

# Education and knowledge

The Danish education system

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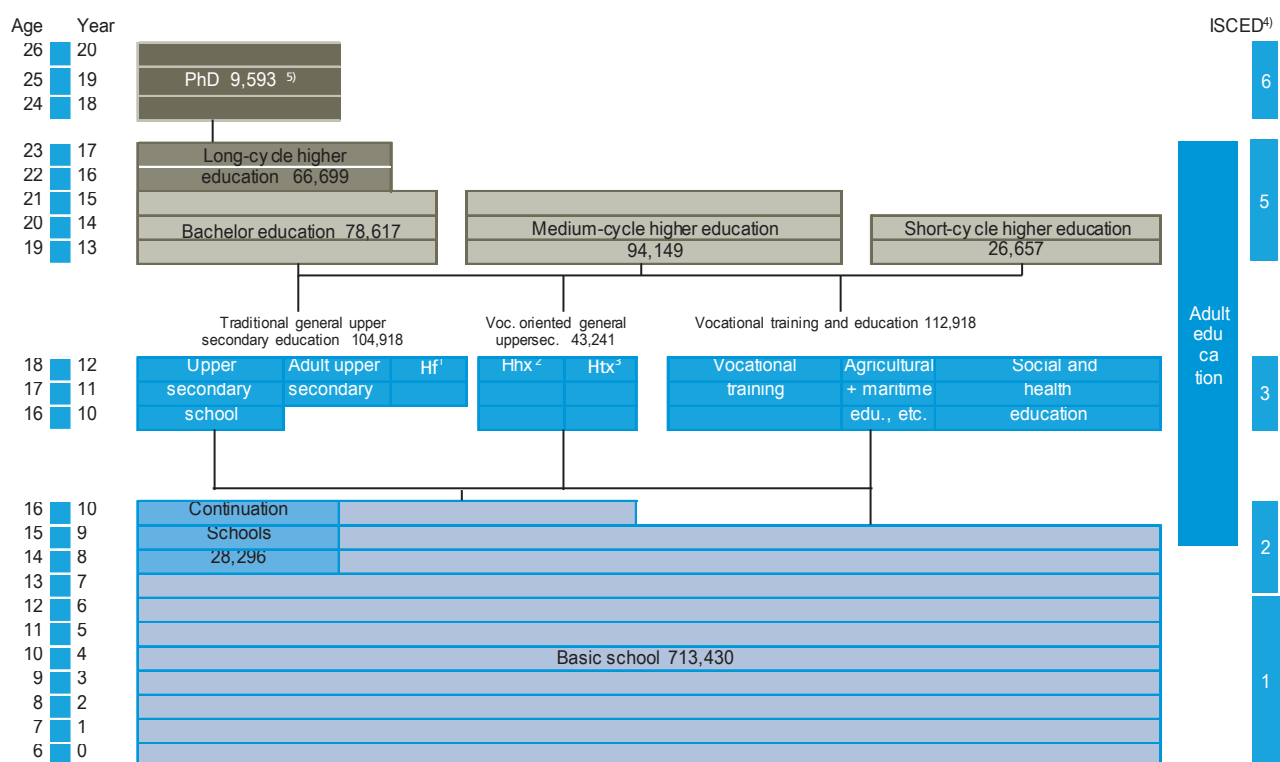


## The Danish education system

The ordinary education system comprehends education ranging from 0<sup>th</sup> grade to long-cycle higher education and Ph.D. degrees. The figure below gives a picture of how the education system is structured. The scale on the left side shows the minimum amount of years a student has been educated to complete the actual education level. It is also possible to see, the age of a student on a certain educational level - provided that the student has started in pre-school class as a 6-year old, has not had any breaks and has gone through the educational system at the normative time. The scale on the right side shows the different educations' placement in the international education nomenclature ISCED.

Beside the ordinary educational system, there is the educational system for adult. The educational system for adult is distinct from the ordinary system by consisting of short courses and part-time education. Typically this education system consists of isolated courses, which in some cases can be combined into a full qualification equivalent to the qualifications of the ordinary system.

**Figure 1** Number of students in the educational system. 1 October 2016



<sup>1</sup>Higher preparatory examination. <sup>2</sup>Higher commercial examination. <sup>3</sup>Higher technical examination.

<sup>4</sup>International Standard Classification of Education. <sup>5</sup> Enrolled 2015.

## Population by status of education

### Increase in the level of education

In 2016, 71 per cent of the 30-69-year-olds had completed education providing them with professional qualifications, defined as vocational or higher education aimed at specific types of jobs. The proportion was 66 per cent in 2006. There are slightly more women than men who have completed education courses providing them with professional qualifications.

### High frequency of vocational education

The highest level of qualifications among the 30-69 age group was most frequently a vocational education. 37 per cent had completed this type of education, while 34 per cent had completed a higher education in 2016. In 2006, 39 per cent of the 30-69-year-olds had completed a vocational education and 28 per cent had completed a higher education.

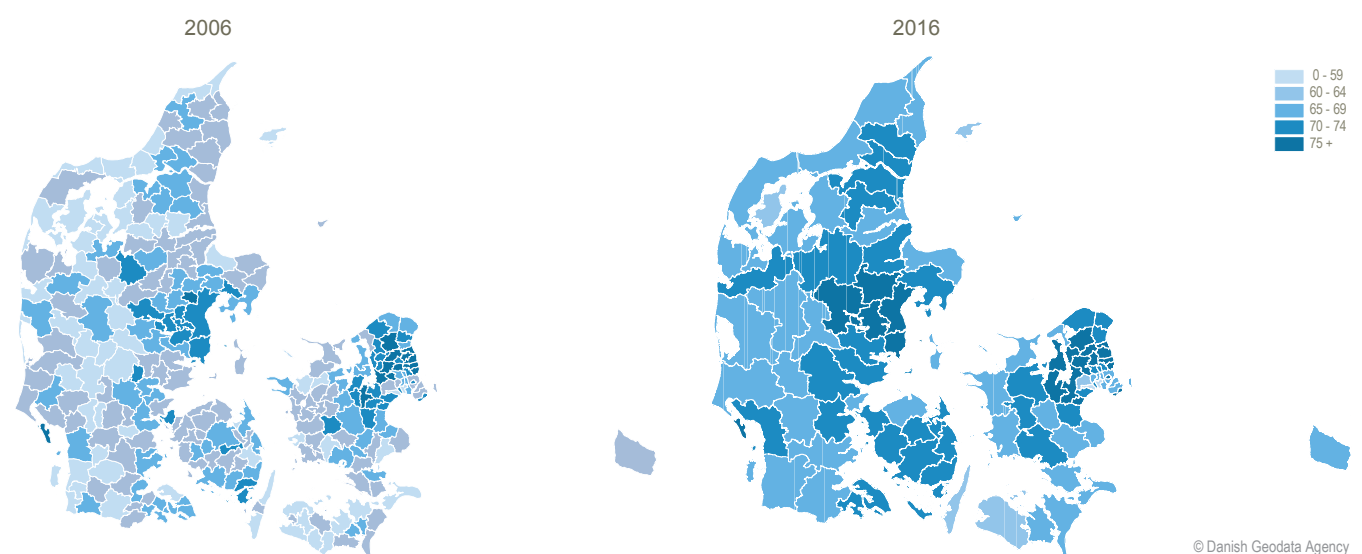
The proportion of 30-69 years old with a higher education has been increasing over the last 10 years while there has been a slight decrease in the proportion with a vocational education.

Among the remaining 29 per cent of the 30-69-year-olds of the population, 20 per cent had completed basic school education, 5 per cent general upper secondary education as the highest level of education, while there is no information for the last 5 per cent.

### Regional differences

Regional differences are evident with regard to educational patterns within the Danish population in 2016. There is, however, a trend for the highest proportion completing education courses providing them with professional qualifications to be found around the large cities, with correspondingly lower proportions being evident in the provinces.

