

MÉTIERS 2030

Report by the
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SUMMARY

OCCUPATIONS IN 2030

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Occupations in 2030 provides a quantified outlook for occupations by 2030. Given the major past trends, the foreseen changes (demographic, economic, technological and environmental) and the expected impact of the Covid-19 crisis, this exercise seeks to answer three questions: how many jobs will be created in the various occupations? what recruitment needs will be, considering the number of retirements? and lastly, what potential skill mismatches by occupation may be anticipated if no effort is made to correct the gap between recruitment needs and the flow of young people who have completed initial training?

For a given occupation, job openings (or recruitment needs) by 2030 result both from the number of job gains and losses – that change the current workforce – and jobs vacated by senior workers. Some of these recruitment needs will be met by young people who have completed their initial training and are starting out in the occupation.

Comparing recruitment needs and young entrants can highlight potential imbalances in certain occupations. There may be more job vacancies than identified labour resources or, conversely, the number of young people entering an occupation may exceed the number of job vacancies. Recruitment needs not met by young people entering employment by 2030 can be met by people already in employment and coming from other occupations, jobseekers or, to a lesser extent, by inactive people re-entering the labour market and new immigrants. On the contrary, imbalances can be increased by mobility to other occupations,

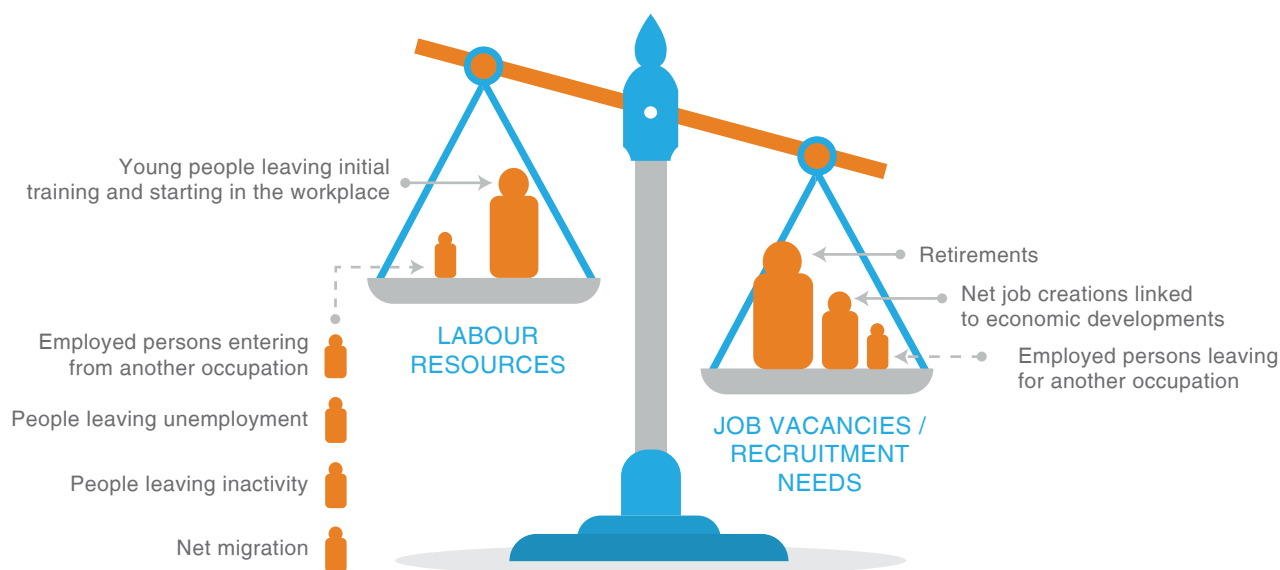
departures from employment to unemployment or inactivity in certain occupations: this is illustrated in figure A on the next page.

To ensure the overall consistency of employment projections by occupation, *Occupations in 2030* draws on a baseline macroeconomic scenario derived from sectoral modelling of the economy.

This scenario is primarily based on demographic and macroeconomic trends, particularly the active population, the productivity gains, the international context (excluding the Russian-Ukrainian conflict) and the policies implemented (only those already decided on are taken into account). As a result of the pandemic, it also incorporates increased household preference for healthcare and a continuing use of telework which reduces mobility and the use of public places. Several alternative scenarios are also considered as variants. The “low-carbon” scenario makes it possible to meet the objectives of the national low-carbon strategy (NLCS) by 2030, in particular through a substantial acceleration of investment (see inset below for a description of the main differences between the baseline scenario and the low-carbon scenario). The “Covid+” scenario assumes a stronger impact of the pandemic on social distancing by 2030.

