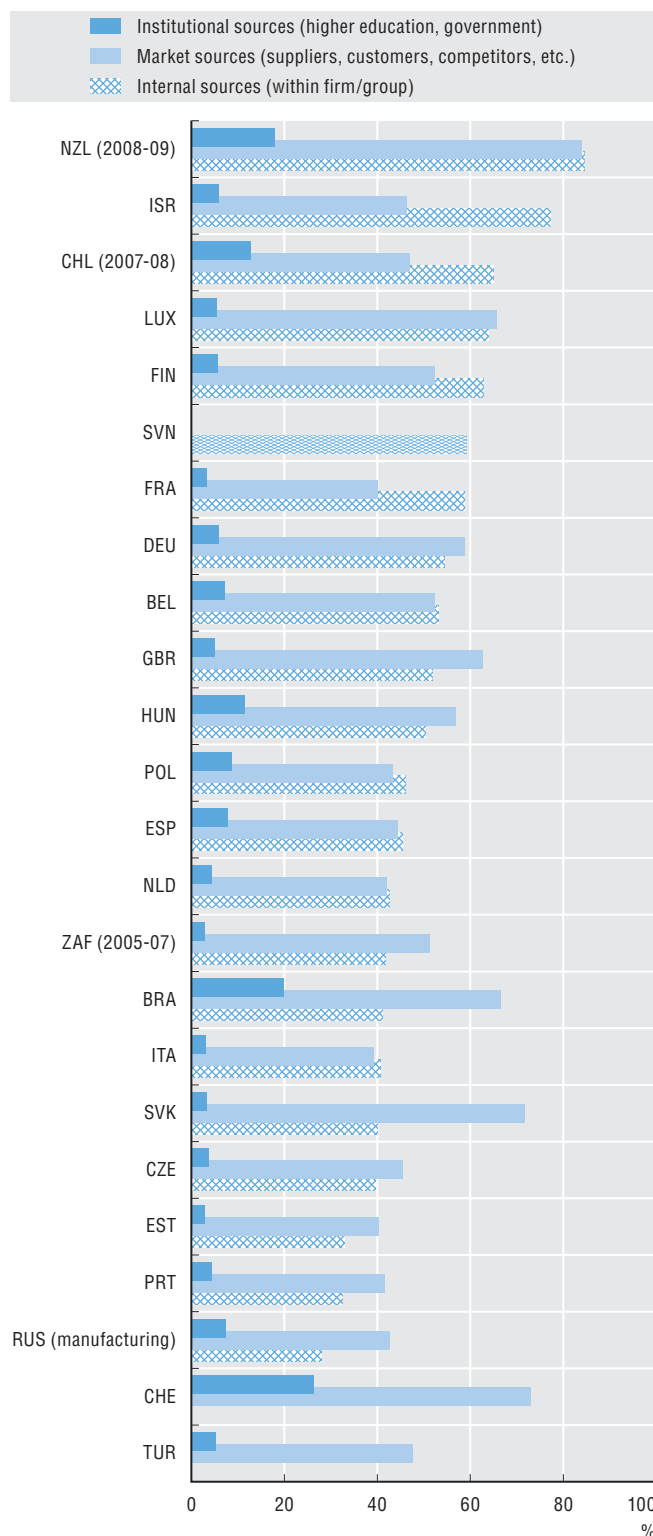


### 3. CONNECTING TO KNOWLEDGE

## 7. Innovation and knowledge flows

#### Sources of knowledge for innovation by type, 2006-08

Percentage of innovative firms citing source as “highly important” for innovation



Source: OECD, based on Eurostat (CIS-2008) and national data sources, June 2011. See chapter notes.

StatLink <http://dx.doi.org/10.1787/888932486469>

Innovation is a complex process and often involves many actors and linkages. One way to capture its systemic dimension is to examine which information sources firms use for their innovation activities. Internal sources are often reported as the most important for innovation, but in some countries external market sources predominate. Institutional sources play a much smaller role: generally, less than 10% of innovating firms rank them as “highly important”.

In addition to sourcing information from other firms or institutions, collaboration can be a key vector of innovation-related knowledge flows. In particular, collaboration with public research organisations (higher education or government research institutes) can be an important source of knowledge transfer between science and industry. This mainly concerns large firms: in most countries large firms are usually twice to three times more likely than small and medium-sized enterprises (SMEs) to engage in such collaboration. More than half of all innovating large firms in Finland, Hungary, Austria and the Slovak Republic collaborate with public institutions, compared to less than one in ten in the Russian Federation, Chile and Mexico.

#### Definitions

The current *Oslo Manual* (OECD/Eurostat, 2005) defines innovation as the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.