**Figure 2** Education providing professional qualifications among 30-69-year-olds in per cent

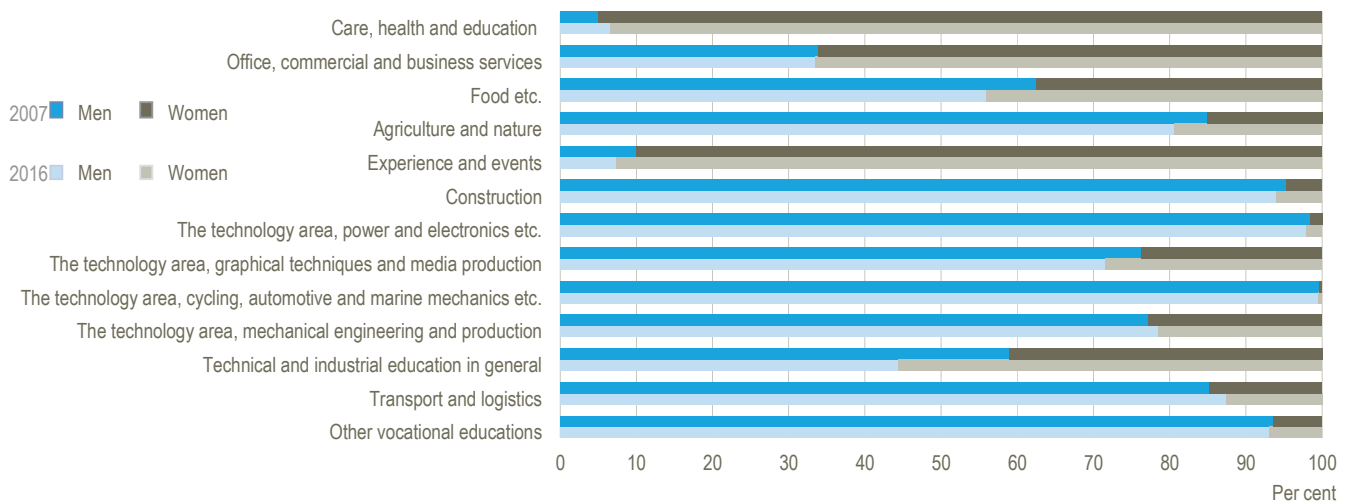


### Sharp divisions in educational patterns between the sexes

Sharp distinctions were observed in the educational patterns for 30-69-year-old men and women with regard to both educational levels and fields. More men than women had completed vocational education in 2015, whereas more women than men had completed medium-cycle higher education in the same year. The difference in the other education groups are less pronounced and since 2004 more women than men have finished a Master's degree.

Figure 3

### 30-69-year-olds with vocational education as the highest education completed



www.statbank.dk/hfudd10

Among the vocational educations, there are major male-dominated disciplines such as construction (e.g. carpenter) and the technology area (e.g. mechanic, electrician and blacksmith). Office, commercial and business services (e.g. assistant), care, health and education (e.g. social and health care) and experience and event (e.g. hairdressing) is however dominated by women.

### Most medium-cycle courses are dominated by either men or women

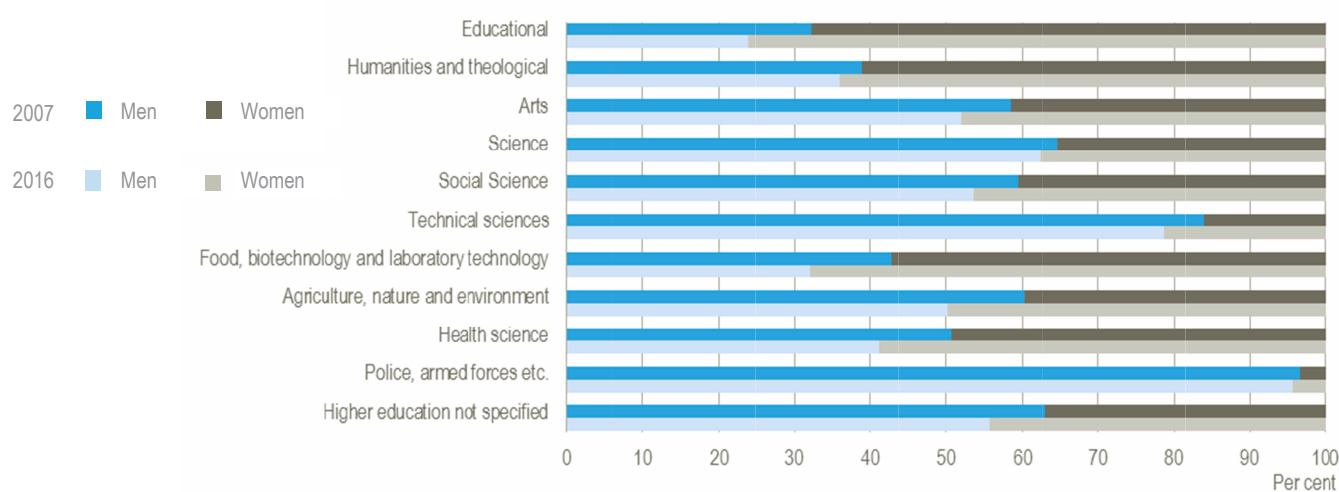
As far as medium-cycle education is concerned, three in ten disciplines were sharply dominated by men: These were technical science (e.g. technical engineers), maritime educations (e.g. marine engineers and shipmasters) and public security education. However, three disciplines humanities and theological, food, biotechnology and laboratory technology, and the health sector are dominated by women. Among the major courses are, for example, food engineering and trained nurses.

### Long-cycle higher education is more mixed

As far as long-cycle higher education is concerned, particular two disciplines technical sciences and police and armed forces were dominated by men, whereas the distribution between men and women were more equal in the following disciplines: education, humanities and theological, food, biotechnology and laboratory technology area.

Figure 4

## 30-69-year-olds with long-cycle higher education by field



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## Full time education

### Pre-school to 10th

Basic school forms the foundation of the Danish educational system. It begins with pre-school class and leads up to the voluntary 10th school year. In 2016, 713,000 pupils attended basic school. Of these, 66,500 had started in pre-school class, while 171,600 attended 8th to 10th grade, and among these, 28,300 attended continuation schools.

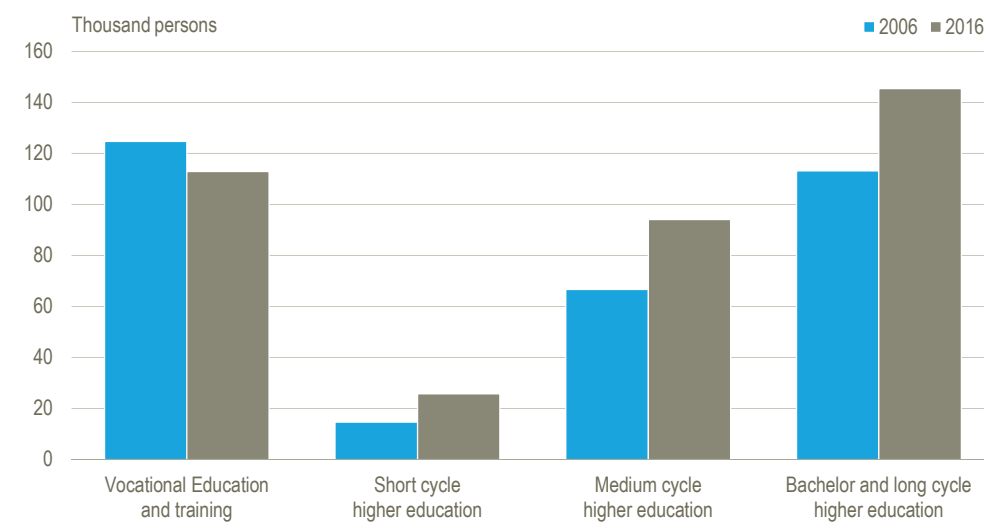
### Higher number of students attending medium-cycle higher educations

In total 265,200 students are attending higher educations in 2016 – not including Ph.D. students. The largest part, 35 per cent, is attending the medium-cycle higher educations, followed by bachelor and long-cycle higher educations by 30 and 25 per cent respectively. The smaller part is accounted for by the students at short-cycle higher educations with 10 per cent of the attending students.

Typically, a short-cycle higher education can be taken at Business and Technology Academies and comprises educations such as estate agent, market economist and computer scientist. The medium-cycle higher educations are offered by University Colleges and comprise educations such as school teacher, social worker, nurse and pedagogue. Bachelor- and long-cycle higher educations are most often offered by the universities.

### Increase in students in vocational educations

The number of students in vocational educations has fallen 9 per cent and increased by 36 per cent in higher educations from 2006 to 2016. In 2016 there were 112,900 students in vocational educations and 265,200 students in higher educations, such as policeman, nurse or doctor. Ph.D.-students are not included in this figure.

**Figure 5** Students attending education and training providing profess. qualifications

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## Courses and adult education

### Adult education at almost all levels of education

Outside the main educational system, there are a number of public-managed courses providing formal qualifications. Adult education courses covering almost all levels of education within the ordinary education system are available.

In the school year 2014-15, nearly 1.2 million course participants completed their participation in public-managed adult or supplementary courses, and course participants at adult vocational training constituted 47 per cent of these. Course participants at general and preparatory courses, i.e. 8th and 9th form, higher preparatory course or Danish language courses for foreigners, constituted 38 per cent, while course participants at further education constituted 11 per cent, respectively.

33 per cent of the course participants had vocational training as highest education completed, 31 per cent had basic school, 6 per cent had general upper secondary school, 15 per cent had unknown education stated, and 14 per cent had completed a higher education.