In total, in the baseline scenario, 1 million jobs would be created between 2019 and 2030, which would lead to a gradual decline in structural unemployment. This decrease is consistent with the path chosen by the Pension Orientation Council (COR).

Figure A – Occupations in 2030: job openings and potential imbalances by occupation



Interpretation: for a given occupation, the job vacancies (or recruitment needs) are measured by the cumulative net job creations and retirements – they are partly filled by young people who have completed initial training and are starting work. The potential imbalance for this occupation is therefore the difference between job vacancies (or recruitment needs) and the flow of labour resources consisting of young people beginning their working life. This potential imbalance may – or may not – be offset by employed people changing occupation, people leaving unemployment, previously inactive people or new labour resources from abroad.

Source: France Stratégie/Dares

As with the other elements of the economic scenario, this reduction in the unemployment rate should be understood not as a forecast but as the result of the assumptions made, in a scenario that aims to enable the authorities to identify potential difficulties and the actions to be taken in terms of employment. In particular, in this baseline scenario, recruitment needs would be such in certain occupations that the employment demand would not be fully met by young people entering the labour market alone.

One of the objectives of Occupations in 2030 is precisely to quantify these potential imbal-

ances by occupation, in order to guide policies and individual decisions in terms of initial training, guidance for jobseekers, retraining of employed workers or recourse to immigration.

For a given occupation, the mismatch indicator aims to shed light on the expected recruitment difficulties in the future – all other things being equal. It will therefore not take into account the initial tightness observed in the labour market: if a profession is tight today and does not show a new imbalance in 2030, its recruitment difficulties should remain fairly comparable to those currently encountered by employers.

STRONG GROWTH IN BUSINESS SERVICES AND HEALTHCARE

The projected reshaping of activity and employment by 2030 reveals some major sectoral trends. The growth in services employment would match the growth in employment by 2030. This services share reflects the substantial weighting in employment of, firstly, business services and, secondly, public utilities supported by a high socialised spending system for education, healthcare and social action.

The legacy of the Covid-19 crisis is having an even greater impact on the healthcare and digital sectors. Conversely, it is adversely affecting activities based on social interaction (hotels and restaurants, retail, entertainment) and mobility (transport), which are thought to be creating fewer jobs than in the past. French and European policies have also deepened the climate ambition, as well as the drive to limit industrial dependence, favouring construction and industry respectively.

Construction would be stimulated by investment and the increased need to renovate buildings to meet the energy efficiency requirements of the low-carbon transition. After a downward cycle lasting nearly ten years (80,000 jobs lost between 2009 and 2019) and continuing the recovery seen since 2017, the sector (including real estate activities) would show strong growth: it looks set to create 190,000 jobs between 2019 and 2030.

Having grown rather less than the rest of the economy over the last ten years, industry's added value would grow like the rest of the economy between 2019 and 2030. The number of

workers in industrial occupations would grow (see below) and industrial employment's share of total employment would remain stable at 10%. In the strict sense of industrial production, industry's employment –partly outsourced (temporary work, consulting, distribution) – would fall slightly, although much less sharply than in the last decade. This trend reversal would reflect a slowdown in outsourcing and the benefits of public policies undertaken to revitalise industrial production since the 2010s. It would also signal a refocusing of industry on certain strategic activities (pharmaceuticals, IT products) that are decisive in the low-carbon transition (transport equipment). Agri-food would continue to be dynamic, although at a slower pace than in the past decade. On the other hand, employment is expected to continue falling in low-tech sectors that see high competition from emerging countries (manufacture of plastic rubber and mineral products; metallurgy) and in maintenance, which is facing major productivity gains (computer-assisted predictive maintenance).

Lastly, general administration services¹ would continue to decline, as would agricultural employment. Continued low interest rates and the digitisation of banking and insurance practices should lead to productivity gains in these sectors that are unfavourable to employment.

1.8 MILLION ADDITIONAL JOBS FOR HIGHER EDUCATION GRADUATES

Net Job creations continue to be generally favourable for higher education graduates, who would occupy almost one job in two in 2030 (47% compared to 43% today): 1.8 million jobs for university graduates would be created

1. This branch of activity, called "public administration" in the INSEE nomenclature, includes activities of a governmental nature that contribute to the proper functioning of the administration: official state activities, general administration activities and supervisory activities in the field of economic and social life.

between 2019 and 2030, while jobs for those having at most obtained the baccalaureat would fall by nearly 800,000.

