

Note

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Personal identification numbers: 50 years old and ripe for upgrading

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Introduced in 1964 following an initiative by the business community, the PIN (personal identification number) celebrates its 50th anniversary this year. The PIN provides, among other things, substantial benefits in the submission of tax returns. The Central Population Register is one of the most central registers in Norway, and is an essential basis for Statistics Norway's statistics and research activities. However, it is now in need of an upgrade. In 2029, we will start to run out of new PINs and D-numbers, in addition to which the Central Population Register no longer meets the requirements for functionality and quality. Modernising the PIN system will furnish us with more accurate information on the population. This information can be used as a basis for social planning and population statistics that better portray society.

The introduction of the PIN has been beneficial for society. For the individual, the PIN is the key to a smoother interaction with public authorities. When dealing with private institutions, such as banks and insurance companies, we are also dependent on an overarching identification system such as the PIN.

The benefits of the PIN are realised through the intensive use of electronic data processing. The pioneers behind the numbering system had already started to recognise the benefits at the start of the 1960s, when computers were in their infancy. Today, the PIN acts as an identifier in many large computer systems in both the public and private sectors, and will also be a useful tool in future data revolutions, such as the move towards using Big Data.

Various parties were involved in the introduction of the PIN in 1964, but the business community was one of the main driving forces. Both the Norwegian Tax Administration and Statistics Norway were also key players.

Although there are no specific figures available, we believe that society has benefitted considerably from the use of the PIN. For instance, we now all recognise the benefit of receiving our tax form with the information already filled in. For Statistics Norway, the Central Population Register meant that the population census in 2011 could be conducted as a register count by assembling a complete set of census data for the entire population, which was linked to the PIN from a variety of administrative data sources. This method is far cheaper than the traditional questionnaire-based surveys.

One of the most important considerations to be taken into account when devising such an identification system is privacy protection and the confidential treatment of data. In many countries, the population is sceptical to using identification numbers as PINs, possibly due to the fear of misuse. In Norway, regulating privacy protection and personal data registers has been an important part of the work, and to this end, the Norwegian Data Protection Authority was established in 1980. The Act relating to Personal Data Filing Systems etc. (*Personregisterloven*) was introduced in 1978, and this was replaced by the Personal Data Act (*Personopplysningsloven*) in 2001. The Norwegian Data Protection Authority and the legislation have enabled effective controls to be maintained in relation to the use of PINs.

The PIN is a key building block in the national registration system in Norway. After 50 years of use, it is natural that the authorities are considering reforms both in the actual numbering structure and in how to update data in the Central Population Register and associated registers.

of the parents is recorded. Addresses were also introduced, and from 2001 these were expanded with a unique address identifier for all homes, including flats and multi-dwelling buildings.

The increase in immigration in the 1970s led to the introduction of the so called D-number by the tax authorities in 1978. The D-number was assigned to persons liable to pay taxes/national insurance but who were not registered as resident in Norway. In the mid-1990s, the D-number system was extended to other groups of people who were not considered to be 'resident' according to the Central Population Register, but who needed an identification number in Norway. The letter 'D' stems from the fact that the system was originally linked to foreign and expatriate seamen on Norwegian ships: Directorate for Seamen.

Interesting fact: In 1964, Statistics Norway had an IBM 1401, and to sort the National Population Register just once would have taken 500 hours. Sorting was therefore carried out at the Kjeller Institute's computing plant, and normally took a week of nightshift work. Nowadays, Statistics Norway uses one minute to sort its population register.

Using the PIN

The introduction of the PIN in Norway was at the forefront of developments and attracted attention at international conferences at that time. Gradually, the PIN has become an indispensable aid for combining information from different registers, which has had a major impact on the efficiency of public administration, the private sector and not least for the data collection in Statistics Norway's statistics and research activities.