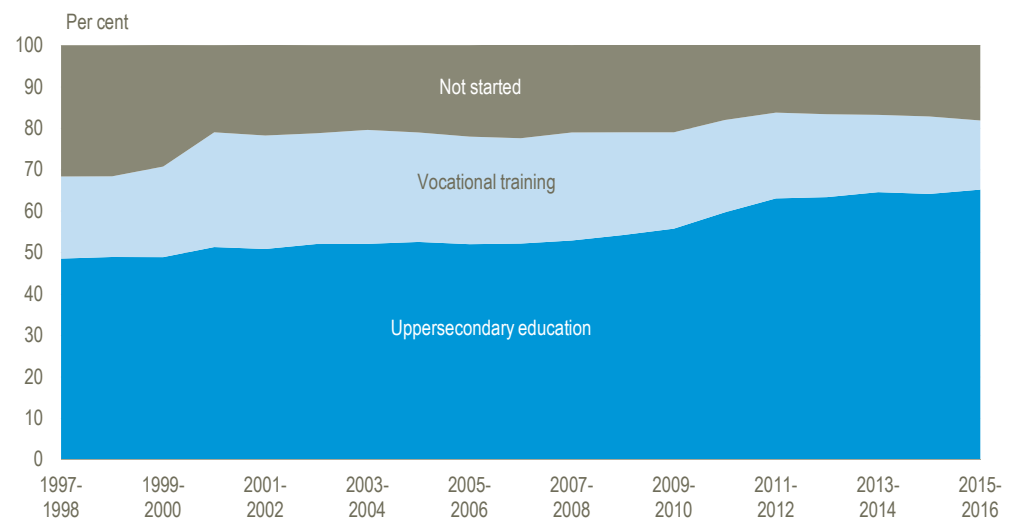
### 6 out of 10 of the participants at general/preparatory courses were women

49 per cent of the participants in public courses were women. The proportion of women at the general and preparatory courses was 58 per cent, while the corresponding figure at the adult vocational training centres was a mere 38 per cent. At the higher education centres, 60 per cent were women.

## Educational performance

### Eight out of ten young people are in education immediately after primary school

Of all students leaving school in 2015, 82 per cent had commenced further education after a period of three months. 65 per cent had chosen to attend general upper-secondary education or vocational education (general programmes of education at second level, second stage, hhx, htx), while 17 per cent opted for vocational education and training, e.g. carpenters, bricklayers or hairdressers.

**Figure 6** Students three months after leaving basic school

[www.statbank.dk/forlob10](http://www.statbank.dk/forlob10)

49 per cent of the students leaving school in 1996 attended traditional general upper-secondary education or vocational general upper-secondary, while 19 per cent opted for vocational education and training within a period of three months after leaving basic school. In the period from 1996 to 2015 there has been an increase in the proportion of young people choosing an upper-secondary education, while there has been a slight decrease in young people choosing a vocational education. The proportion of young people who are not enrolled in education three months after leaving primary school has decreased from 33 per cent to 19 per cent from 1996 to 2015.

17 per cent of students who graduated from traditional general upper-secondary education in 2015-16 continued their education immediately after completing their general upper-secondary education. The corresponding proportion of graduates from 2005-06 was likewise 17 per cent. The proportion of graduates from 2015-16 who continued their education immediately after graduating from vocational general upper-secondary education was 29 per cent.

83 per cent of the graduates from general upper-secondary education or vocational education in 2015-16 who had enrolled for further education three months after their graduation chose higher education.

#### **Ten years after basic school half of the Danes have profess. qualifications**

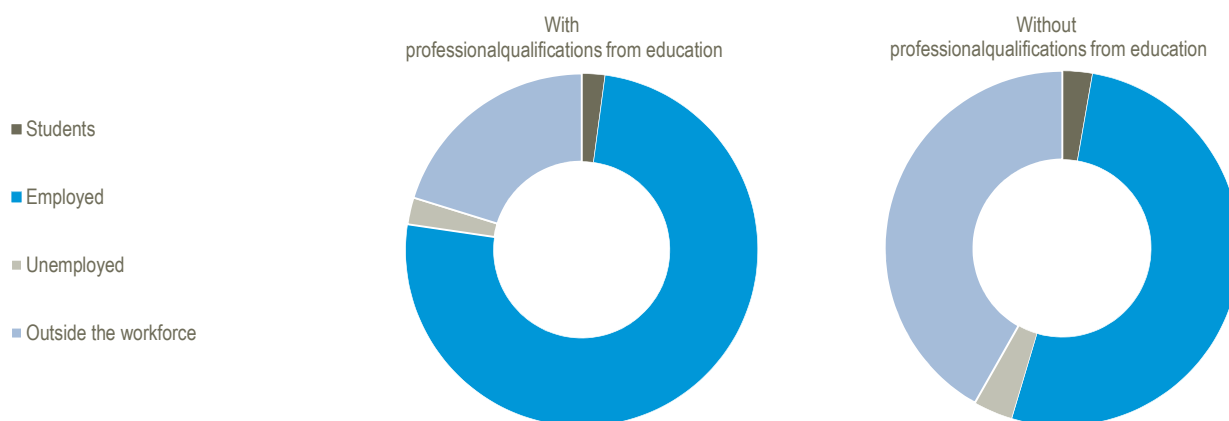
Ten years after leaving basic school in 2005-06, about 52 per cent had completed training providing them with professional qualifications. Of this group, 24 per cent had completed a vocational education course and 27 per cent had completed higher education, while 28 per cent were still studying. The educational remainder – young people who had not attended any educational institution or had not completed an education course providing them with professional qualifications ten years after leaving basic school – accounted for 14 per cent of the year 2005-06.

#### **Education has a significant effect on employment**

In 2015 68 per cent of the age group 30-69 years were employed, 3 per cent unemployed, 27 per cent outside the workforce and 2 per cent under education. Persons with professional qualifications have a higher employment rate than those without professional qualifications. Higher levels of education can lead to better employment.

Figure 7

## The relation to the labour market for the 30-69-year-olds. 1 January 2015



www.statbank.dk/krhf2

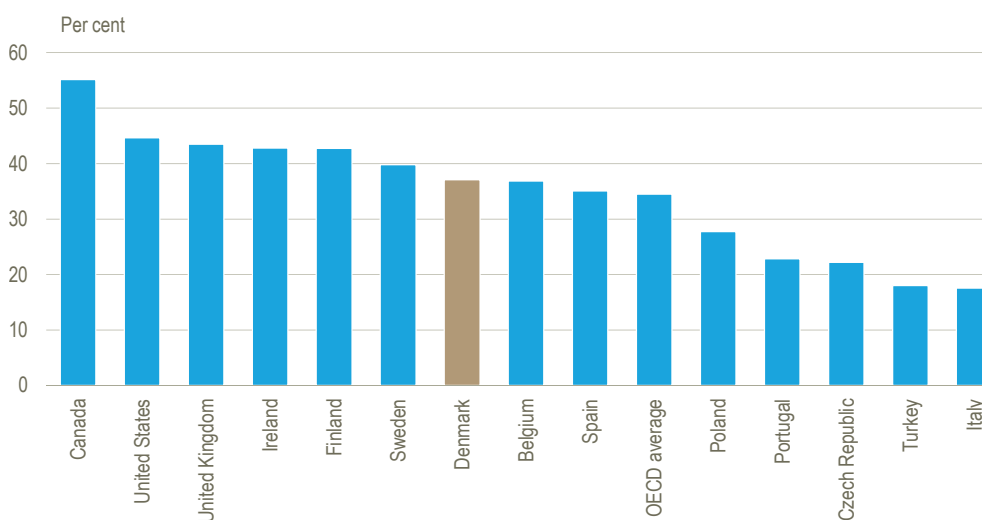
## Education in an international perspective

## Level of education in Denmark above OECD average

In all OECD countries, an average of 35 per cent of the 25-64-year-olds had completed a higher education in 2014. At 37 per cent, Denmark was among OECD countries above average percentage. The three highest percentages were found in Canada, Russia, Japan while Brazil, Turkey, Mexico and Italy, accounted for the lowest percentages.

Figure 8

## Persons having completed tertiary education in selected OECD countries. 2014



Source: OECD, Education at a glance 2016.

## Danes proceed through 19,7 years of education

Children that began primary education in Denmark in 2014 will proceed through an average of 19,7 years of full time education during their lifetime. Finland, Australia and Sweden are topping the list with Denmark, all accounting for 19 years of education or more. Among countries lying around 15 years of education are Luxembourg and Mexico I. The OECD average was 17,4 years in 2014.



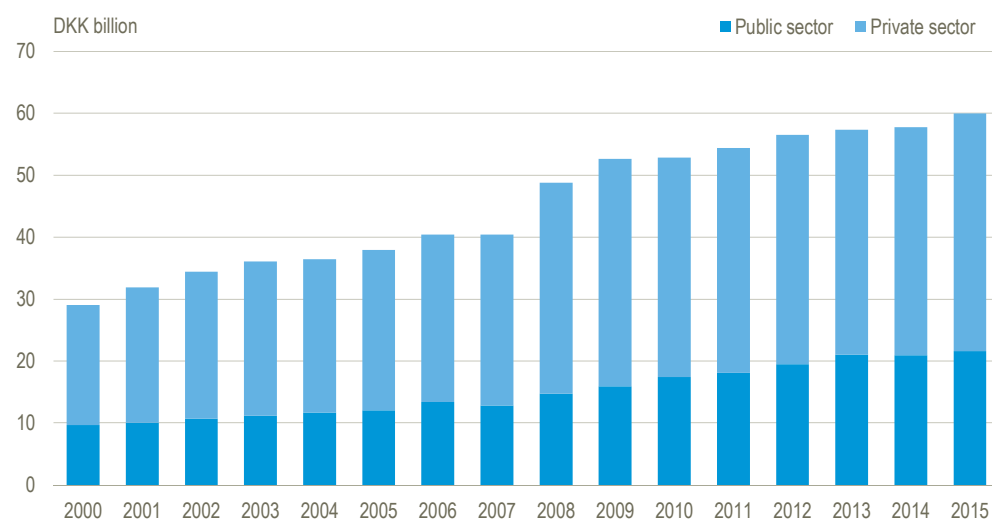
## Research, development and innovation

### The private sector contributes with two thirds of total R&D-expenditure

Research and development as well as innovation activities are important factors for the development of the competitiveness of the firms and, consequently, for economic growth in society. The creation of new knowledge and its subsequent use in the enterprises are important factors for the dynamics and innovation of the business sector by way of introducing new products and production processes.