40% of net job creations performed by higher education graduates would be concentrated in three sectors – professional, scientific and technical activities; administrative and support services; and retail – each with between 200,000 and 300,000 net job creations. This would be followed by an increase in working numbers of between 80,000 and 150,000 in IT activities, construction, healthcare, hotels and restaurants, recreational and cultural activities, and R&D. This growth in high graduated jobs is driven by the strong performance of IT, healthcare, R&D and, to a lesser extent, professional, scientific and technical activities. Conversely, in retail, accommodation and catering, administrative and support services, recreational and cultural activities, and construction, the trend increase in recruits' level of education makes the largest contribution to the increase in jobs held by higher education graduates. In industry, the number of such graduates would increase by 10%, with the positive effect from the increase in the share of higher education graduates in total employment outweighing the slight decrease in industrial employment.

For employed workers having at most obtained the baccalaureat, construction is expected to create nearly 55,000 jobs between 2019 and 2030, despite the trend increase in qualifications in the sector. The healthcare and medical-social sectors are expected to each gain around 120,000 jobs filled by staff without a higher education diploma, mainly in care activities.

PRIVATE SECTOR EXECUTIVES AND THE HEALTHCARE AND PERSONAL SERVICES PROFESSIONS ARE AMONG OCCUPATIONS CREATING THE MOST JOBS

Some occupations are closely linked to a particular sector: 85% of skilled building frame workers are recruited by construction companies, cashiers are mainly recruited in the retail sector and banking executives are very sensitive to changes in financial and insurance activities. However, this is not the case with all occupations. A computer engineer, an accountant, a secretary or a lawyer can be hired by a construction, automotive or consulting company. Similarly, not all cooks are employed in the accommodation and catering industry, with many also working for local authorities, particularly in healthcare and social activities.

The four occupations creating the most jobs (between 110,000 and 115,000 each) are thought to be computer engineers, nursing and midwifery professionals, auxiliary nurses and sales executives. This is followed by personal care workers (+100,000) and skilled material handlers (+80,000), ahead of administrative and financial managers, and industrial engineers and technical executives (+75,000 respectively).

Furthermore, construction managers (+60,000) and research and development professionals (+50,000) are among the fifteen most dynamic occupations.

The increase in the number of industrial occupations is explained by the refocus on the core business of industry, which has led to the

Figure B – The fastest growing occupations between 2019 and 2030



Scope: Mainland France.

Interpretation: in 2030, it is thought there will be 115,000 more computer engineer positions, an increase of 26% compared to 2019.

Source: France Stratégie/DARES projections, based on Labour force surveys (LFS) (INSEE)

outsourcing of support functions, including strategic (consulting), control (quality, environment) and distribution functions. At the same time, certain industrial functions, such as equipment maintenance and quality control, have become essential in many activities.

