The demand for tech talents during the corona crisis

September 16, 2021

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Introduction

This analysis regards the development in the demand for tech talents during the corona crisis. The demand for labour has decreased throughout the spring 2020 when Denmark was locked down, but it has increased since then and the number of job ads is now at a higher level than before the corona crisis. Hence, it is of great interest to analyse how the demand for tech talents has developed in this period.

The analysis is based on the talent profiles which were defined and developed in the analysis 'Digitale talenter og muligheder for at tiltrække mere talent til Danmark' in September 2020. The data source is HBS Jobintel, which is a database that contains information from publicly available online job ads. The method is briefly described in the blue box to the right.

The main conclusions from the analysis are:

- The demand for tech talents has increased significantly since spring 2020 and have increased up to 24 % prior to the Covid-19 pandemic.

- In particular, there was a large increase in the demand for the talent profiles 'Digital industrial technician', 'Digital engineer', and 'Digital business developer' since spring 2020 – in general, the demand for profiles that combine digital competencies with other competencies (digital integrators) has increased the most, while the demand for digital specialists has increased less

- The demand for digital talents has in particular increased in the industries 'Knowledge services' and 'Manufacturing'

- The demand for digital talents is to a higher extend than the demand for other academic labour coming from small businesses

- Job ads aimed at digital talents are written in another language than Danish much more often than job ads aimed at other academic labour – implying that employers aim job search at foreign talent

- **Short method description**

- The digital talents are defined based on their job functions (Danish ISCO-codes provided by Statistics Denmark) and the amount of digital competencies demanded within the job function. Overall, there are two types of digital talents i) digital specialists, who are highly specialised employees who handle job functions where digital competencies are at the center, and ii) digital integrators, who link new technology with the development of new products, concepts and business. See the report 'Digitale talenter og muligheder for at tiltrække mere talent til Danmark' for the precise definitions.

- HBS Economics has developed the database HBS Jobintel, which contains job ads in Denmark, based on data from Jobindex. The database is updated monthly and covers virtually all publicly available online job ads in Denmark. Using advanced statistical methods (including text mining, network-, cluster- and predictive analytics) and AI (machine learning, NLP / text analytics and deep learning) methods, the most important information is extracted from each job ad. These include job titles and specific competency requirements for the position (e.g. digital competencies) and data regarding the company (name, etc.). Based on the company name, data is linked to the CVR register, so we obtain information on, for example, the company's industry etc. Each job ad is categorised according to Statistics Denmark's standardised classifications, including the industry grouping (DB07) and Danish ISCO-codes (DISCO).

- The analyses are limited to job ads from private industries. Public organisations were not equally affected by lock downs and other restrictions on activity during the corona crisis, which is why developments in the public labour market looked significantly different during this period. It would thus distort the picture if job ads from public employers were included.

- Academic labour is defined as job functions of level 2 and higher in the Danish ISCO-codes.

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State of the Danish talent pool

173,365 digital talents in Denmark in 2020

This is 16% more than in 2016. Over the same period, general employment in Denmark increased by 4.4%. Digitisation means that the competence needs of companies and authorities are changing, and the demand for digital talents is therefore increasing.

29% are female talents

The distribution between sexes has been unchanged for the past four years. Women make up 48% of employment in the general labor market. There is thus a large under-representation of women among the digital talents. 34% of the foreign digital talents are women, thus the under-representation is slightly smaller for digital talents from abroad.

12 % of the talent pool is foreign talents.

This is an increase by 50 % from 2016.

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Definition of digital talent

The 173,365 are divided into two categories split into nine profiles

Digital specialists

For specialists, digital services are the core of their job. Therefore, specialists include profiles that can design and develop digital solutions.

IT-Manager (2%)

IT-Developer (31%)

IT-Supporter (7%)

IT-Administrator (5%)

Digital integrators

Integrators are advanced users of digital technology who can apply digital technology to develop new products, concepts, and business development.

Digital business developer (7%)

Digital analyst (21%)

Digital engineer (13%)

Digital industrial engineer (10%)

Digital designer (4%)

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Digital integrators and specialists

- The demand for digital talents has increased significantly since the spring of 2020.

- The figure shows the development in the number of job ads up to the second quarter of 2021 (latest available data) relative to the number of job ads in the first quarter of 2018. This means that a value below 100 corresponds to the number of job ads decreasing since the first quarter 2018 and a value over 100 corresponds to an increase in the number of job ads.

- The development in the number of job ads targeted at digital talents roughly follows the development in job ads targeted at other academics. Looking at the period from the first quarter of 2019 to the second quarter of 2021, the demand for digital integrator profiles has increased the most (24 % more job ads), while the demand for digital specialist profiles has increased the least (5 %)

**Development in demand for integrator- and specialist profiles (1st qtr 2018 = 100)**

Legend: Digital integrator profiles — Digital specialist profiles

Source: HBS Jobintel.