Use of the PIN entails substantial savings for the authorities and for the individual taxpayer, including the submission of tax returns. Banks, employers etc. report debt, assets, income and interest expenses directly to the Norwegian Tax Administration. The Norwegian Tax Administration links information from the various sources based on the PIN and sends out pre-completed tax forms to taxpayers. Many people do not need to make any changes or additions to the tax form they receive. This would not have been possible without a unique identifier for each individual.

The introduction of the Central Coordinating Register for Legal Entities at the Brønnøysund Register Centre and of unique organisation numbers for businesses and public administration in 1995 was in many ways a follow-up of the success of the PIN, but was for legal entities in the business community.

A milestone in the efforts to establish a common reporting system for the business community is the A-scheme, which comes into effect on 1 January 2015. This entails employers submitting a digital report each month to the Norwegian Tax Administration, the Norwegian Labour and Welfare Administration (NAV) and Statistics Norway on employment, working conditions, wages etc.

In 1960, Svein Nordbotten of Statistics Norway defined the archive statistical system as 'a statistical production where the collection of source material is continuous and independent of the traditional statistical subject areas and count dates*****this does not make any sense... change to... dates when the survey was taken...??*****', and where the processing of the archived material is undertaken as the need arises and independent of the collection.' The core of the 'archive statistical system' was an infrastructure of base registers and unique and official ID numbers, for use both in administrative executive work and in statistical surveys.

In the broader picture, developing overarching and integrated systems for official statistics has become common practice. More and more countries have developed an infrastructure for register-based statistics and followed the same path - some faster than others.

For Statistics Norway, administrative data sources comprise the main basis for the production of statistics. Linking information in various administrative registers by using the PIN and the organisation number systems, enable Statistics Norway to effectively exploit the vast array of data for the benefit of Norwegian society. The need and demand for structuring and summarising information is experiencing a sharp growth. One of Statistics Norway's main tasks and its strength is the ability to combine data from a variety of sources in order to create a cohesive and comprehensive statistical description of

society and of changes in society over time. One example of this is the fully register-based Population and Housing Census in 2011.

When Statistics Norway conducts interview-based surveys, time can often be saved by retrieving certain data from the data archives. One such example is for the statistics on education level completed.

The data archives present a wealth of opportunities for research. This not only applies to purely cross-sectional data – but also to data describing and tracking changes over the life span of individuals who are included in the statistical sample. By identifying the corresponding PINs across registers, it has been possible to undertake a great deal of interesting empirical research work.

Statistics Norway currently receives administrative data from 27 public bodies, comprising over 100 different administrative data systems, where the Norwegian Tax Administration and NAV are the two largest contributors.

The PIN and privacy protection

The PIN is, in principle, not secret or confidential information, but should nevertheless be handled in line with routines in order to prevent abuse. There are occasions when individuals are required to disclose their PIN, for example to employers, banks, insurance companies, the Norwegian State Educational Loan Fund (Lånekassen), telephone companies, etc. There are, however, rules on creating registers where PINs are stored. PINs are only to be stored where absolutely necessary, in practice this means where it is required by the authorities. One such example is an employer's payroll system. Employers are required to report information about pay and taxes for each employee, identified by their PIN. Another example is telephone operators, who are required to register PINs along with telephone subscriptions. If it is suspected that the subscription is being used in criminal activity, the telephone operator may be required to provide this information to the authorities.

National registration and the Central Population Register

National registration in Norway has a long tradition and history. The old church records are early sources of information on births, marriages and deaths. Voluntary national registration was introduced in Norway in 1905. In 1915, the first law was passed that required public cooperation in the development of an administrative register. At that time the law included provisions for the local authority to require that the public notify the local authorities regarding migration within a municipality and between municipalities.

But the obligation to create a population register was not imposed on all local authorities until the period of occupation during World War II. Meanwhile, the public registration of births, marriages and deaths was transferred from the clergy to the National Population Register. Stortinget passed the Act relating to population registers (*Lov om folkeregistre*) in 1946, which introduced mandatory population registration throughout the country. The data in the 1946 version of the register is based on the census held in the same year.