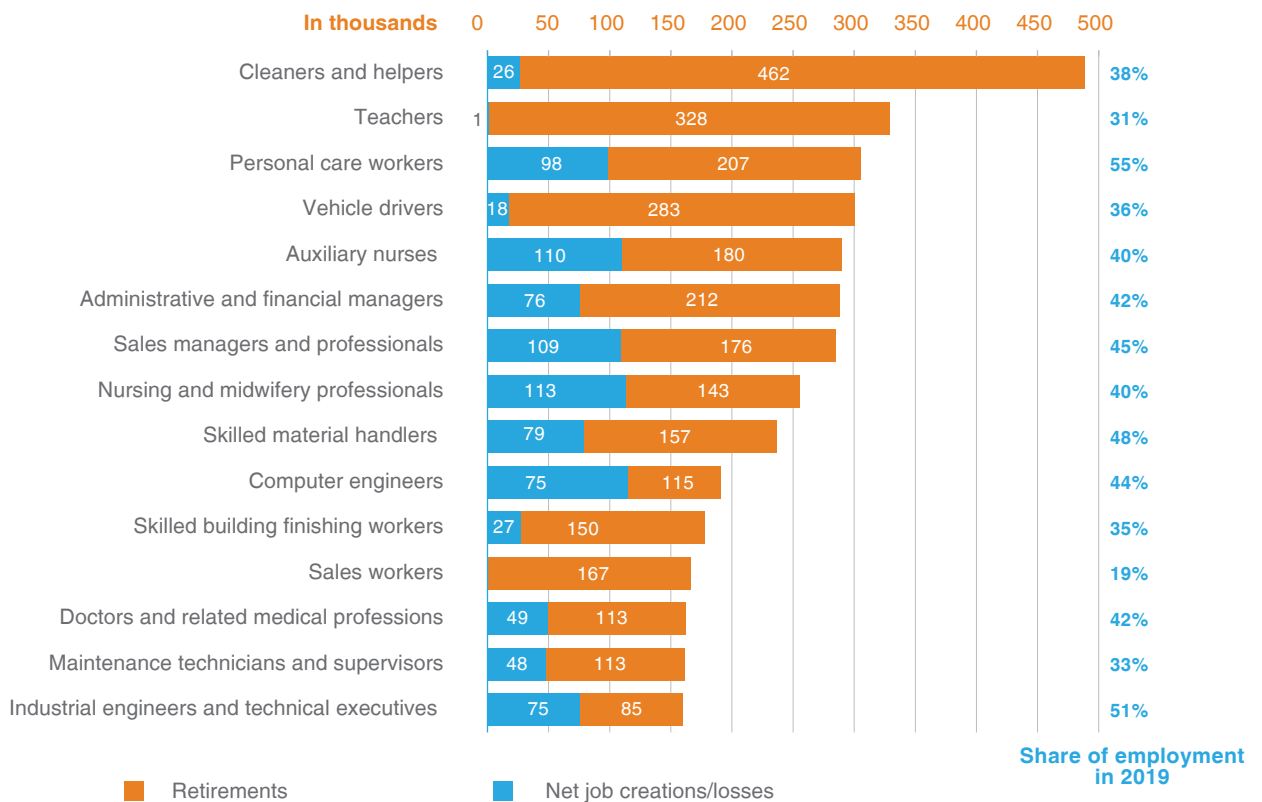
As a result, industrial engineers and technical executives as well as maintenance technicians and supervisors, are now often recruited by the consulting (strategy, technical analysis) and retail (maintenance and quality control) sectors, although they also work in industrial activities.

RETIREMENTS ACCOUNT FOR THE VAST MAJORITY OF JOB VACANCIES

For each occupation, job vacancies are the sum of net job creations and retirements. Overall, from 2019 to 2030, it is thought that job vacancies will amount to 760,000 each year, with retirements accounting for 90% of the total.

The 15 occupations with the most vacancies can be divided into three categories. Firstly, there are those that create few or no jobs, and where job vacancies primarily involve replacing

Figure C – Occupations with the most job vacancies in the baseline scenario between 2019 and 2030



Scope: Mainland France.

Interpretation: between 2019 and 2030, it is thought that 490,000 positions will need to be filled among cleaners and helpers, 460,000 of which due to retirements and 30,000 due to net job creations. It is thought that these job vacancies accounted for 38% of employment in this occupation in 2019.

Sources: France Stratégie/DARES projections, based on the Employment-population Regional Action Services Unit (Insee), 2015 population census - supplementary survey, Labour force surveys (LFS) 2003-2016, Destinie 2 model; France Stratégie/DARES occupation projections

retirements: this is the case with cleaners and helpers, teachers², vehicle drivers, sales workers and skilled building finishing workers. Next are those in which workforce dynamics comprise at least a quarter of job vacancies: administrative and financial managers, commercial and technical sales executives, personal care workers, auxiliary nurses, nursing and midwifery professionals, skilled material handlers, doctors, and maintenance technicians and supervisors. Lastly, computer engineers and industrial engineers and technical executives stand out due to their own dynamics, as net job creations total at least half of job vacancies in these occupations.

IN SOME OCCUPATIONS, THE IMBALANCES COULD TOTAL AROUND ONE THIRD OF RECRUITMENT NEEDS

If we compare employers' recruitment needs in 2030 with the potential pool of young people who would be starting out in each occupation, we can highlight imbalances that can be described as "potential". Firstly, because these imbalances are contingent on assumptions around the orientation of young people starting in the workplace, and secondly because they can be altered by individual decisions and public policies. For example, if there is a sharp increase in recruitment needs in a particular occupation, more young people may choose suitable training courses to go into that occupation.

2. The large workforce (1 million) differentiates the teaching profession, as the share of individuals retiring is only slightly above the average.