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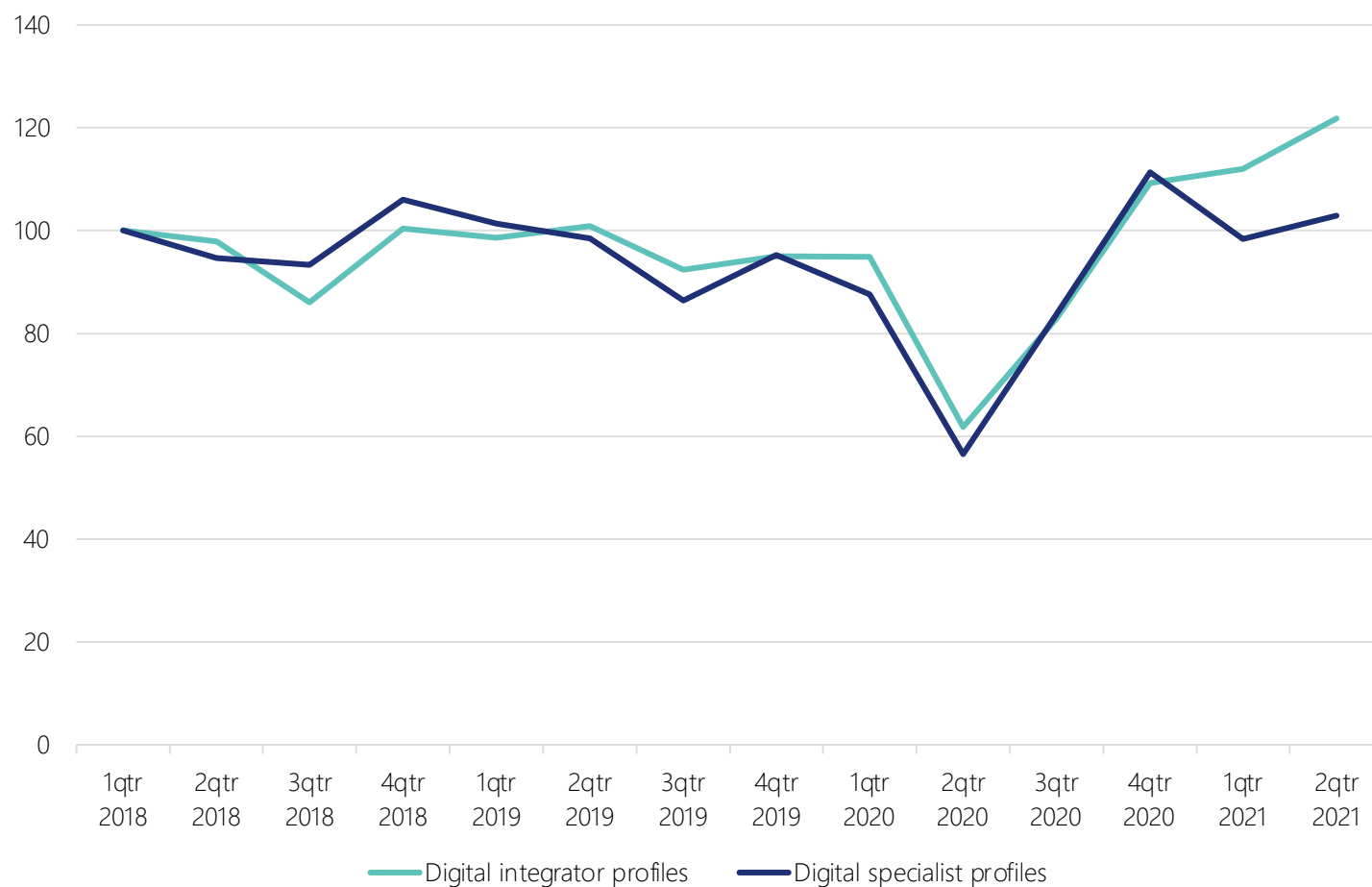
Tech talent profiles

- In particular, the demand for the talent profiles 'Digital industrial technician', 'Digital engineer' and 'Digital business developer' has increased since the spring of 2020. In general, the demand for profiles that combine digital competencies with other competence areas (digital integrators) has increased the most, while the demand for digital specialists has increased slightly less.

- The figure shows the number of job ads targeted towards each talent profile (the size of the bubble) and which profiles have experienced the largest growth in the number of job ads in the period from the 1st half of 2020 to the 1st half of 2021 (the vertical axis) i.e., during the corona crisis. The horizontal line indicates the growth in the number of job ads targeted at other academics.