R&D activities take place both in the private and the public sector. Total Danish R&D expenditure in the public and private sector has doubled in the period 2000-2015 and has been estimated at DKK 60 billion in 2015. The private sector's share of total R&D expenditure has been approximately two thirds during the period, but has decreased during the recent years.

**Figure 9** R&D expenditure of the public and private sector

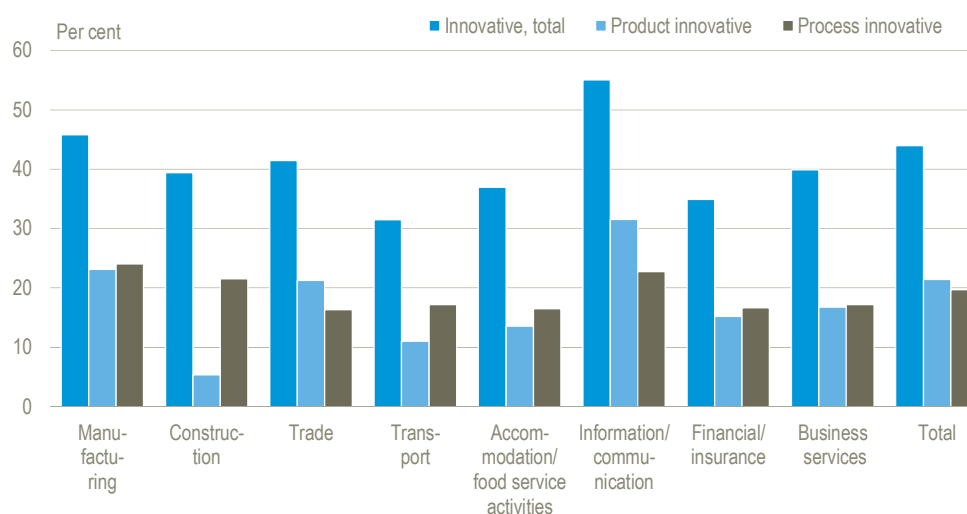


[www.statbank.dk/forsk01](http://www.statbank.dk/forsk01) and [fouoff07](http://fouoff07)

### Manufacturing has the highest R&D expenditure

R&D expenditure is particularly high in manufacturing and total expenditure on own R&D activities reached DKK 22.1 billion in 2015. This amount corresponds to 58 per cent of the private sector's expenditure on R&D.

The remainder of private sectors R&D expenditure is dominated by the industries business service, information and communication, and finance and insurance. Enterprises in business service accounted for R&D expenditure amounting to DKK 6.1 billion (16 per cent) in 2015. Enterprises in finance and insurance accounted for 4.0 DKK billion (10 per cent) and enterprises in information and communication (television and radio, telecommunication and ICT and information services etc.) also accounted for 4.0 DKK billion (10 per cent).

**Figure 10 Percentage of innovative enterprises by industry. 2013-2015**

[www.statbank.dk/inn02](http://www.statbank.dk/inn02)

#### 44 per cent of all enterprises are innovative

The greater majority of Danish enterprises do not carry out research and development activities. Instead, they attempt to increase their competitiveness by introducing new products and production processes, or by introducing new organisational methods or marketing initiatives, i.e. innovation. 44 per cent of the Danish enterprises have introduced innovations during the period 2013-2015.

Innovative enterprises are found primarily among businesses in information and communication where 55 per cent innovated during 2013-2015.

The innovation activities of Danish enterprises are characterized by large industrial variation. Enterprises in information and communication have more innovation in products than in processes, whereas enterprises in construction to a larger degree introduce new production processes.

Enterprises in manufacturing industry have almost the same frequency in product and process innovation (23 per cent and 24 per cent). Total innovation expenditure amounted to DKK 47.1 billion in 2015, of which DKK 38.4 billion was used for own R&D. In addition Danish enterprises purchase of R&D-services amounted to DKK 19.5 billion in 2015.

## Information society

### About the information society

An analysis of the information society can be made partly via the supply side in the form of enterprises and employment in the ICT sector and partly via the demand side in the form of the use of information technology by enterprises and by individuals.

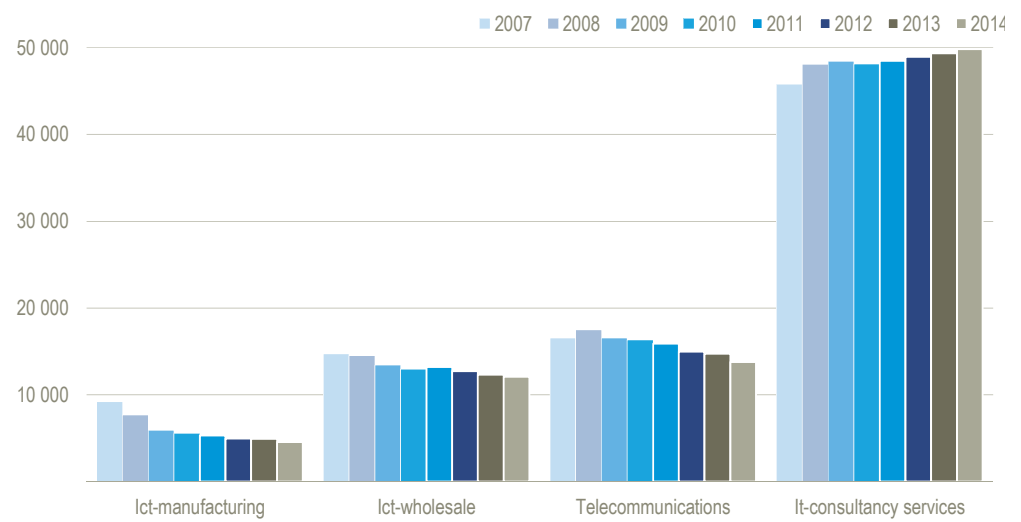
### The ICT sector

The ICT sector comprises enterprises that produce products and services within electronics, ICT, computer software, telecommunications, and other areas primarily based on information technologies. The ICT sector can be divided into ICT manufacturing, ICT wholesale, telecommunications, and ICT consultancy services.

### Fall in employment in ICT manufacturing

In 2014, the Danish ICT sector employed a total of 80,203 full-time employees, which is a minor decrease of 7 per cent compared to 2007. However, there was a fall in ICT manufacturing of 51 per cent and an increase of 9 per cent in ICT services, consultants, etc. Out of total employment in ICT manufacturing, 62 per cent was employed in ICT services, 17 per cent in telecommunications, 15 per cent in ICT wholesale and 6 per cent in ICT manufacturing.

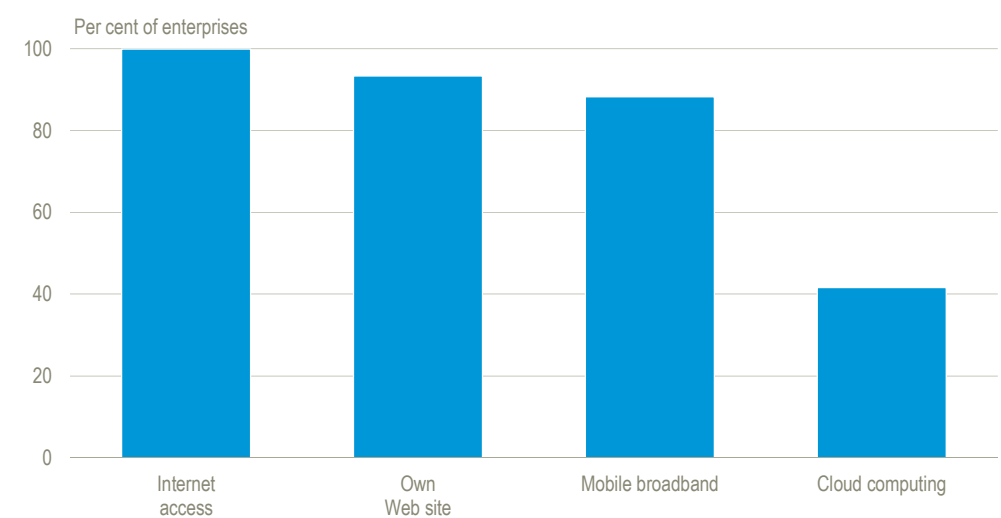
Figure 11 Full-time employees in the ICT sector



### Use of ICT by enterprises

At the beginning of 2016, nearly all enterprises had access to the Internet and more than nine out of ten enterprises had their own website. Almost nine out of ten enterprises had mobile broadband. More than four out of ten enterprises used one or more cloud computing services.