These imbalances are also “partial”, in the sense that they will be filled – or accentuated – at least in part, by occupational mobility, employment-unemployment transitions, inactive people re-entering the labour market (or leaving it, excluding retirement) and lastly by net migration.

Of the 15 occupations with the greatest potential imbalances, nine are among the 15 with the highest recruitment needs. These include cleaners and helpers, personal care workers, vehicle drivers, skilled material handlers, two executive occupations (sales, administrative and financial managers), auxiliary nurses, skilled building finishing workers and, lastly, teachers.

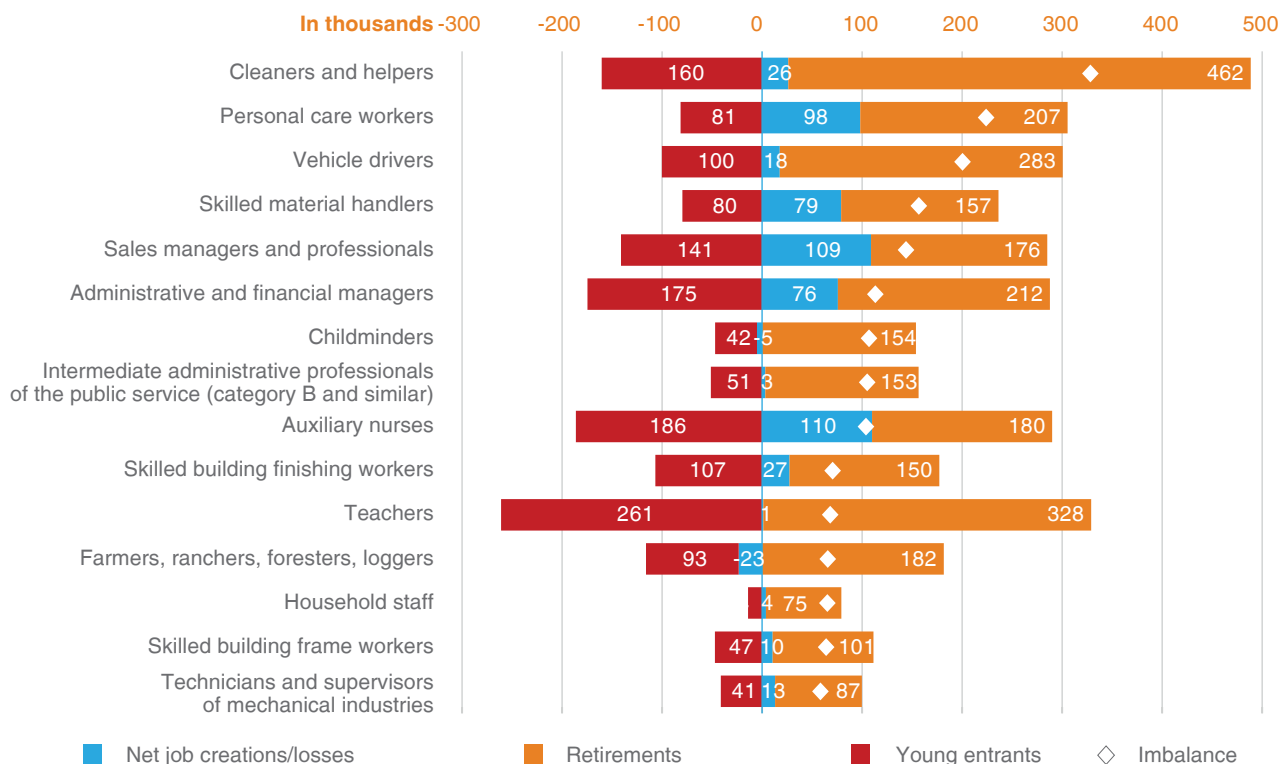
Although they are not among the occupations with the highest recruitment needs, three occu-

pations show significant potential imbalances due to a low influx of young people starting in the workplace: household staff (including domestic cleaners), childminders (8% and 10% respectively of young entrants) and intermediate and administrative professionals of the civil service (Cat. B) (13% of young entrants).

Not all occupations with high recruitment needs would have such high imbalances. Among teachers, industrial engineers and technical executives, as well as computer engineers, young entrants would meet more than three quarters of recruitment needs. In addition, these needs would be almost entirely covered by the influx of young entry-level nurses and midwives, doctors and maintenance technicians and supervisors.

