and small enterprises, or questions relating to a certain field or area of technology. It may also be a matter of extended cooperation between central government agencies with related spheres of responsibility within important fields of development.

The conditions for sustainable growth and employment vary in different parts of the country, which is why political tools must remain flexible. Many of the measures involved in the implementation of the innovation strategy can be taken as part of the regional growth programmes which are being conducted throughout the country in 2004–2007. Various public and private actors are jointly carrying out the programmes, which should actively contribute to the implementation of the Innovative Sweden strategy.

Innovative Sweden – an overview

KNOWLEDGE BASE FOR INNOVATION

ENSURING THAT SWEDISH EDUCATION AND RESEARCH ARE OF WORLD CLASS

- Create a school that gives everyone basic skills
- Promote good mathematical skills and an interest in studies in science and technology
- Promote lifelong learning
- Ensure internationally competitive higher education institutions
- Encourage international student and researcher mobility
- Continue to invest in research and research education
- Strengthen industrial research institutes

CONCENTRATING EFFORTS IN SWEDISH PROFILE AREAS

- Prioritise strategic areas in research and the business sector
- Increase interaction between research, industry and the public sector
- Promote regional specialisation in combination with national priorities

SEIZING THE OPPORTUNITIES PRESENTED BY GLOBALISATION

- Promote good language skills
- Promote Swedish business establishment in strategically important markets
- Promote Sweden's attractiveness as a cooperation partner for research and development
- Attract foreign direct investment and top skills
- Ensure an internationally competitive corporate tax rate
- Develop the image of Sweden as a country of innovation

INNOVATIVE TRADE AND INDUSTRY

STRENGTHENING THE INNOVATIVE CAPACITY OF EXISTING SMALL AND MEDIUM-SIZED ENTERPRISES

- Strengthen strategic collaboration between enterprises
- Strengthen cooperation between company networks, higher education institutions and research institutes
- Develop support for product development and design
- Develop production technologies and production systems
- Encourage small and medium-sized enterprises to invest in R&D
- Promote the capacity of small and medium-sized enterprises to operate internationally

INCREASING THE COMMERSIALISATION OF RESEARCH RESULTS AND IDEAS

- Transform research results and ideas more effectively into businesses and enterprises
- Increase financing at early stages of business and company development
- Design workable ground rules and promote the use of intellectual property protection
- Create sound conditions for competition that favour the growth of new enterprises

INNOVATIVE PUBLIC INVESTMENT

USING THE PUBLIC SECTOR AS AN ENGINE FOR SUSTAINABLE GROWTH

- Ensure that publicly financed activities contribute to creating products and services for export
- Make use of the industrial and technological potential of the defence and security sector for civil applications
- Develop more forceful, demanding public procurement
- Develop regulations that force the pace of renewal

PROMOTING RENEWAL AND EFFICIENCY IN THE PUBLIC SECTOR

- Operate public services more effectively and innovatively
- Develop new solutions to meet the needs of society

DEVELOPING INFRASTRUCTURE THAT PROMOTES RENEWAL AND SUSTAINABLE GROWTH

- Develop effective systems for transport and logistics
- Increase mobility in and between local labour market regions
- Develop an IT infrastructure for the future

INNOVATIVE PEOPLE

STIMULATING ENTREPRENEURSHIP AND ENTERPRISE

- Promote positive attitudes towards entrepreneurship
- Secure a simple and expedient regulatory framework that facilitates enterprise

MAKING THE MOST OF PEOPLE'S SKILLS

- Develop working organisations that encourage renewal
- Make better use of everyone's skills
- Increase mobility between the business and academic communities, the public and private sectors