

Investment in knowledge

What is the current position of the Nordic countries?

For countries whose intention it is to be in the forefront with regards to technology, investment in knowledge is the main key. Without such an investment, a country will fall behind in the development, both technologically and socially.

The Organisation for Economic Co-operation and Development (OECD) publishes several statistics that indicate the level of the investment in technological knowledge. The key components of this statistics show the level compared with the Gross Domestic Product (GDP), and it is with great pleasure we notice that Sweden is at the top worldwide, closely followed by the United States and Finland. Even Denmark is above the average level in the OECD countries, while Norway is at the bottom among the Nordic countries, including being below the EU level. The large production of oil and gas gives Norway status as a supplier of raw material, and that might explain some of the low position, but not all.

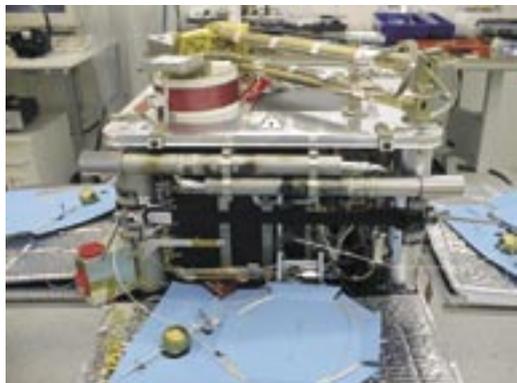


Intensive research at highly prioritised areas will in the most cases ensure a leading position within this, and near related areas.

Photo: Tekes/Mathias Visikylä.

The so-called “Investment in knowledge” includes the fields of R&D, software and higher education. Totally Sweden spends around seven percent of the GNP on investment in knowledge, where R&D represents a part of four percent, software somewhat above two percent, and higher education close to one percent. No country can match Sweden with regards to investment in R&D and software, but the level of higher education is not among the highest. Only Ireland can match Sweden’s annual growth between 1992 and 2000, with Finland ranking third in this statistics.

Trends in the domestic R&D expenditure also rank Sweden on the top, closely followed by Finland, and they are way ahead of the USA and the average for OECD and EU.



Space research, a natural part of the research programmes for the Nordic countries. The Swedish Astrid 2 in the laboratory nearly complete for launch. Photo. IRF-U

Space research and development is known for some of the highest technological fields and also some of the most prestigious fields for the large countries, and the largest share of the funding is also governmentally based. In 1999, 13 billion USD were allocated by OECD countries to civil space R&D programmes, 94% by the G7 countries and more than half by the USA. To measure the investment in percent OECD has introduced the factor GBAORD as is "Government Budget Approximations or outlays for R&D". Not only does the USA have the largest budget for space in R&D, at 14.5% of total GBAORD. France and Japan also contributed significantly to the OECD-wide public budget for space R&D with 11% and 9% respectively. France, Germany and Italy account for almost 80% of the European space effort, although countries like Belgium and Spain also devote a large share of their public R&D budget to space. In this field the Nordic countries are no close to the top. In 2001 the EU level was 6.2%. Sweden contributed with 2.9% while Denmark, Norway and Finland followed, all over 2%.

A long way to go for Europe.

It is a very profiled goal for the EU to ensure European leadership with regards to R&D and knowledge based industry, but the latest statistics show there is a long way to go, especially when compared to the United States and Japan. In addition the medium OECD-level indicates the position of the different countries. Most of the world's countries are members of the OECD, but some, like China, Brazil, Israel and Russia are on the outside. Together the non-OECD members account for 17% of the R&D worldwide.

It is a fact that the USA is at the top in most fields, and ranks close to the top in other space related fields, and the EU faces great challenges in order to catch up with the USA with regards to most fields. When it comes to investing in knowledge, the USA spends around seven percent of the GDP, while the EU spends four percent. In addition, the growth is larger in the USA than in the EU. This is unlikely to change now that several new member states have entered the Union, states that have mainly invested below the present EU-level. In 2001 the R&D intensity of the European Union reached 1.9%, still below the Lisbon target of 3% for 2010. In 2002, the R&D intensity of the USA remained stable at 2.8% of the GDP.

Nanotechnology, for example, is among the most rapidly growing targets of R&D funding, but it still accounts for only a small share of total R&D. Between 1997 and 2000 government R&D funding for nanotechnology trebled in the USA, but only doubled in the EU and Japan./

The educational level of the population continues to rise, as 45% of young people now enter university. However, entry rates vary from over 60% in countries like Finland, Sweden, Hungary and Poland to around or below 25% in Czech and Turkey. Large investment in education over the past decades has led to a general rise in the educational attainment of the employed population. On average, 28.2% of employed persons in OECD countries have a tertiary-level degree. USA (36.8%) and Japan (36.5%) rank far ahead of the EU (24%), which also has large cross-country disparities.

Investment in knowledge must be a priority task for all countries. Here from the Space Technology Course at Andøy Secondary School at Andøy, Norway.

Photo: Andøy Secondary School.