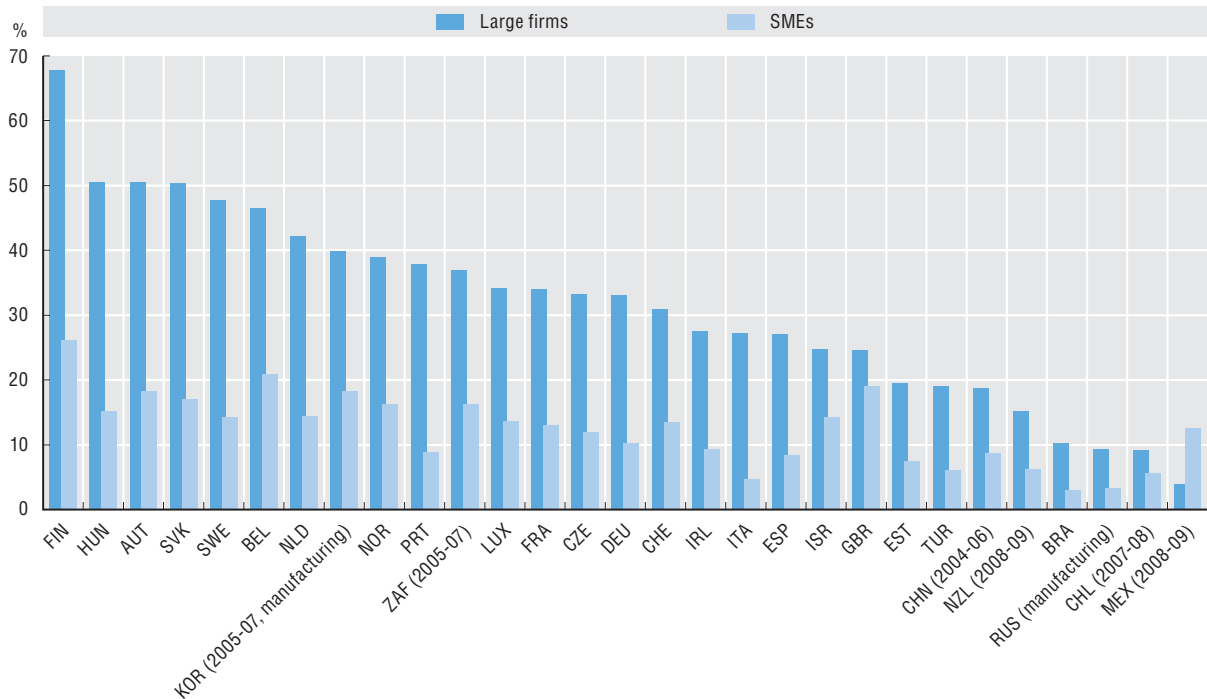
For the majority of indicators, *innovative firms* are defined as firms with product, process or ongoing/abandoned innovation activities, following the approach of the Community Innovation Survey (CIS). In other national surveys, *innovative* refers to all types of innovation (including non-technological).

*Internal sources of information* include any source within the enterprise or enterprise group. *Market sources* include suppliers of equipment, materials, components or software, clients or customers, competitors or other enterprises of the same sector and consultants, commercial labs or private R&D institutes. *Institutional sources* include universities or other higher education institutions and government or public research institutes.


The classification of firms by size follows the recommendations of the *Oslo Manual*. It is calculated on the basis of number of employees. SMEs are firms with 10-250 employees, with some exceptions: New Zealand: 6+; the Russian Federation 15+; China: at least CNY 5 million in turnover. For South Africa, firm size is based on turnover.

### Firms collaborating on innovation with higher education or government research institutions by firm size, 2006-08

As a percentage of innovative firms in each size category



Source: OECD, based on Eurostat (CIS-2008) and national data sources, June 2011. See chapter notes.

StatLink  <http://dx.doi.org/10.1787/888932486488>

#### Measurability

Despite a gradual process of harmonisation based on the *Oslo Manual*, there still remain some significant differences in methodology and survey design between the Community Innovation Survey (CIS), which is carried out throughout Europe, and other national innovation surveys. Differences that may affect the comparability of indicators include sectoral coverage, size thresholds, sampling methods as well as differences in the filtering of firms (innovators/non-innovators) throughout the survey questionnaire. There are also differences in the scope of some questions: for example, in the CIS questions on collaboration refer only to product/process innovation (so would not be asked to firms that only have non-technological innovation) while in other surveys they cover all types of innovators. Finally, the CIS uses a three-year reference period (i.e. firms are asked about their innovation activities over the last three years), while some countries use a shorter period (generally two years) which may also affect the comparability of some indicators.



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