

# 3

## The alignment between training offered in the Regional Training Catalogue and the labour market

---

This chapter examines the alignment between the courses listed in the Regional Training Catalogue (RTC) and the demands reflected in online job postings, considering both sought-after occupations and skills. Utilising Natural Language Processing techniques, the chapter analyses the quantitative and qualitative match between the course content and the skill demand for each occupation included in the RTC. A novel metric, the skill-match score, is introduced by integrating data on sought-after skills from online job postings and the representation of these skills in the courses. Additionally, the chapter offers insights into potential areas where training may not yet adequately meet demand or exceed it within the analysed occupations and skill sets. These findings serve as preliminary indicators for policymakers, aiding in interventions to enhance training offerings or allocate resources accordingly.

---

## Highlights

- Analysis in this chapter shows a significant misalignment between the focus of training options in the Regional Training Catalogue (RTC) and the occupations for which the labour market demand is relatively strong (as measured by the volume of online job postings, OJPs, collected in Umbria over the period in between 2018 and June 2022).
- The analysis combines RTC and OJPs data and reveals that approximately 290 occupations have had positive demand in the Umbria's labour market but no training options were available to learn those professions. New job postings for occupations lacking a clear training option add up to 61% of total job postings in between 2018 and June 2022 highlighting the disconnect between training needs and available learning options in the current RTC.
- The shares of OJPs for occupations for which there are no training options in the RTC are often larger for low-skill occupations. In particular, the analysis shows strong demand for certain low-skilled occupations such as freight handlers; cleaners and helpers in offices, hotels and other establishments; and manufacturing labourers not elsewhere classified. While this demand is typically unmet by specific training courses in the RTC, it is important to notice that some courses may teach overlapping skills, mitigating the extent of the real gap between demand and supply of training.
- The analysis of OJPs shows a significant demand for transversal skills such as communication, problem solving skills or basic digital skills. This demand is not currently met by the content of training options available in the RTC. Conversely, the RTC seem to focus disproportionately on providing training on health and safety in the workplace, opening to the question of whether these skills should be part of the training options in the RTC.
- Certain medium- and high-skilled occupations that are in high demand do not have available training spots in the RTC, while related professions have a surplus of training spots compared to demand in OJPs. Similarly, certain general skills that are in high demand are not taught in the RTC, while more specific but related skills are taught in many courses. These two observations point to training courses for occupations and for skills being useful to a larger number of people than originally estimated.
- New indicators and tentative evidence comparing the alignment between the quantity and quality of skills supplied in RTC with the demand of the employers in Umbria suggests that, when training is available, it aligns relatively well with skill demands in a variety of high and medium skill occupations, but that alignment is weaker across low skilled roles. Alignment at the occupation level seems to be particularly good for Advertising and Marketing professionals, Metal working machine tool settlers and operators and Building and related electricians. Instead, training for Earth moving and related plant operators, Education method specialists and Painters and related workers is relatively weaker both in terms of volume of skills demanded and taught as well as in the overall alignment of courses to the typical skill demand for those occupations as expressed in OJPs.
- The national programme for the Guarantee of Employability of Workers (GOL) is a recent initiative that aims to fill some the gaps between the need and supply of training. Preliminary evidence seems to suggest that the GOL initiative is filling some of the gaps in training options by providing new learning opportunities in occupations that are in high demand and for which the RTC training offer was relatively weak. Currently, however, the number of training courses implemented in this initiative is still limited (as one could expect due to the short-life of the initiative) and the breadth of the new training options could be extended to capture an even more varied range of skills and occupations, following also the indications contained in this report and the priorities highlighted in the results.

The previous chapter presented the courses in the RTC, along with their duration, costs, and frequencies. This chapter adds to the analysis by examining the alignment between the focus of the RTC and the demands of the labour market. Specifically, the chapter investigates whether the RTC focuses on the occupations that are in high demand in the labour market and analyses whether the courses in the RTC help people increase the skills that are in high demand in the labour market. Additionally, the chapter checks whether courses for a specific occupation teach the skills that OJPs ask for in that occupation.

## Comparing the occupations in the RTC to OJPs

The comparison between the focus of the RTC and the demand in the labour market is based on information from Chapter 1 and Chapter 2. For each occupation included in the Lightcast dataset between 2018 and 2022, the chapter calculates its share in terms of the total number of OJPs.<sup>1</sup> Next, the chapter examines the focus of the RTC by using the total number of training spots dedicated to all occupations as a reference.<sup>2</sup> For each occupation, the chapter determines the number of training spots offered in the RTC, which is then divided by the total number of training spots. By comparing the differences between these shares, the analysis provides information regarding the alignment or misalignment between the focus of the RTC and the strength of the demand in the Umbrian labour market. It is important to note that the distance between the shares should be interpreted as an indication of areas where training falls short of (or exceeds) relative demand in the analysed occupation and that this is a preliminary signal for policy makers to intervene to boost the training offer (or divert resources to other areas), see also Box 3.1.