Figure 12 Use of ICT by enterprises. 2016



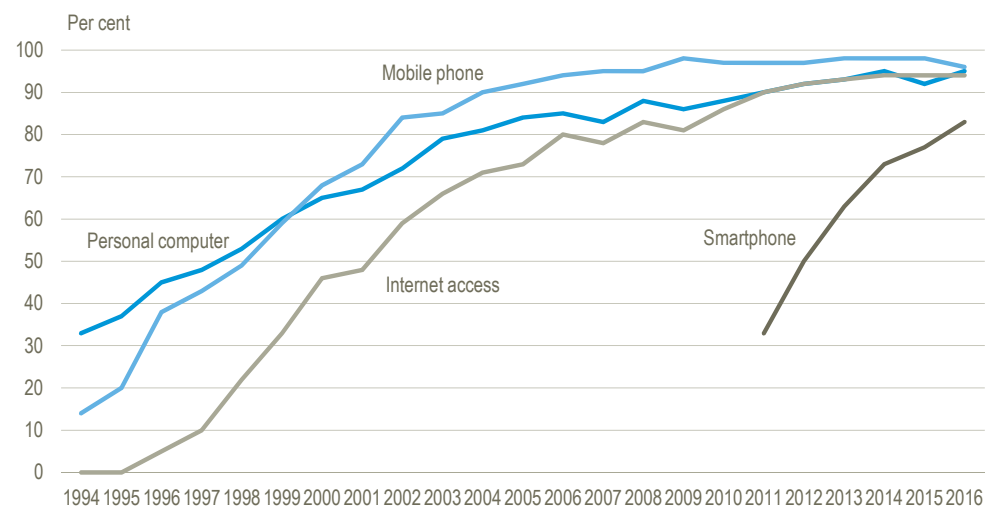
Note: Broadband connection, connection faster than analog modem or ISDN.

### Almost everybody has a mobile phone

More and more families have access to ICT products in the home e.g. PC, Internet and mobile phones. Mobile phone ownership has in 2000 surpassed PC ownership.

At least four out of five families have both a computer and a smartphone in 2016. In 2016 94 per cent of Danish families have access to the internet.

**Figure 13 Families' access to ICT goods in the home**



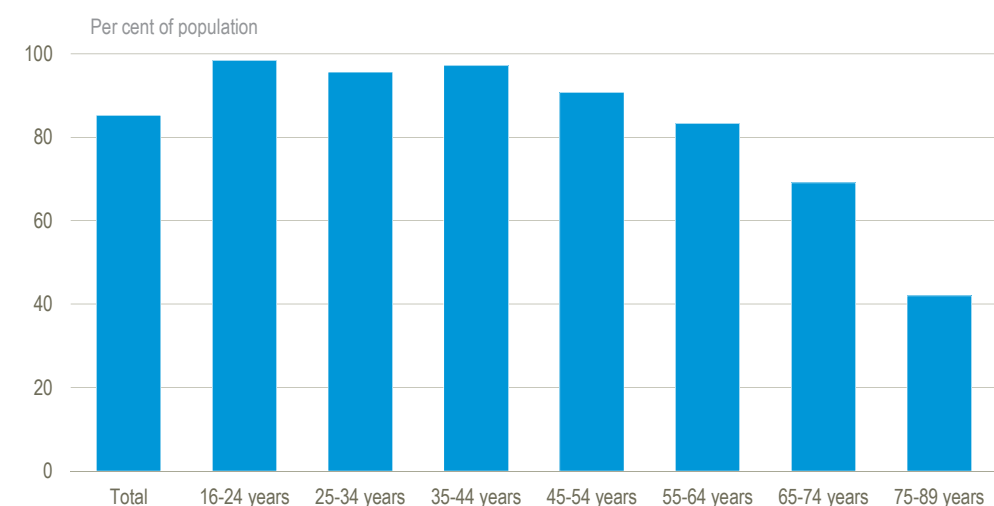
Note: 1 January.

[www.statbank.dk/varforbr](http://www.statbank.dk/varforbr)

### 85 per cent of Danes uses the Internet daily

The share of Danes between 16-89 years old who uses the Internet daily or almost daily has increased during the recent years. The number is 85 per cent in 2016. As more and more people use the Internet, the proportion of those who have never used the Internet declines. In 2016, this proportion is 5 per cent of the 16-89 years old. It is especially the elderly who have never used the Internet; 33 per cent of the 75-89 year olds has never used the Internet, while the figure is only 11 per cent for the 65-74 year olds.

**Figure 14 Daily use of Internet. 2016**



**Table 136** Students in the educational system. 2016

1.10.2015 -30.09.2016	Students 2015	Entrance	Graduates <sup>1</sup>	Did not complete education	Students 2016
<b>Total</b>	<b>1 255 202</b>	<b>444 450</b>	<b>262 506</b>	<b>186 538</b>	<b>1 250 608</b>
Basic school/preparatory	718 647	194 829	103 710	88 387	721 379
General upper-secondary education	148 145	60 695	46 751	11 900	150 189
Vocational education and training	118 810	84 819	33 592	57 119	112 918
Qualifying educational programmes	844	1 196	835	305	900
Short-cycle higher education	26 217	13 123	9 191	4 392	25 757
Medium-cycle higher education	91 727	32 883	21 680	8 781	94 149
Bachelor	81 237	28 737	20 253	11 104	78 617
Long-cycle higher education	69 575	28 168	26 494	4 550	66 699
<b>Men, total</b>	<b>626 024</b>	<b>223 481</b>	<b>125 495</b>	<b>98 279</b>	<b>625 731</b>
Basic school/preparatory	370 613	100 214	53 021	45 645	372 161
General upper-secondary education	69 204	28 505	21 329	6 154	70 226
Vocational education and training	66 797	46 676	16 758	31 231	65 484
Qualifying educational programmes	647	917	657	236	671
Short-cycle higher education	14 083	7 065	4 783	2 549	13 816
Medium-cycle higher education	35 767	13 551	8 212	4 197	36 909
Bachelor	38 467	13 715	9 188	5 978	37 016
Long-cycle higher education	30 446	12 838	11 547	2 289	29 448
<b>Women, total</b>	<b>629 178</b>	<b>220 969</b>	<b>137 011</b>	<b>88 259</b>	<b>624 877</b>
Basic school/preparatory	348 034	94 615	50 689	42 742	349 218
General upper-secondary education	78 941	32 190	25 422	5 746	79 963
Vocational education and training	52 013	38 143	16 834	25 888	47 434
Qualifying educational programmes	197	279	178	69	229
Short-cycle higher education	12 134	6 058	4 408	1 843	11 941
Medium-cycle higher education	55 960	19 332	13 468	4 584	57 240
Bachelor	42 770	15 022	11 065	5 126	41 601
Long-cycle higher education	39 129	15 330	14 947	2 261	37 251

<sup>1</sup> Entrance of pupils to basic school comprises entrance of pupils to 0st to 6th class and to 7th and 10th class. <sup>2</sup> Graduates from basic school equal graduates from basic school with 9th or 10th grade.

www.statbank.dk/uddakt10

<sup>3</sup> Ph.D. is not included in the table.

**Table 137** Students by national origin. 2016

	Basic school/ preparatory	General upper- secondary school	Vocational education and training	Short- cycle higher education	Medium- cycle higher education	Bachelor	Long-cycle higher education/ ph.d	Total
	per cent							
<b>Men and women, total</b>	<b>58</b>	<b>12</b>	<b>9</b>	<b>2</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>1 250 608</b>
Of whom: immigrants and descendants	53	11	8	4	9	7	9	156 109
Western countries	35	6	7	8	14	9	20	38 327
Non western countries	59	12	9	2	7	6	5	117 779
<b>Men, total</b>	<b>59</b>	<b>11</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>625 731</b>
Of whom: immigrants and descendants	56	10	8	4	8	6	8	76 439
Western countries	38	6	7	8	13	9	20	18 262
Non western countries	62	12	8	2	6	5	4	58 175
<b>Women, total</b>	<b>56</b>	<b>13</b>	<b>8</b>	<b>2</b>	<b>9</b>	<b>7</b>	<b>6</b>	<b>624 877</b>
Of whom: immigrants and descendants	50	11	8	3	10	8	9	79 670
Western countries	33	7	7	7	15	10	21	4 001
Non western countries	56	13	9	2	9	7	5	38 621

www.statbank.dk/uddakt12

**Table 138** Students enrolled in general education

	Entrance of students 01.10.15–30.09.16		Graduates 01.10.15–30.09.16		Disrupted educations		Students 01.10.16 <sup>1</sup>	
	Men	Women	Men	Women	Men	Women	Men	Women
<b>Total</b>	<b>129 636</b>	<b>127 084</b>	<b>75 007</b>	<b>76 289</b>	<b>52 035</b>	<b>48 557</b>	<b>443 058</b>	<b>429 410</b>
<b>Basic school/preparatory</b>	<b>100 214</b>	<b>94 615</b>	<b>53 021</b>	<b>50 689</b>	<b>45 645</b>	<b>42 742</b>	<b>372 161</b>	<b>349 218</b>
<b>Upper secondary education</b>	<b>28 505</b>	<b>32 190</b>	<b>21 329</b>	<b>25 422</b>	<b>6 154</b>	<b>5 746</b>	<b>70 226</b>	<b>79 963</b>
General (stx, hf, student courses)	17 091	25 172	13 723	20 847	3 698	4 241	41 933	62 985
General (hvx, htx)	10 806	6 158	7 380	4 255	2 116	995	27 494	15 747
International	608	860	226	320	340	510	799	1 231
<b>Qualifying educational programmes</b>	<b>917</b>	<b>279</b>	<b>657</b>	<b>178</b>	<b>236</b>	<b>69</b>	<b>671</b>	<b>229</b>
Access courses - higher edu.	41	144	25	98	16	32	40	159
Access Exams - engineering education	876	135	632	80	220	37	631	70