Size and development in demand for digital talent profiles, 1st half year 2020 – 1st half year 2021
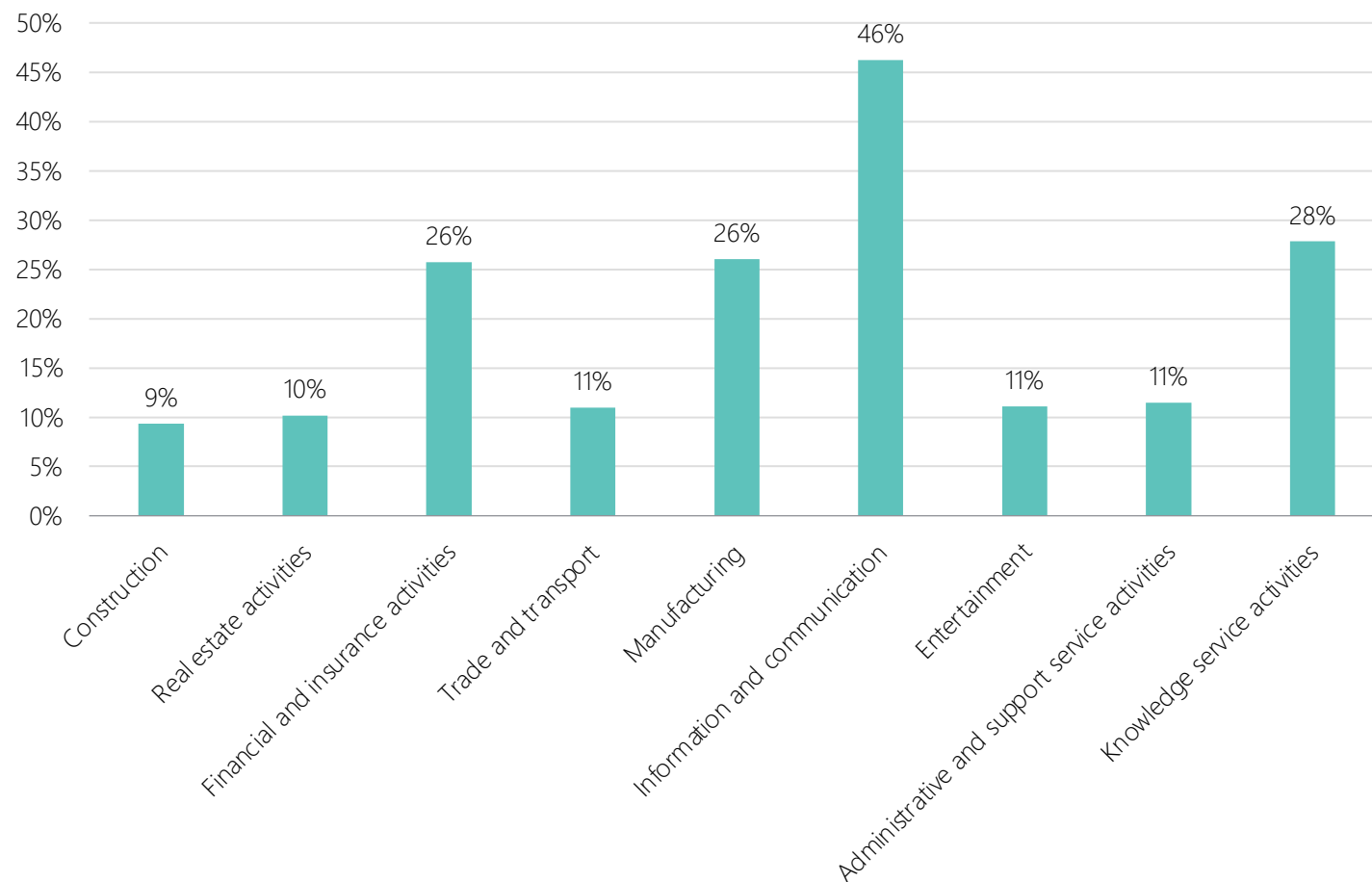