For example, if an occupation has a high share of OJPs but a relatively low share of training spots in the RTC, this indicates a potential misalignment issue and an area for intervention when planning future training. Conversely, if an occupation has a low share of OJPs but a high share of training spots in the RTC, it may indicate that some resources could be diverted from training in that occupation to other types of training that are associated with occupations where demand is stronger in the labour market. This analysis helps policymakers and education providers to ensure that the training offered is aligned with the needs of the labour market, which ultimately benefits individuals seeking employment and the economy as a whole.

### Box 3.1. Interpreting the difference between the share of RTC's courses and the share of OJPs

The comparison between the shares of training spots offered in the RTC and the share of OJPs over the total can provide useful information regarding the alignment (or misalignment) between the focus of the RTC and the strength of the demand in the Umbrian labour market. This information can be used to highlight areas of policy intervention and the priorities for future training courses.

A few caveats apply, however, to the interpretation of some of the results in this chapter. First, the analysis does not account for cases where, despite a large volume of OJPs, this demand may be easily filled by qualified workers who could be immediately available. This is the case, for instance, where a high volume of OJPs signals frequent turnover and churn rather than pressing shortages and where the pool of qualified jobseekers is already sufficient to fill that demand.

Nonetheless, boosting resources for training in such roles will still put the clients of the PES in a position to develop labour market relevant skills and to compete with other candidates also in roles where turnover is considerable. While this does not directly solve shortages in the local labour market, it does increase the chances of unemployed to compete for new positions that are indeed opened frequently in the labour market.

It is also worth noting that enrolling in courses supplied in the RTC is not the only way through which individuals can acquire training. Data on other training providers (and provision) are, however, not accounted for in the calculations in this chapter while the focus of the analyses is solely on the relative alignment of the RTC to the local labour market demands.

Finally, areas where the gap between relative demand and supply may be small can simply reflect both a low demand and a low supply and not necessarily signal 'good quality' alignment. The text below instead focuses the attention on highlighting those occupations for which the training offer could be boosted and those for which creating new training courses is of lower priority than for occupations that are in high demand.

Firstly, there are 290 occupations for which there are no courses in the RTC, but for which the share of OJPs adds up to 61% in between 2018 and June 2022. This means that the courses in the RTC do not directly cover the occupations that are the target of the majority of OJPs. Table 3.1 shows all of the occupations for which at least 1% of OJPs have been published over the period of analysis, but do not have an accompanying training offer in the RTC. Additionally, Figure 3.1 shows all 12 of the occupations for which there are training spots in the RTC, but for which the share of OJPs exceeds the share of training spots, signalling the need to further improve resources for training.

Based on the information in Table 3.1 and Figure 3.1, the RTC is significantly lacking in focus on occupations that are in high demand. For instance, the occupations in Table 3.1 correspond to 18397 OJPs in between January 2018 and June 2022, for which there was no training. Additionally, in Figure 3.1 there are 6 occupations for which the share of OJPs is larger than 1%, but the gap between the share of OJPs and the share of training spots is also relatively large. These are the occupations: Commercial sales representatives; Software developers; Draughtspersons; Waiters; Electrical mechanics and fitters; and Shop sales assistants.

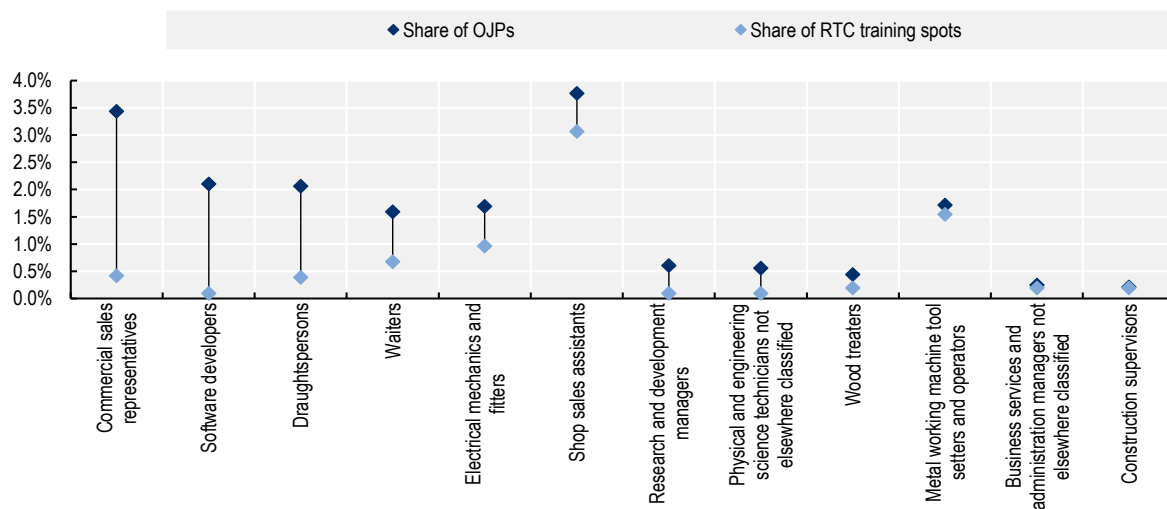
It should be noted, however, that it is possible that the RTC offers courses which are useful for multiple occupations. For instance, kitchen helpers can also benefit from following training courses that are marked for cooks. The existence of training courses that offer cross-occupational skills could help mitigate the observed discrepancies between share of OJPs and share of training spots.