Of the occupational areas with more than a million people, two would have high potential

Figure D – Occupations with the largest (positive) potential imbalances by absolute value in the baseline scenario between 2019 and 2030



Scope: Mainland France.

Interpretation: it is thought that between 2019 and 2030, among skilled building finishing workers, the potential imbalance between the 177,000 recruitment needs (i.e. 150,000 retirements plus 27,000 net job creations) and the number of young entrants (107,000) will be 70,000. Four out of ten hires (40%) could be difficult, with needs only partially covered by young starting in the workplace.

Source: France Stratégie/DARES projections; Employment-population Regional Action Services Unit (INSEE), 2015 population census – supplementary survey, Labour force surveys (LFS) 2003-2016, Destinie 2 model; France Stratégie/DARES occupation projections; FQP survey, France Stratégie/DARES projections; Generation surveys 2013 and 2016 and projections of school leavers between 2016 and 2027 (DEPP)

imbalances that would total at least half of their recruitment needs. Firstly, transport, logistics and tourism combine an unfavourable demographic structure – essentially in young entrants – with a workforce that is twice as dynamic as the average. Secondly, services to individuals and communities combine an even more unfavourable demographic structure – high numbers of retirements and a very low proportion of young entrants – with half the growth in their workforce. In the care and cleaning occupations (personal care workers, cleaners and helpers), which are often chosen as a fallback position after a period of unemployment or inactivity, the number of new arrivals during their career could nevertheless reduce the potential imbalance.

IN SOME OCCUPATIONS, POTENTIAL IMBALANCES IN 2030 COULD MITIGATE OR REINFORCE THE CURRENT RECRUITMENT DIFFICULTIES

Based on the potential imbalances by occupation in 2030, it is possible to assess the direction in which the intensity of the recruitment difficulties encountered by employers today could move. However, this measure of the labour market tightness does not allow for a quantitative assessment of the number of job vacancies due to a labour shortage. However, insight indicators enable us to estimate the origin of the tightness.

Most occupations that are short-staffed today would continue to be or would see their recruitment difficulties worsen by 2030 (47 out of a total of 83 occupations). In these occupations, current shortages and future imbalances would be reduced mainly by improving their attractiveness (personal care workers, household staff, construction machine operators). Indeed, it is thought that by 2030, nearly one in three will host a number of young entrants signifi-

cantly below recruitment needs and would therefore have a strong positive partial imbalance. For two of these occupations – technicians and supervisors of mechanical industries and skilled building frame workers – increasing training capacity can also help to meet current and future recruitment needs.

Furthermore, two out of five occupations show a low partial imbalance in 2030 and would therefore see the current tightness continue at that time if no action is taken. To a large extent, working in these occupations requires specific technical skills that are acquired through initial or continuous vocational training. This is the case with auxiliary nurses, construction managers, computer engineers, industrial engineers and technical executives, butchers and bakers.

By contrast, skilled material handlers, cleaners and helpers, other services workers³ and textile and leather workers do not currently face recruitment difficulties, but could do in the future due to a higher number of retirements than young people beginning their working lives in these occupations.

A TYPOLOGY OF OCCUPATIONS

Ultimately, the comparison of labour market needs and resources in 2030 depicts a typology of occupations according to their supply modes and their demographic and economic dynamics.

The first category includes occupations that are particularly attractive both to young people who have completed their studies and to professionals already in employment, and that are dynamic in terms of employment and less affected by retirements. They therefore have spontaneous recruitment needs largely covered by their recruitment pool. This is the case with legal professionals, paramedical professions,

3. This very mixed family includes employees and self-employed persons providing a service to individuals. They include casino employees, cinema and theatre ushers, astrologers, parapsychology professionals and certain self-employed service providers (surveillance, funeral directors, advertising, etc.).

technicians in administrative, accounting and financial services, and research and development professionals. The exceptions would be industrial engineers and technical executives, computer engineers and construction managers, where there is a slight labour shortage given their very strong employment dynamic.

The second category is comprised of first experience occupations, filled by young people at the beginning of their working life who, after several years' experience, move on to a higher-skilled position or to other occupations that are similar in terms of work situations. The large numbers leaving these occupations reflect either promotion (in the case of computer employees and operators), low attractiveness due to working conditions deemed difficult (hotel and restaurant employees, skilled building frame workers) or recourse to fixed term job (entertainment and sports professionals or client information clerks). The majority of these occupations should have a sufficient recruitment pool to fill job vacancies. Some of them are even overstaffed, either because there is a large number of young entrants (social work, entertainment and sports professionals) or because the occupation is not very dynamic (client information clerks).