<sup>1</sup> The newest number of students is equal to the old number of students plus the entrance of students minus those who either graduates or leaves without examination.

www.statbank.dk/uddakt10

**Table 139** Students in upper-secondary education. 2016

	Completed educations			Average mark		
	Men	Women	Total	Men	Women	Total
<b>Total</b>	<b>21 986</b>	<b>25 600</b>	<b>47 586</b>			
Upper-secondary school	10 991	16 969	27 960	7.0	7.5	7.3
Higher preparatory examination	2 623	3 706	6 329	6.3	6.4	6.3
Adult upper-secondary school	109	172	281	6.6	7.3	7.0
Entrance course to higher education	25	98	123	•	•	•
Higher commercial examination	4 537	3 270	7 807	6.4	7.1	6.7
Higher technical examination	2 843	985	3 828	6.9	7.7	7.1
International Upper-secondary school	226	320	546	7.5	8.3	8.1
Entrance examination to engineers	632	80	712	•	•	•

www.statbank.dk/uddakt30

Table 140 Students in higher education

	Entrance of students 01.10.15–30.09.16		Graduates 01.10.15–30.09.16		Disrupted educations		Students <sup>1</sup> 01.10.16	
	Men	Women	Men	Women	Men	Women	Men	Women
<b>Total</b>	<b>47 169</b>	<b>55 742</b>	<b>33 730</b>	<b>43 888</b>	<b>15 013</b>	<b>13 814</b>	<b>117 189</b>	<b>148 033</b>
<b>Short cycle higher education</b>	<b>7 065</b>	<b>6 058</b>	<b>4 783</b>	<b>4 408</b>	<b>2 549</b>	<b>1 843</b>	<b>13 816</b>	<b>11 941</b>
Educational	3	25	0	14	4	10	7	75
Media and Communication	807	698	692	578	297	229	1 524	1 261
Arts	19	32	18	29	8	11	53	77
Social science, Economics-Mercantile	3 372	3 582	2 209	2 377	1 289	1 163	6 414	6 848
Technical educations	2 367	876	1 525	788	831	191	4 853	1 759
Food, biotechnology and laboratory technology	216	411	122	307	77	138	499	971
Agriculture, nature and environment	124	108	108	124	18	40	206	212
Maritime	82	3	46	3	16	0	86	2
Health	27	286	22	175	5	56	74	675
Police, armed forces etc.	48	37	41	13	4	5	100	61
<b>Vocational bachelors educations</b>	<b>13 551</b>	<b>19 332</b>	<b>8 212</b>	<b>13 468</b>	<b>4 197</b>	<b>4 584</b>	<b>36 909</b>	<b>57 240</b>
Educational	2 890	6 227	2 108	4 817	1 032	1 464	9 446	20 427
Media and Communication	576	794	461	509	125	131	1 666	2 105
Humanities and theological	12	18	14	28	0	0	13	19
Arts	135	636	102	550	7	65	384	1 430
Social science, Economics-Mercantile	2 326	3 892	1 206	2 242	624	890	5 204	10 066
Social Sciences	13	11	15	17	0	1	42	41
Technical educations	5 852	1 300	3 238	573	1 990	454	15 552	3 421
Technical sciences	0	0	0	0	0	0	0	0
Food, biotechnology and laboratory technology	108	537	66	401	56	179	286	1 639
Agriculture, nature and environment	94	78	62	35	11	17	297	183
Maritime	76	11	68	6	25	1	215	36
Health	1 007	5 713	656	4 234	313	1 377	3 003	17 663
Police, armed forces etc.	462	115	216	56	14	5	801	210
<b>Bachelors programmes</b>	<b>13 715</b>	<b>15 022</b>	<b>9 188</b>	<b>11 065</b>	<b>5 978</b>	<b>5 126</b>	<b>37 016</b>	<b>41 601</b>
Educational	22	165	8	123	16	50	45	462
Humanities and theological	2 463	4 429	1 665	3 337	1 354	1 921	6 889	12 359
Arts	439	543	386	466	115	87	1 328	1 488
Science	2 533	1 710	1 580	1 089	1 385	761	6 728	4 631
Social Sciences	5 160	5 285	3 598	3 976	2 001	1 568	13 781	14 492
Technical sciences	2 230	929	1 229	502	819	293	5 528	2 322
Food, biotechnology and laboratory technology	34	69	22	54	23	28	98	226
Agriculture, nature and environment	126	370	91	264	56	122	340	1 053
Health science	708	1 522	609	1 254	209	296	2 279	4 568
<b>Masters programmes</b>	<b>12 838</b>	<b>15 330</b>	<b>11 547</b>	<b>14 947</b>	<b>2 289</b>	<b>2 261</b>	<b>29 448</b>	<b>37 251</b>
Educational	193	943	213	1 060	91	269	568	2 545
Humanities and theological	1 523	3 116	1 515	3 109	389	642	3 892	7 843
Arts	416	443	346	513	59	72	922	1 044
Science	1 584	1 245	1 281	1 070	257	125	3 421	2 788
Social Sciences	5 100	5 869	5 057	6 231	887	764	11 972	14 019
Technical sciences	2 999	1 320	2 245	924	537	199	5 879	2 669
Food, biotechnology and laboratory technology	46	149	25	127	5	16	93	335
Agriculture, nature and environment	217	427	174	337	18	39	514	1 094
Health science	760	1 818	691	1 576	46	135	2 187	4 914
Police, armed forces etc.	0	0	0	0	0	0	0	0

<sup>1</sup> The newest number of students is equal to the old number of students plus the entrance of students minus those who either graduates or leaves without examination.

Table 141 Participants in courses of adult and supplementary education. 2014/2015

	Highest completed level of education								Total
	Basic school	General upper secondary education	Vocational education and training	Short-cycle higher education	Medium-cycle higher education	Bachelor	Long-cycle higher education	Not stated	
Public courses									
<b>Total<sup>1</sup></b>	<b>358 318</b>	<b>70 041</b>	<b>381 746</b>	<b>35 505</b>	<b>84 831</b>	<b>10 051</b>	<b>35 021</b>	<b>176 497</b>	<b>1 152 010</b>
<b>Participants in general and preparatory courses</b>	<b>216 127</b>	<b>19 442</b>	<b>55 083</b>	<b>5 259</b>	<b>14 356</b>	<b>3 756</b>	<b>10 531</b>	<b>153 343</b>	<b>477 897</b>
Primary education	134 394	5 853	26 133	1 770	2 715	1 128	1 754	34 106	207 853
Preparatory courses	8 540	6 927	8 045	1 268	9 477	904	4 696	5 361	45 218
Of which: Folk high school courses	8 082	6 864	7 927	1 255	9 415	895	4 679	5 340	44 457
Introductory and vocational courses	458	63	118	13	62	9	17	21	761
Upper secondary education	70 875	6 070	19 871	514	475	186	119	2 545	100 655
Upper secondary education, General (hxx, htx)	123	91	61	5	13	4	3	4	304
Danish language courses at language centers	2 318	592	1 034	1 707	1 689	1 538	3 962	111 331	124 171
<b>Participants in vocational courses</b>	<b>142 191</b>	<b>50 599</b>	<b>326 663</b>	<b>30 246</b>	<b>70 475</b>	<b>6 295</b>	<b>24 490</b>	<b>23 154</b>	<b>674 113</b>
Vocational Education and Training	3 866	1 256	5 065	495	498	126	342	419	12 067
Of which: Care, health and education	1 005	128	1 232	52	64	20	5	27	2 533
Office, commercial and business services	749	764	1 381	229	219	32	62	143	3 579
The technology area mechanical engineering and production	2 061	321	2 283	140	70	18	59	234	5 186
Other vocational educations	51	43	169	74	145	56	216	15	769
Qualifying educational programmes	560	11 758	787	282	431	254	96	728	14 896
Labour market educations	133 460	25 499	295 581	17 647	24 357	2 727	5 540	18 880	523 691
Of which:									
Care, health and education	8 645	1 393	50 159	1 139	4 571	167	339	390	66 803
Office, trade and business service	31 870	11 243	74 904	7 269	9 784	1 478	2 809	5 410	144 767
Food etc.	3 912	759	8 181	614	988	79	147	1 045	15 725
Agriculture and nature	4 769	428	10 687	591	444	56	191	704	17 870
Construction	15 235	1 575	26 344	1 137	1 110	110	265	1 912	47 688
The technology area, power and electronics etc.	2 175	359	13 057	1 194	640	27	92	306	17 850
The technology area, graphical techniques and media production	822	564	2 445	316	408	142	240	129	5 066
The technology area, cycling, automotive and marine mechanics etc.	2 186	128	10 109	207	101	13	48	246	13 038
The technology area, mechanical engineering and production	14 515	2 218	35 532	2 347	1 498	221	489	2 873	59 693
Transport and logistics	41 641	5 410	53 729	2 344	4 229	341	745	4 885	113 324
Other vocational educations	7 690	1 422	10 434	489	584	93	175	980	21 867
Short-cycle higher education	1 947	3 101	11 438	3 570	2 782	412	1 448	276	24 974
Medium-cycle higher education	2 224	7 701	13 244	7 652	36 805	1 778	9 826	1 014	80 244
Bachelor	11	268	32	53	214	154	437	530	1 699
Long-cycle higher education/PhD programmes	123	1 016	516	547	5 388	844	6 801	1 307	16 542

<sup>1</sup> Includes only courses which are publicly financed and supervised.