Increase in demand for other academic labour

● Specialist profiles   ● Integrator profiles
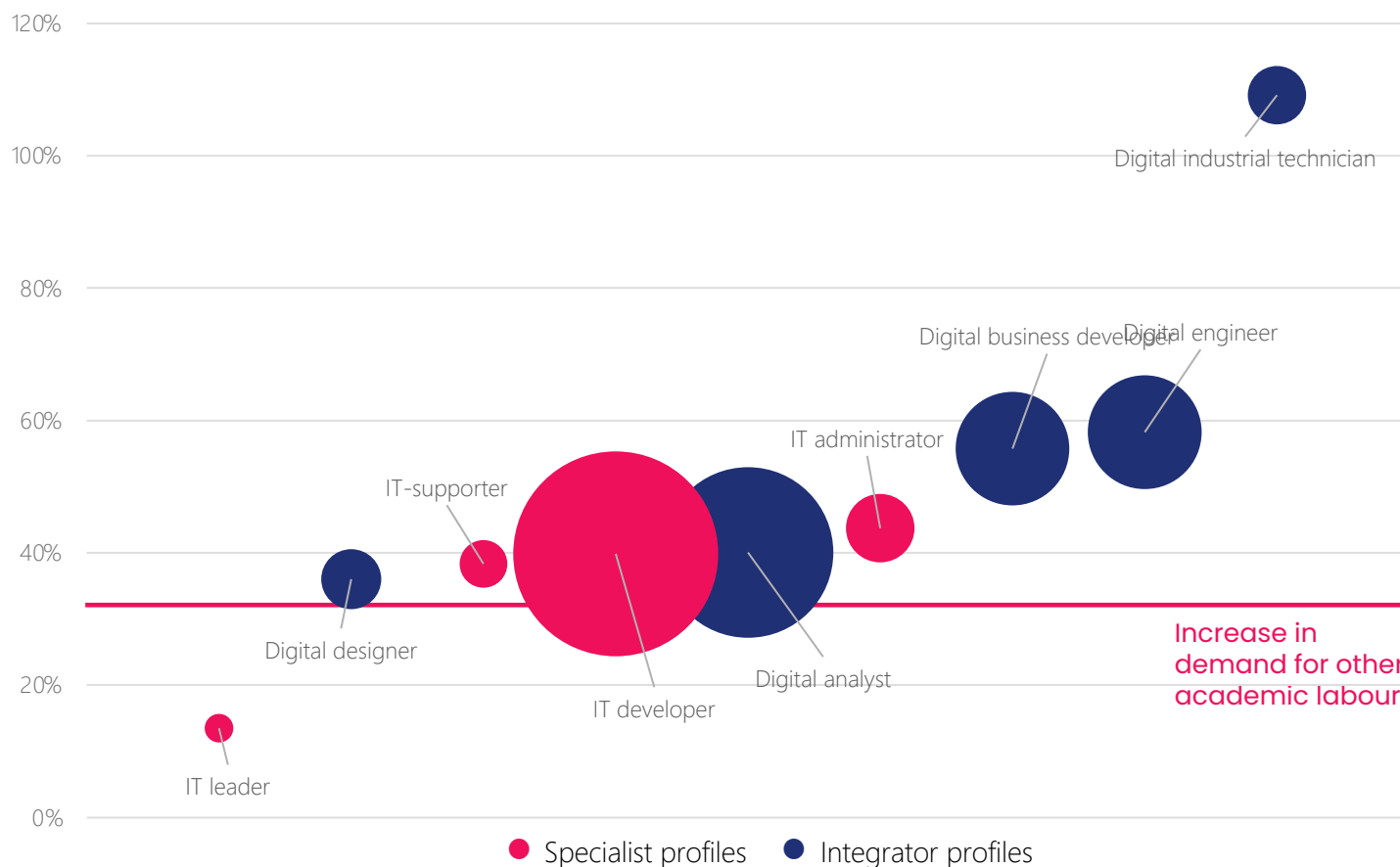
Source: HBS Jobintel.

The demand for digital talent across industries

Share of all job postings that are targeted at digital talent, 1st half year 2021

- Digital talents are most sought after in the industries 'Information and communication', 'Knowledge service activities', 'Financial and insurance activities' and 'Manufacturing'.

- The industry which has the most job ads for digital talent is naturally the IT industry (Information and communication), where 46% of the job ads are targeted towards recruitment of digital talents.

Industry	Share
Construction	9%
Real estate activities	10%
Financial and insurance activities	26%
Trade and transport	11%
Manufacturing	26%
Information and communication	46%
Entertainment	11%
Administrative and support service activities	11%
Knowledge service activities	28%

Source: HBS Jobintel.

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The demand for digital talents across industries

- Across all industries the talent profiles, which are in the highest demand is the 'IT developer' and the 'Digital analyst'. Also, the 'Digital engineer' and the 'Digital business developer' are in high demand.

- 'Digital engineer' is particularly sought after in the industries 'Manufacturing' and 'Knowledge service', whereas the 'Digital business developer' is particularly popular in the industries 'Information and communication' and 'Finance and insurance'.