The third category includes mid-career occupations. These tend to recruit experienced staff – few young entrants –, resulting in large numbers of retirements. In the past, they have attracted many professionals from other occupations (net inward mobility). These occupations could be short of labour, exacerbating the current recruitment tightness in the care professions (personal care workers), building maintenance (cleaners and helpers), transport (vehicle drivers, handlers), building (finishing workers) and among commercial, administrative and financial executives. In other experienced occupations, where employment is not increasing, job vacancies could be more easily

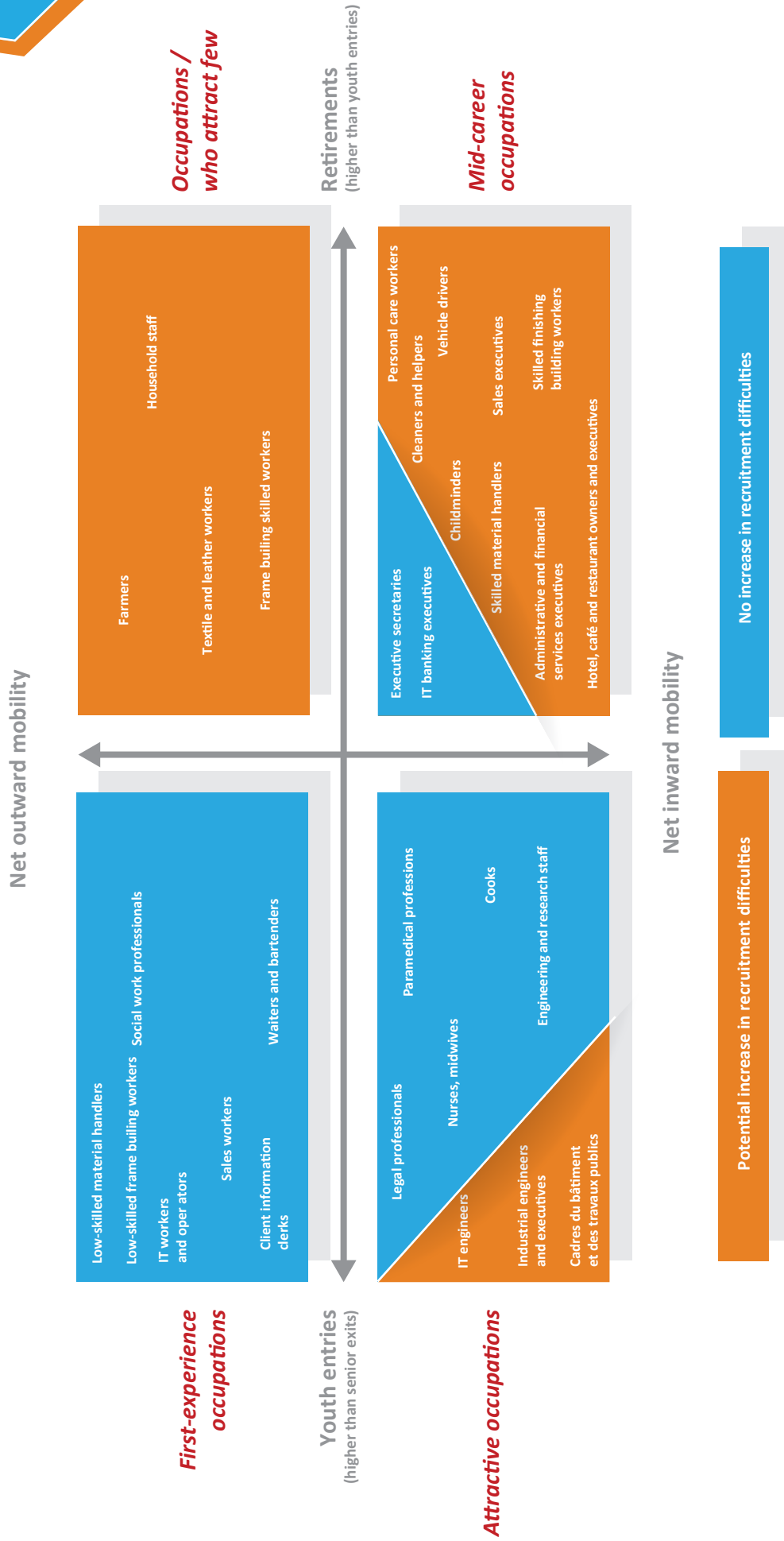
filled by promoted professionals (banking and insurance executives, executive secretaries).