**Table 3.1. Occupations that are in high demand but have no training offer in the RTC**

ISCO code	ISCO name	Share of OJPs	Number of OJPs
9333	Freight handlers	4.4%	3187
9112	Cleaners and helpers in offices, hotels and other establishments	3.3%	2390
3343	Administrative and executive secretaries	2.6%	1883
9329	Manufacturing labourers not elsewhere classified	2.3%	1666
8219	Assemblers not elsewhere classified	1.9%	1376
2149	Engineering professionals not elsewhere classified	1.7%	1231
3339	Business services agents not elsewhere classified	1.4%	1014
2511	Systems analysts	1.2%	869
3331	Clearing and forwarding agents	1.2%	869
3323	Buyers	1.1%	797
8332	Heavy truck and lorry drivers	1.1%	797
2144	Mechanical engineers	1.1%	797
9412	Kitchen helpers	1.1%	797
4419	Clerical support workers not elsewhere classified	1.0%	724

Note: ISCO = International Standard Classification of Occupations.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

**Figure 3.1. All occupations for which the demand in OJPs exceeds the training offer**

Note: only occupations that have at least one RTC course targeting them are included in the graph, and only those for which the share of OJPs is larger than the share of RTC training spots are presented in the graph.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

Combining the analysis from Figure 3.1 and Table 3.1 gives information on which areas could benefit from more focus by the RTC. There are quite many manual labour jobs that are in high demand, but for which the training offer is either non-existent or relatively low. For example, there is no training for positions as

freight handlers, cleaners and helpers in offices, hotels and other establishments, manufacturing labourers, assemblers, and metal working machine tool setters and operators, and the shares of training spots for waiters and for electrical mechanics and fitters are lower than the shares of OJPs. Freight handlers in particular are in high demand. More information on courses for the logistics sector can be found in Box 3.2.

It should be noted however, that it is possible that not all manual labour jobs that show a significant gap between the share the labour demand and the share of training courses in the RTC are jobs that would benefit greatly from training. For certain jobs it is not necessary to obtain certificates or diplomas before being hired. For example, perhaps it would not be efficient to offer training to become a cleaner or helper in offices, hotels and other establishments, or to become an assembler even though labour demand is rather high, if following a training does not increase someone's chances to be hired for that position.

### Box 3.2. Courses in the logistics sector

While there are courses that are specific to jobs in the logistics sector, there are no courses that directly target freight handlers. Freight handlers are one of the most highly demanded professions in Umbria in between January 2018 and June 2022, as 4.4% of the total number of OJPs targets them. This is a low-skill occupation that falls within ISCO-code 9333. In Italian they are called “Addetti allo spostamento e alla spedizione dei materiali o delle merci”.

The RTC does offer courses for another prominent logistics job: stock clerks. In fact, 2.5% of the RTC's training spots are available to this occupation, compared to 1.14% of all OJPs. Stock clerks are a medium-skill profession within ISCO-code 4321, and the Italian name of this profession is “Responsabile di inventario”. The courses within the RTC target the professions: “Addetti alla gestione dei magazzini e professioni assimilate”, and “Responsabili di magazzino e della distribuzione interna”.

While it is possible that certain parts of the courses for stock clerks are relevant for freight handlers, additional specific courses for freight handles might be needed to meet the demand in OJPs. This mainly due to the differences between the tasks carried out by freight handlers and by stock clerks. These differences have briefly been discussed in Chapter 1, but crucially, freight handlers carry out physical tasks such as packing, carrying and loading items (ISCO-08), while stock clerks are in charge of keeping records and arranging and controlling the receipt of goods.

Source: OECD calculations based on data by Lightcast and data by ARPAL Umbria.