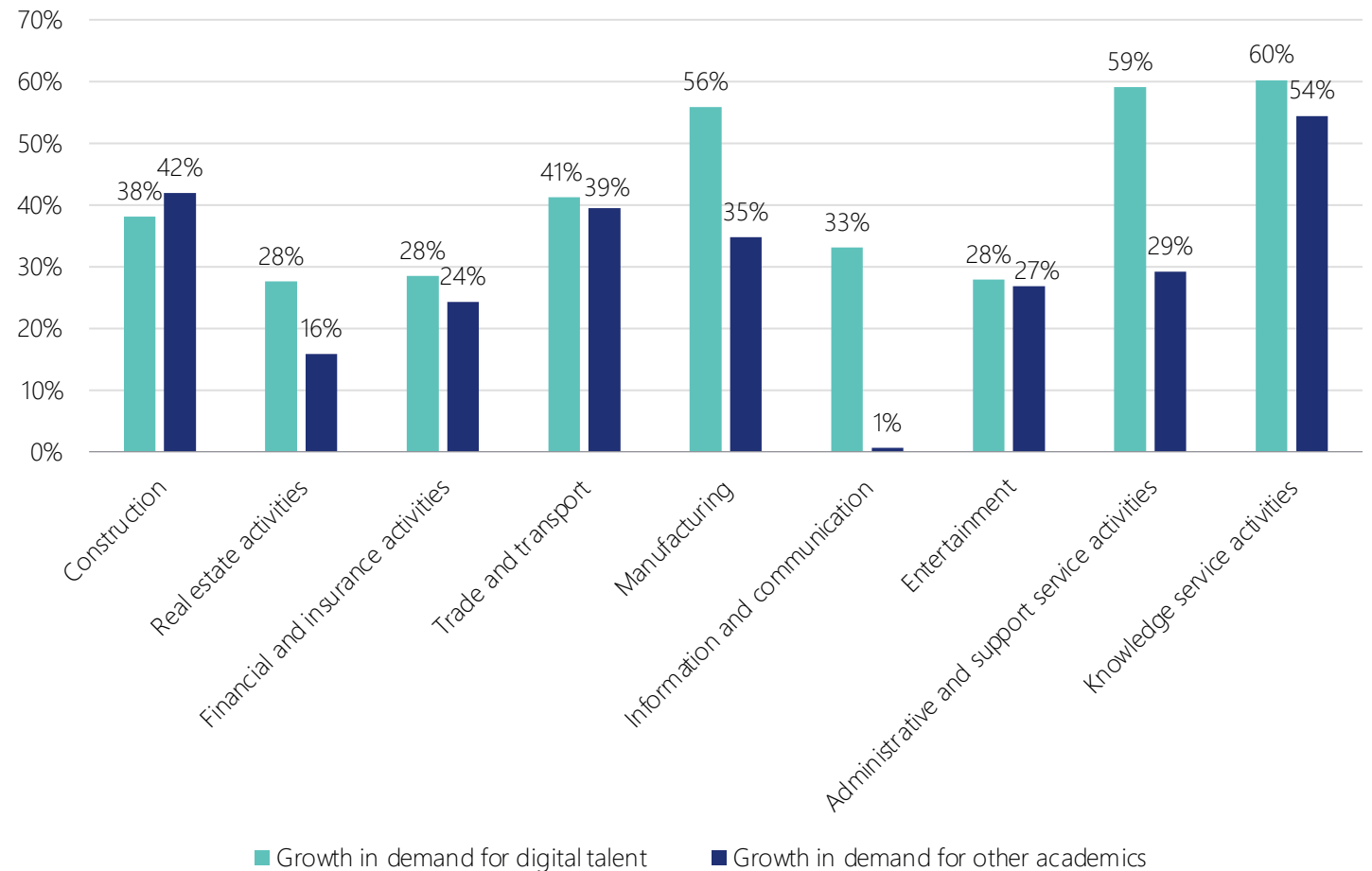*Most sought for profiles, 1st half year 2021*

	Most sought for profiles (share of all job ads targeted at the profile in paranthesis)
Construction	IT developer (2,9%) Digital engineer (2,5%) Digital analyst (1,4%)
Real estate activities	Digital analyst (3,4%) IT developer (2,3%) Digital business developer (2,1%)
Financial and insurance activities	IT developer (12,7%) Digital analyst (8,0%) Digital business developer (2,4%)
Trade and transport	IT developer (3,7%) Digital analyst (3,5%) Digital business developer (1,5%)
Manufacturing	IT developer (8,6%) Digital engineer (6,2%) Digital analyst (5,2%)
Information and communication	IT developer (27,9%) Digital analyst (7,9%) Digital business developer (3,2%)
Entertainment	Digital analyst (3,9%) IT developer (2,7%) Digital business developer (1,4%)
Administrative and support service activities	IT developer (3,5%) Digital analyst (3,3%) Digital business developer (1,8%)
Knowledge service activities	IT developer (9,4%) Digital analyst (7,9%) Digital engineer (4,5%)

Note: Text in green og red indicates whether the profile has increased or decreased during the corona crisis, 1st half year 2020 – 1st half year 2021
Source: HBS Jobintel.

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The demand for digital talents across industries

- The growth in job ads targeted towards recruitment of digital talents has been particularly high in 'Knowledge service', 'Administrative and support service' and in 'Manufacturing'. In the industry 'Knowledge service' there has been a high overall growth in job ads targeted towards academics, but in the other two industries demand for digital talents has increased vastly more than the general demand for academics.