**Table 142** Educational level three years after leaving basic school. 2016

	Year of leaving school							
	2006	2007	2008	2009	2010	2011	2012	2013
<b>Graduation class, total</b>	<b>67 746</b>	<b>67 160</b>	<b>69 598</b>	<b>69 556</b>	<b>70 536</b>	<b>70 364</b>	<b>71 246</b>	<b>71 209</b>
<b>Total number receiving education</b>	<b>27 206</b>	<b>28 453</b>	<b>30 086</b>	<b>30 100</b>	<b>29 690</b>	<b>27 995</b>	<b>26 018</b>	<b>24 364</b>
Preparatory education	275	263	344	422	498	582	720	989
General upper secondary school	6 059	5 654	6 114	6 192	6 114	5 742	5 592	5 382
Vocational upper secondary school	3 107	3 580	3 903	3 787	3 637	3 500	962	85
Vocational basic education	12 625	12 914	12 591	11 924	11 201	10 435	11 524	11 208
Vocational education	76	70	84	55	46	31	29	25
Short-cycle higher education	811	888	1 007	1 074	1 112	1 045	987	857
Medium-cycle higher education	1 612	1 919	2 133	2 279	2 268	2 212	2 071	2 051
Bachelor	2 637	3 160	3 906	4 362	4 805	4 447	4 132	3 765
Long-cycle higher education	4	5	4	5	9	1	1	2

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**Table 143** Educational level three years after leaving general upper sec. education. 2016

	Year of leaving school							
	2006	2007	2008	2009	2010	2011	2012	2013
<b>Graduation class, total</b>	<b>22 263</b>	<b>22 545</b>	<b>23 289</b>	<b>25 428</b>	<b>26 740</b>	<b>28 393</b>	<b>30 319</b>	<b>32 274</b>
<b>Total number receiving education</b>	<b>17 272</b>	<b>18 009</b>	<b>19 269</b>	<b>21 255</b>	<b>22 275</b>	<b>23 632</b>	<b>24 427</b>	<b>25 725</b>
Preparatory education	.	1	.	.	.	9	7	3
General upper secondary school	3	3	3	4	3	.	.	4
Vocational upper secondary school	211	169	218	259	276	334	61	.
Vocational basic education	1 003	886	824	924	1 014	1 209	1 608	1 844
Vocational education	18	19	11	12	10	5	5	5
Short-cycle higher education	899	900	900	1 015	1 160	1 334	1 569	1 599
Medium-cycle higher education	5 966	6 323	6 758	7 524	7 870	8 439	8 681	9 249
Bachelor	8 501	8 839	9 839	10 782	11 073	11 287	11 320	11 586
Long-cycle higher education	671	869	716	735	869	1 015	1 176	1 435

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**Table 144** Highest general education completed by population. 2016

Age on 1 January 2016	Basic school 0 -6 grade or unknown <sup>1</sup>	7 -10 grade	Upper- secondary school, higher preparatory examination, adult upper-secondary school	Higher commercial education, higher tech. education, and entrance examination for technical colleges	Total
<b>Total</b>	<b>327 692</b>	<b>2 334 799</b>	<b>1 002 725</b>	<b>351 687</b>	<b>4 016 903</b>
15 -24 years	60 749	497 603	132 742	46 619	737 713
25 -29 years	59 839	135 254	120 726	46 164	361 983
30 -39 years	91 754	271 879	207 620	102 340	673 593
40 -49 years	50 937	411 260	232 101	102 861	797 159
50 -59 years	46 750	486 802	187 672	44 024	765 248
60 -69 years	17 663	532 001	121 864	9 679	681 207
<b>Men</b>	<b>171 771</b>	<b>1 261 452</b>	<b>404 778</b>	<b>185 364</b>	<b>2 023 365</b>
15 -24 years	32 431	266 442	49 977	28 716	377 566
25 -29 years	30 043	82 017	46 329	26 483	184 872
30 -39 years	48 539	163 742	75 592	52 388	340 261
40 -49 years	26 724	234 862	91 587	47 921	401 094
50 -59 years	25 982	255 461	80 034	22 756	384 233
60 -69 years	8 052	258 928	61 259	7 100	335 339
<b>Women</b>	<b>155 921</b>	<b>1 073 347</b>	<b>597 947</b>	<b>166 323</b>	<b>1 993 538</b>
15 -24 years	28 318	231 161	82 765	17 903	360 147
25 -29 years	29 796	53 237	74 397	19 681	177 111
30 -39 years	43 215	108 137	132 028	49 952	333 332
40 -49 years	24 213	176 398	140 514	54 940	396 065
50 -59 years	20 768	231 341	107 638	21 268	381 015
60 -69 years	9 611	273 073	60 605	2 579	345 868

<sup>1</sup> Former basic school first grade. - 6th grade.

**Table 145** Highest education completed analysed by age and sex. 2016

Age on 1 Jan. 2016	Basic school or not known	General upper-secondary education	Vocational education and training	Short-cycle higher education	Medium-cycle higher education	Bachelor	Long-cycle higher education/ ph.d.	Unknown	Total
	per cent								
<b>Total</b>	<b>19,8</b>	<b>4,8</b>	<b>37,0</b>	<b>4,9</b>	<b>17,0</b>	<b>1,5</b>	<b>10,4</b>	<b>4,7</b>	<b>2 917 207</b>
30 -39 years	13,8	5,3	30,1	5,2	16,7	2,8	15,4	10,5	673 593
40 -49 years	16,3	5,6	37,3	6,1	17,1	1,7	11,6	4,2	797 159
50 -59 years	22,1	5,0	39,6	4,6	16,7	0,9	7,9	3,2	765 248
60 -69 years	27,0	2,9	40,4	3,4	17,5	0,5	6,8	1,4	681 207
<b>Men</b>	<b>20,2</b>	<b>4,9</b>	<b>40,1</b>	<b>5,3</b>	<b>11,7</b>	<b>1,4</b>	<b>10,7</b>	<b>5,4</b>	<b>1 460 927</b>
30 -39 years	16,3	5,7	33,4	5,4	10,9	2,6	14,0	11,6	340 261
40 -49 years	18,6	5,5	39,5	7,0	11,4	1,5	11,5	4,9	401 094
50 -59 years	22,5	4,9	42,4	5,0	11,4	0,9	8,8	3,8	384 233
60 -69 years	23,5	3,5	45,1	3,7	13,3	0,6	8,7	1,4	335 339
<b>Women</b>	<b>19,3</b>	<b>4,6</b>	<b>33,8</b>	<b>4,4</b>	<b>22,3</b>	<b>1,5</b>	<b>10,0</b>	<b>4,1</b>	<b>1 456 280</b>
30 -39 years	11,3	4,9	26,8	5,0	22,6	3,1	16,8	9,3	333 332
40 -49 years	14,0	5,8	35,1	5,2	22,8	1,8	11,7	3,5	396 065
50 -59 years	21,6	5,0	36,7	4,2	22,0	0,8	7,0	2,6	381 015
60 -69 years	30,4	2,4	35,9	3,0	21,6	0,5	4,8	1,4	345 868

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**Table 146** Highest education completed analysed by region. 2016