Lastly, it is thought that young entrants will be sufficient to meet the strong recruitment needs of trainers, which should slow down incoming mobility.

The fourth category includes occupations that have difficulty attracting workers. They are characterised by the maturity of the staff who occupy them, as well as low attractiveness for young beginners: they are not expected to have a sufficient recruitment pool to offset the departures of senior staff. Household staff (domestic cleaners), farmers as well as textile and building frame workers are in this configuration.

This means that not all occupations are expected to have the same labour pool to fill their positions, and recruitment difficulties could – without corrective action – remain high. The mechanisms for addressing this are not the same in all occupations. While the low attractiveness of certain occupations, often low-skilled, raises the question of their working conditions (painful conditions at work, fixed-term employment) and pay, these are also occupations that more often recruit the unemployed and act as avenues of integration for immigrants. For the self-employed (farmers, hotel, café and restaurant owners), the conditions for taking over their business or farm are also at stake. In certain technical occupations that require specific training (e.g. computer engineers and building frame workers), making initial and continuing training courses more attractive could help to limit the difficulties. For experienced occupations, attracting existing professionals may not be enough and will probably require young entrants and unemployed people to be trained for specific work situations. Generally speaking, the potential imbalances identified here call for diversifying recruitment channels and adapting the support mechanisms.

Figure E – A typology of occupations according to their inflows and outflows between 2019 and 2030



Note: net outgoing or incoming mobility is that observed between 2010 and 2015 in the FQP survey.

Interpretation: by 2030, the IT engineer occupation would have more young people entering employment than older people retiring (horizontal axis). In this occupation, the occupational mobility (between occupations) observed between 2010 and 2015 was inward, meaning that more workers already in employment joined this occupation (vertical axis). In this sense, the IT engineer occupation is considered attractive. Given the potential imbalance projected for 2030, this occupation may face increased recruiting challenges.

Sources: France Stratégie/DARES, based on Insee, *Employment in natural persons survey*, France Stratégie/DARES projections; *Employment-population Regional Action Services Unit (Insee)*, 2015 population census – supplementary utilisation, *Continuous employment surveys 2003-2016*, Destinie 2 model; France Stratégie/DARES occupation projections; 2015 FQP survey; Generation Céreq surveys 2013 and 2016 and projections of school leavers between 2016 and 2027 (DEPP)

INSET – THE LOW-CARBON SCENARIO

Compared to the baseline scenario, the low-carbon scenario – which assumes compliance with the 2030 targets of the national low-carbon strategy (NLCS)– is primarily characterised by an annual increase in investment of around one point of GDP, encouraged by unfavourable prices for carbon goods and partially financed by borrowing, which is a major simplification of the economic mechanisms brought about by the low-carbon transition. It results in the creation of 200,000 additional jobs over the period.

Compared to a scenario that would only extend the measures already taken in terms of low-carbon transition, the sector that would grow the most would be construction, with 120,000 additional jobs, due to the higher volume of thermal renovations. Employment would also be stimulated in legal and advisory activities (+45,000), as well as in research & development and agriculture (+15,000 each).

The anticipated level of construction employment assumes a strong acceleration in the energy efficiency of housing. It implies that training and mobility should make it possible to reduce the projected imbalances in the job vacancies in this sector.

Construction occupations would also logically be the most affected by the low-carbon scenario. Compared to the baseline scenario, recruitment needs for skilled workers in frame and finishings construction will increase, with an additional 20,000 and 30,000 job vacancies respectively, which are not filled by young beginners.

As a whole, the construction and public works field would see difficult recruitments total more than a third of recruitment needs (compared to more than a quarter in the baseline scenario).



An independent institution reporting to the Prime Minister, France Stratégie contributes to public action through its analyses and proposals. It stimulates public debate and informs collective choices on social, economic and environmental issues. It also produces public policy assessments at the government's request. The results of its work are intended for public authorities, civil society and citizens.

The Directorate for Research, Studies and Statistics (DARES) is the Ministry of Labour department that produces analyses, studies and statistics on the themes of work, employment, vocational training and social dialogue.