- The only industry in which the number of job ads targeted towards academics in general have grown more than the number of job ads targeted´ towards digital talents is 'Construction'.

Growth in number of job ads targeted digital talent and other academics, 1st half of 2020 – 1st half of 2021

Construction: 38%, 42%
Real estate activities: 28%, 16%
Financial and insurance activities: 28%, 24%
Trade and transport: 41%, 39%
Manufacturing: 56%, 35%
Information and communication: 33%, 1%
Entertainment: 28%, 27%
Administrative and support service activities: 59%, 29%
Knowledge service activities: 60%, 54%

■ Growth in demand for digital talent   ■ Growth in demand for other academics

Source: HBS Jobintel.

Demand for digital talents in small companies

- The demand for digital talents is to a larger extent coming from small companies than the general demand for academics. The proportion of job ads coming from medium companies is approximately the same for digital talents and other academics.

- It is especially the profiles of 'Digital designer, 'Digital industrial technician', 'Digital business developer' and 'Digital analyst' that are in great demand in the small companies.

Share of job ads targeted the profile, that comes from small and medium companies
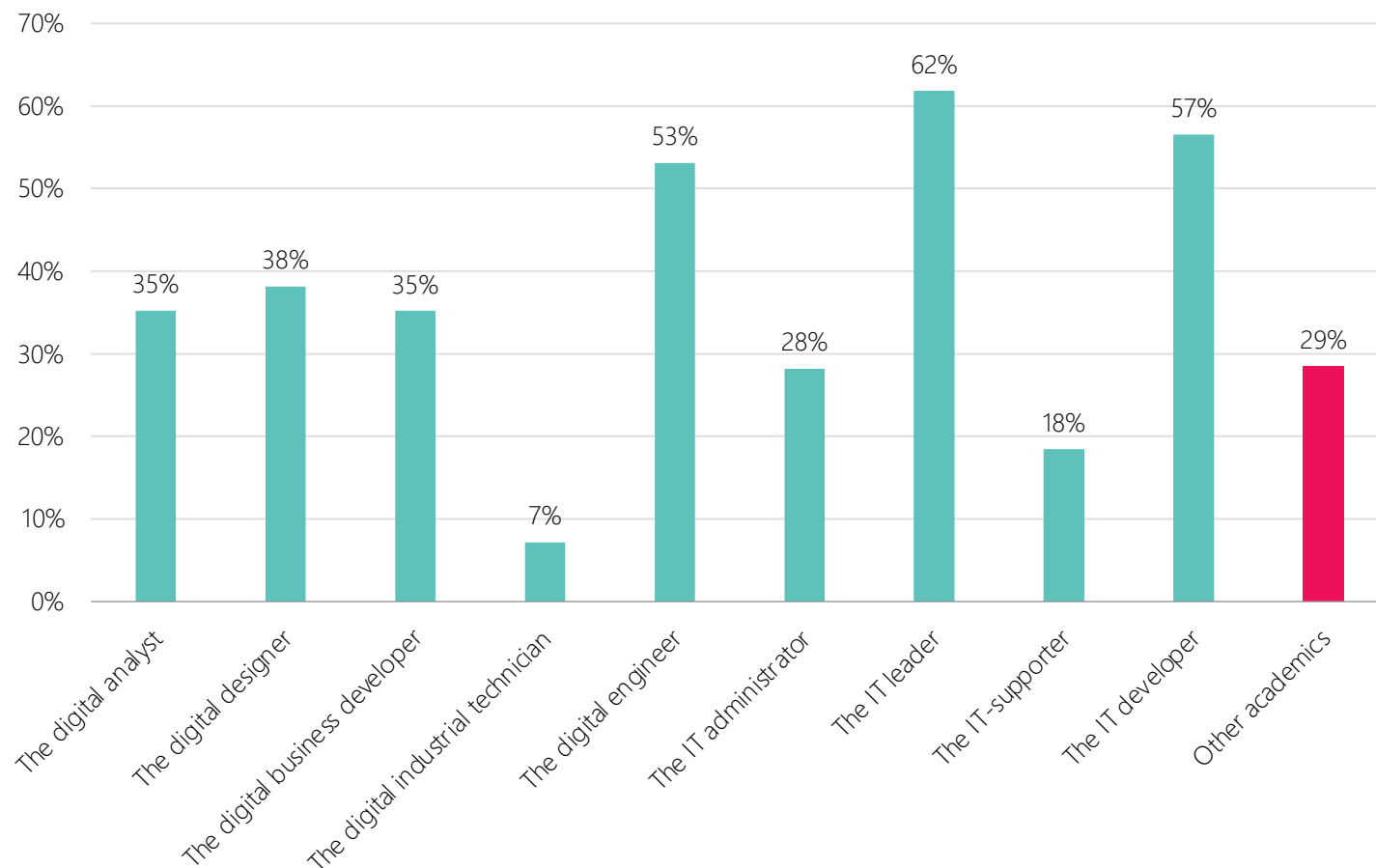