The Norwegian Tax Administration was given administrative responsibility, and the function of the central office for national registration was given to Statistics Norway by Royal decree. The reason for this was that national registration would form a very important statistical source. Statistics Norway oversaw the national registration in the local population registers in accordance with legislation and regulations, and was responsible for devising and maintaining the regulations. Responsibility for keeping a register was given to the local authorities. The largest towns already had separate offices for national registration, while other municipalities gave responsibility for keeping a register to the municipal tax office.

A nationwide central registry of all inhabitants was set up when PINs were introduced in 1964, partly based on data from the census conducted in 1960. The population register is responsible for assigning PINs to everyone in the country, and has done so continuously since 1964. The National Population Register, as it was originally known, was primarily established to provide a record of assigned PINs, and was not really what is ordinarily understood to be a central register; it was more of a central record of a copy of all the local registers.

When the local tax offices were transferred to central government in 1965, the population registers became part of the Norwegian Tax Administration. The responsibility for national registration remained with Statistics Norway until 1991, when it was transferred to the Norwegian Tax Administration. National registration was fully digitized with the recording of a nationwide population register in the 1990s. The reorganisation of the Norwegian Tax Administration in 2008 saw separate units set up for national registration in each tax region, which are still in existence today.

The Central Population Register currently contains information on more than 7 million people, including their PINs, who are or have been resident in Norway. It also includes about 1.3 million people who have been issued with a D-number and have a temporary affiliation with Norway. More than 220 000 people are added every year, 60 000 of which are born in Norway, around 80 000 are immigrants and about 80 000 have a temporary affiliation. Almost 2 million changes are made to the data in the database each year. The number of immigrants who have been issued with a PIN in the last two years has exceeded the number of births in Norway. In addition, roughly the same number of foreigners with a temporary affiliation to Norway were given a D-number.

What happens now?

After 50 years it is not unexpected that a review of the population register system, including the numbering structure, is planned. The main reason for the overhaul is that its full capacity is almost reached. Calculations show that the capacity (not enough numbers left) will be critically low for D-numbers starting from 2029 and for PINs from 2039.

One question that has been discussed is whether the gender identifier should be removed from the PIN. The age identifier may also be removed. Final decisions on what changes will be made have not yet been reached.

Unique and secure identification of individuals is important for users of the Central Population Register. A modernised register must therefore facilitate a more holistic approach to identity management. There is also a need for simple routines for entering data in the register in situations where it is not possible or appropriate to establish absolute certainty of a person's identity.

The basic data registers (the common components) are the infrastructure of the information society, where the population register is the hub for personal data. It is important to further develop links to various data sources that can effectively update the contents of the population register. We have effective routines for domestic births and deaths, but data for some types of migration seems to be of a poorer quality. For example, we sometimes have gaps when immigrants move back to their home country.

The current solution dates back to the early 1990s. The population register's weaknesses are thoroughly documented, from both the basic data reporting of personal data from 2007 onwards, and from the extensive mapping of users of the population register that has been undertaken as part of the modernisation programme for the population register, with Statistics Norway as a contributor.

Some of the challenges are so fundamental that the current register does not provide adequate data for statistics on how many people are actually residing in the country, who they are, where they live, with whom they live, what relationships they have and how to contact them, either digitally and physically (communication and for emergency purposes). Today's population register does not provide satisfactory data for developing statistics in these areas.

We also know that a large number of people are not staying at the address to which they are registered, such as students, other adult children that have a different address than what is registered, and long-term commuters. The number of long-term commuters is estimated at almost 35 000. Most of these are likely to have an actual residence address at their place of work in addition to their registered address, this is an added complication that is not covered currently. On top of this is the share of the D-number population residing in Norway for whom information on residential address is insufficient and out of date.

A modernised population register will provide more accurate information on the population, which is needed to form a solid basis for social planning and to understand how society works. It will also help to portray society in greater detail, such as data on how many people actually live in the country, who they are, where they live and who the household includes.