30-69 year-olds Place of residence on 1 Jan. 2016	Basic school or not known	General upper- secondary education	Vocational education and training	Short-cycle higher education	Medium- cycle higher education	Bachelor	Long-cycle higher education/ ph.d.	Unknown	Total	
<b>Denmark, total</b>	<b>576 469</b>	<b>138 810</b>	<b>1 078 653</b>	<b>2 630</b>	<b>141 738</b>	<b>495 246</b>	<b>42 508</b>	<b>303 018</b>	<b>138 135</b>	<b>2 917 207</b>
Region Hovedstaden	146 879	59 821	262 183	741	42 509	156 125	21 745	162 150	57 723	909 876
Copenhagen	44 269	22 652	60 573	241	12 011	48 843	10 750	66 456	26 437	292 232
Frederiksberg	5 611	3 965	10 117	34	2 233	9 476	1 880	15 246	3 536	52 098
Region Sjælland	97 527	17 825	185 018	223	20 693	70 491	3 826	26 802	15 912	438 317
Region Syddanmark	136 598	23 115	253 344	511	30 459	106 890	6 393	37 057	26 562	620 929
Region Midtjylland	128 060	27 991	253 331	886	34 794	114 401	7 728	57 561	26 234	650 986
Region Nordjylland	67 405	10 058	124 777	269	13 283	47 339	2 816	19 448	11 704	297 099

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**Table 147** Highest completed education, by labour market. 2015

30-69 year-olds	Students	Non-students			Total
		Employed	Unem- ployed	Not in the labour force	
<b>Total</b>	<b>67 281</b>	<b>1 996 616</b>	<b>81 670</b>	<b>775 950</b>	<b>2 921 517</b>
Basic school/not stated	14 434	351 050	26 091	328 468	720 043
General upper-secondary education	8 956	94 604	4 725	30 715	139 000
Vocational education and training	18 077	779 532	29 156	267 061	1 093 826
Qualifying educational programmes	436	587	56	328	1 407
Higher education/PhD	25 378	770 843	21 642	149 378	967 241
<b>Men</b>	<b>27 068</b>	<b>1 051 915</b>	<b>41 902</b>	<b>341 333</b>	<b>1 462 218</b>
Basic school/not stated	6 206	210 160	14 933	141 568	372 867
General upper-secondary education	4 069	50 744	2 487	14 512	71 812
Vocational education and training	6 863	445 741	15 172	126 681	594 457
Qualifying educational programmes	232	464	28	190	914
Higher education/PhD	9 698	344 806	9 282	58 382	422 168
<b>Women</b>	<b>40 213</b>	<b>944 701</b>	<b>39 768</b>	<b>434 617</b>	<b>1 459 299</b>
Basic school/not stated	8 228	140 890	11 158	186 900	347 176
General upper-secondary education	4 887	43 860	2 238	16 203	67 188
Vocational education and training	11 214	333 791	13 984	140 380	499 369
Qualifying educational programmes	204	123	28	138	493
Higher education/PhD	15 680	426 037	12 360	90 996	545 073

www.statbank.dk/hfudd15

**Table 148 The ICT sector in Denmark. 2014**

	Enterprises	Full-time employees	Turnover	Wages and salaries
	DKK mio.			
<b>ICT industries, total</b>	<b>13 619</b>	<b>80 203</b>	<b>201 700</b>	<b>48 267</b>
ICT manufacturing	271	4 542	10 956	2 253
ICT wholesale trade	1 001	12 045	61 563	7 455
Telecommunications	375	13 774	42 617	6 362
ICT services industries	11 972	49 842	86 563	32 197

Note: The figures cannot be compared with previous publications due to shift to new industry classification.

**Table 149 Enterprises' use of ICT. 2016**

	Internet access	Own web site	Mobile internet
	per cent		
<b>All enterprises<sup>1</sup></b>	<b>100</b>	<b>93</b>	<b>88</b>
<b>Sectors</b>			
Manufacturing	100	95	89
Construction	100	94	91
Trade and transport etc.	100	91	84
Information and communication	100	98	96
Business service and finance	100	93	93
<b>Fuldtidsansatte</b>			
10-19 employees	100	91	85
20-49 employees	100	95	89
50-99 employees	100	96	95
100 employees +	100	98	97

<sup>1</sup> All enterprises with at least 10 employees.

[www.statbank.dk/vita](http://www.statbank.dk/vita) and [www.dst.dk/vita1](http://www.dst.dk/vita1)

**Table 150 Goods and services purchased on the Internet. 2016**

	16-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-89 years	Total
	per cent of age group							
<b>Total</b>	<b>90</b>	<b>89</b>	<b>90</b>	<b>83</b>	<b>76</b>	<b>59</b>	<b>27</b>	<b>77</b>
	per cent of e-shoppers							
Travel arrangements	47	65	69	66	59	58	46	61
Clothes, sports- and recreation goods	71	69	76	61	45	32	27	61
Holiday accommodation	31	58	71	65	62	55	41	57
Household goods (e.g. furniture, toys, etc)	30	59	66	50	49	41	25	49
Internet, television, phone subscription	41	51	50	41	32	28	30	41
Books, magazines, newspapers	28	36	34	30	30	28	29	31
Electronic equipment	33	37	34	31	22	15	15	30
Video games software	46	41	36	25	14	13	14	30
Computer hardware	33	39	33	31	24	16	18	30
Music, movies	31	29	29	27	18	13	11	25
Food or groceries	11	22	28	23	19	13	12	20
Medicine	7	12	11	16	19	18	18	13
E-learning material	18	16	11	8	5	1	2	10

Note: E-shoppers are those, who have purchased goods on The Internet during The past 12 months.

**Table 151 Access to internet in the home**

	2012	2013	2014	2015	2016
	per cent of households				
<b>Internet access from home</b>					
<b>Total</b>	<b>92</b>	<b>93</b>	<b>93</b>	<b>94</b>	<b>94</b>
Single adult without children	83	85	89	86	90
Couple without children	99	97	94	95	97
Single adult with children	93	96	98	97	99
Couple with children	99	99	98	98	99
<b>Internet access from home</b>					
Region Hovedstaden	94	94	95	93	95
Region Sjælland	90	89	93	95	95
Region Syddanmark	89	91	90	95	92
Region Midtjylland	94	94	94	93	95
Region Nordjylland	90	93	91	92	95

www.statbank.dk/fabrit01

**Table 152** Internet and telephony

	first half 2012 <sup>1</sup>	first half 2014	first half 2016
Subscriber line, fixed network (1.000) <sup>2</sup>	2 088	1 762	1 439
Per 100 inhabitants	37,4	31,3	25,1
Mobile subscriptions <sup>3</sup> (1.000)	8 284	8 258	8 357
Per 100 inhabitants <sup>3</sup>	148,3	146,4	146
Internet subscriptions (1.000)	2 181	2 342	2 464
Per 100 inhabitants	39,6	41,5	43
xDSL subscriptions (1.000)	1 200	1 165	1 097
Cable modem subscriptions (1.000)	593	660	717
Fibre subscriptions (1.000)	245	367	482
Mobile broadband subscriptions <sup>4</sup> (1.000)	5 085	5 910	6 907
Dedicated data subscriptions (1.000)	980	1 135	1 274
----- mio. minutes (first half) -----			
Domestic traffic, fixed network <sup>5</sup>	4 934	3 746	2 873
International traffic, fixed network <sup>5</sup>	439	368	283
Domestic traffic, mobile network	11 433	11 995	12 967
International traffic, mobile network	727	699	651
----- mio. (first half) -----			
SMS sent	11 781	9 082	6 923
MMS sent	119	196	231
----- mio. MB in period (year) -----			
Mobile data traffic	34 056	92 532	299 717
----- DKK mio. (year) -----			
Revenues	39 873	40 052	...

<sup>1</sup> 2010 and 2012 have been updated to 1H figures compared to last year. <sup>2</sup> Including fixed network IP telephony subscriptions <sup>3</sup> Include GSM-, UMTS-, CDMA2000-subscriptions, mobile broadband and active GSM- og UMTS-prepaid cards. A prepaid card is active, if there within the last three months was incoming or outgoing traffic or reloads of the prepaid card. <sup>4</sup> Cover the following subscriptions with a marketed/theoretical downstream capacity of a minimum of 256 kbit/s: Standard mobile subscriptions used for Internet data traffic, supplementary data subscriptions for mobile subscriptions and dedicated data subscriptions. <sup>5</sup> Including traffic from fixed network IP telephony.

Source: Danish Energy Agency, www.ens.dk/en

**Table 153** Expenses for Research & Development (R&D)

	2010	2011	2012	2013	2014	2015*
----- DKK mio. in 2015-prices -----						
<b>Total R&amp;D expenses</b>	<b>55 836</b>	<b>57 115</b>	<b>57 959</b>	<b>58 289</b>	<b>58 254</b>	<b>59 976</b>
The public sector	18 405	19 006	19 954	21 368	21 106	21 618
The private sector	37 431	38 109	38 005	36 921	37 148	38 358
----- DKK mio. in current prices -----						
<b>Total R&amp;D expenses</b>	<b>52 611</b>	<b>52 826</b>	<b>54 383</b>	<b>56 495</b>	<b>57 321</b>	<b>58 661</b>
The public sector	15 897	17 413	18 097	19 450	21 013	22 396
The private sector	36 714	35 413	36 286	37 045	36 308	36 265
----- per cent -----						
<b>R&amp;D-expenses in per cent of GDP</b>	<b>2.92</b>	<b>2.94</b>	<b>2.98</b>	<b>2.97</b>	<b>2.92</b>	<b>2.96</b>
The public sector	0.96	0.98	1.03	1.09	1.06	1.07
The private sector	1.96	1.96	1.95	1.88	1.86	1.89

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