■ Small (less than 50 FTE)   ■ Medium (50-199 FTE)
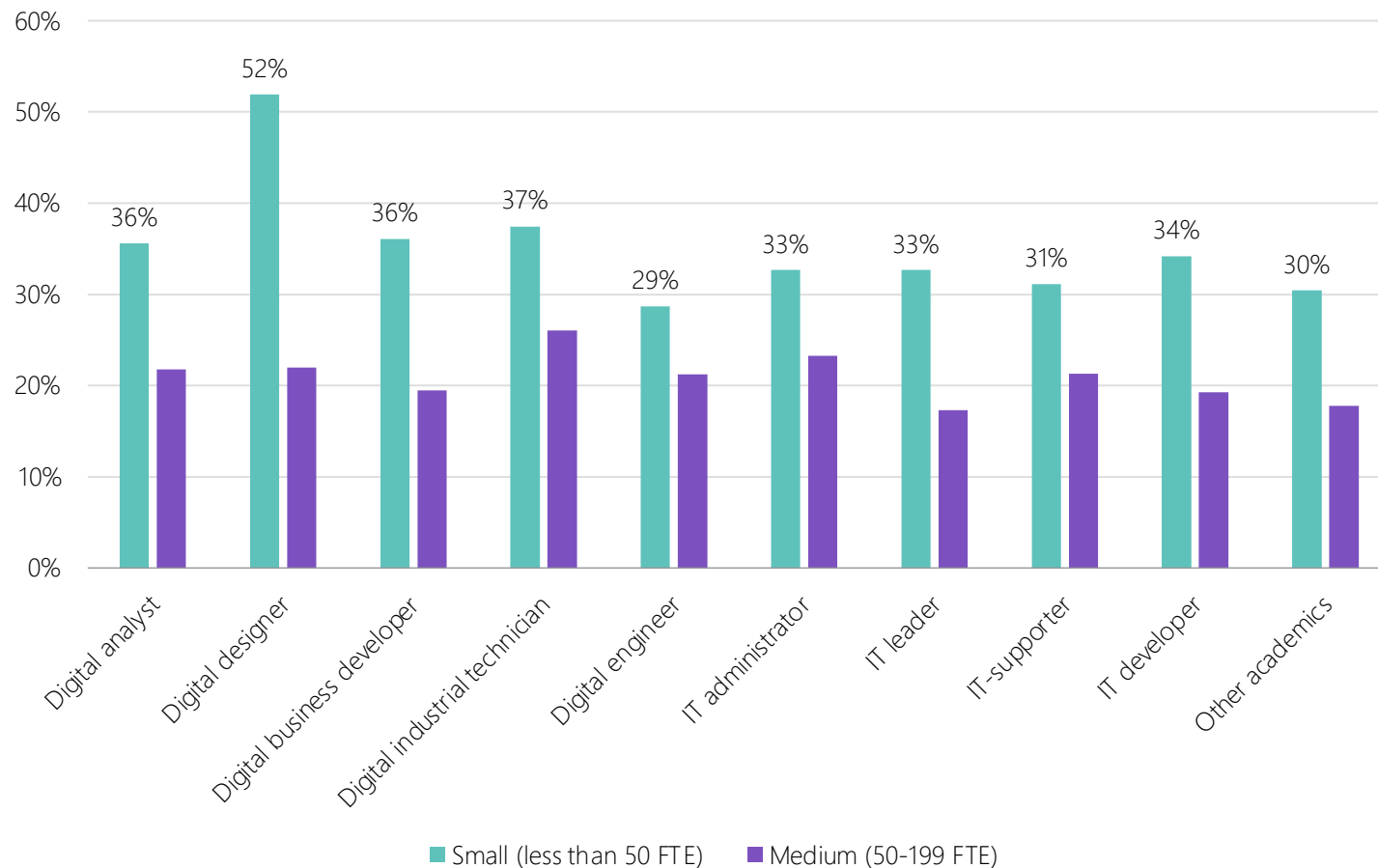
Note: FTE = Full time employees
Source: HBS Jobintel.

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Job ads in other languages than Danish

- Job ads targeted at digital talents are far more often written in a foreign language (other languages than Danish, most often English) than job ads targeted at other academics. This indicates that the search for digital talents is also targeted foreigners.

- It is especially for the profiles 'IT manager', 'IT developer' and 'Digital engineer' that the demand is very international (many job ads in a language other than Danish).

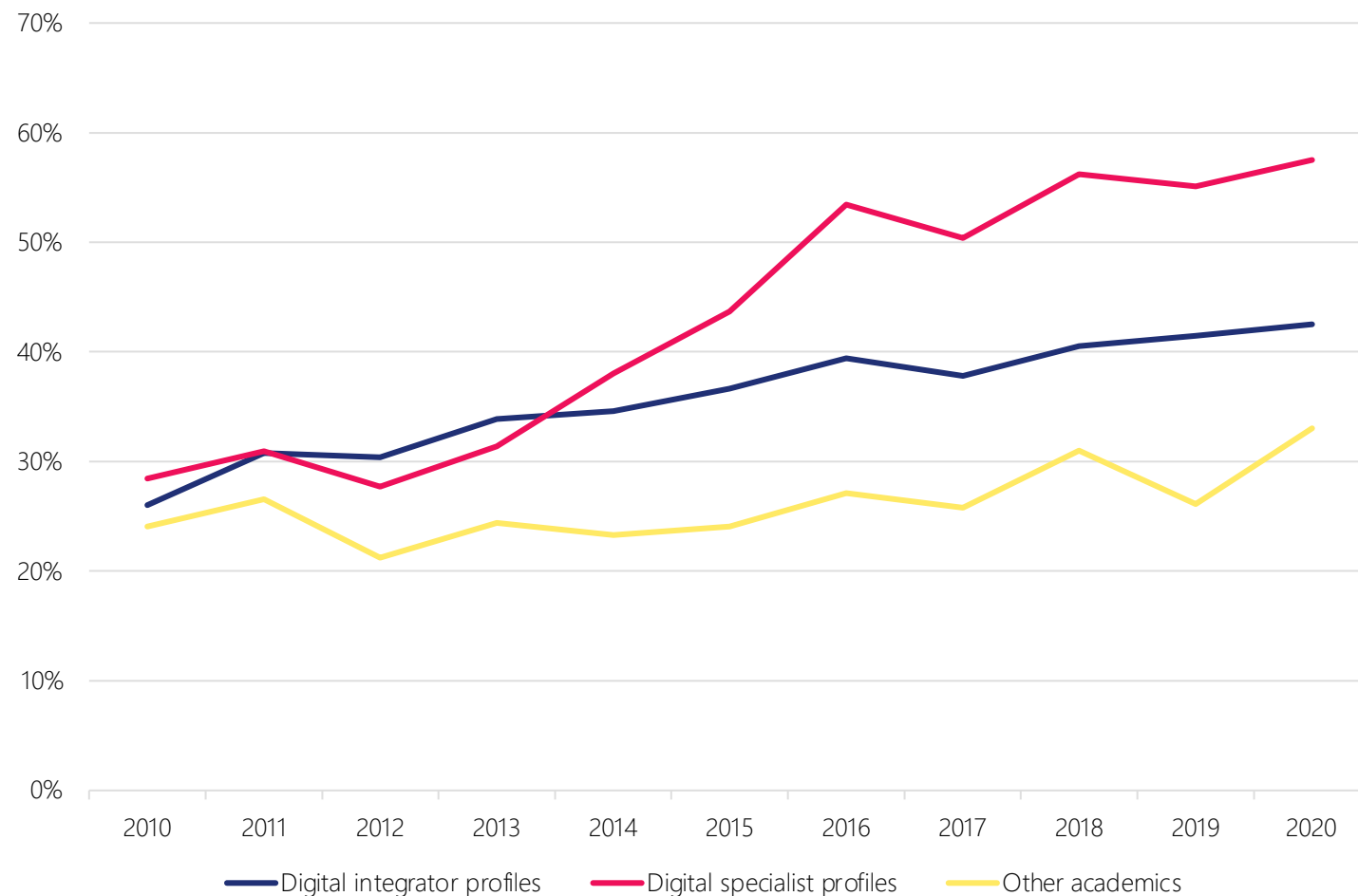*Share of job ads in other languages than Danish for each profile*

Profile	Share
The digital analyst	35%
The digital designer	38%
The digital business developer	35%
The digital industrial technician	7%
The digital engineer	53%
The IT administrator	28%
The IT leader	62%
The IT-supporter	18%
The IT developer	57%
Other academics	29%

Source: HBS Jobintel.

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Job ads in other languages than Danish

- In 2010, there were approximately the same proportion of job ads in foreign languages for digital talents and other academics. However, since 2010 there has been a significant change and the proportion of job ads in foreign languages is today much higher when the job ads are targeted at digital talents than when they are targeted at other academics. During the corona crisis, the share has fallen slightly, both for job ads targeting digital talents and targeting other academics (not shown in the figure). This indicates that the demand for international talents may have decreased slightly during the corona crisis.

Development in job ads in other languages than Danish

Digital integrator profiles — Digital specialist profiles — Other academics

Source: HBS Jobintel.

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