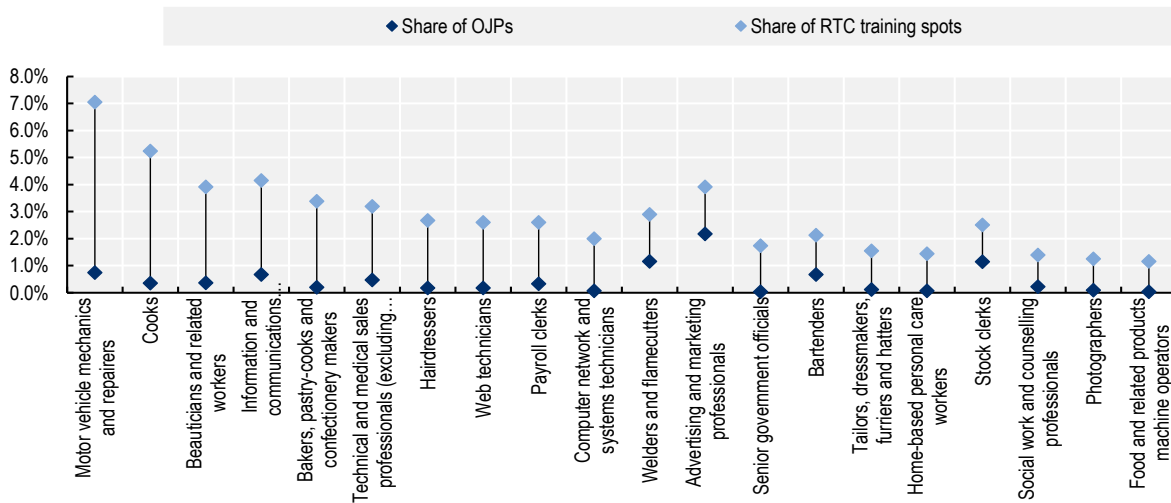
Table 3.1 and Figure 3.1 show a diverse group of occupations, that ranges over all different skill-levels, although high-skilled level jobs are slightly more represented among those in high demand and receiving less attention in the RTC. The first three occupations in Figure 3.1 are high-skilled occupations, as well as 7 out of 17 occupations in Table 3.1.<sup>3</sup> For instance, there is a significant difference between the number of commercial sales representatives in the total number of OJPs and the relative number of available training spots for them in the RTC. Data show that commercial sales representatives represent 3.4% of the total number of OJPs, which amounts to 2463 new vacancies published in Umbria over the period of analysis. However, the RTC made available only 62 training spots, approximately 0.4% of the total number of training spots. After the discrepancy for freight handlers, the gap between the relative demand and training offer for commercial sales representatives is the largest among all occupations. Training for commercial sales representative could therefore be expanded, as demand is relatively strong.

Figure 3.2 presents a different perspective, showing the occupations that are receiving relatively intense focus in the RTC compared to their labour market demand, as observed in OJPs. In contrast to Figure 3.1, the gaps between the shares in Figure 3.2 are much larger. For instance, motor vehicle mechanics and repairers represent only 0.7% of OJPs, but 7% of the RTC's training spots are open to this occupation.<sup>4</sup>

Even for the occupation that ranks 20th in Figure 3.2, food and related products machine operators, the discrepancy is nearly three times larger than the average gap size. This means that the RTC has 189 spots available to train as a food and related products machine operators, while there were 32 OJPs in between January 2018 and June 2022.

Notably, Figure 3.2 shows only two occupations, advertising and marketing professionals and welders and flamecutters, which have a share of OJPs greater than 1%. The remaining 18 jobs listed in Figure 3.2 have a relatively small impact on the number of job openings, with a share of less than 1%. This seems to signal that the RTC is disproportionately focused on jobs that have relatively low demand in OJPs.

**Figure 3.2. Top 20 training courses for occupations which are least demanded and most offered**



Note: Only occupations that have at least one OJP targeting them are included in the graph.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

Whereas the occupations that were in highest demand, with the lowest shares of training spots were often high-skilled occupations, the occupations in Figure 3.2 are mostly in the medium-skills category. There are only a few high-skilled occupations, such as architects and engineers, that receive relatively more attention in the RTC than their demand in the labour market. These findings suggest that the RTC may be focusing too much on certain medium-skill occupations, such as motor vehicle mechanics and cooks, and neglecting other occupations that are in higher demand in the labour market.

It is worth noting that occupations in specific areas (for instance the digital occupations) may be present in both sides of the spectrum, that is the RTC could either be too focused on some of these occupations, relative to their demand in OJPs, but for other the training options may not be sufficient. For instance, while the data suggest a deficit of training opportunities for software developers and systems analysts, the analysis also suggests a relative overemphasis on training offer for ICT user support technicians, web technicians, and computer network and systems technicians. These are all ICT-related jobs, which seems to signal that it can be challenging to determine which digital skills/ digital occupations to prioritise in the training offer. In this context, it is key for the PES to carry out detailed analysis of the skills that are in demand for these occupations and to work closely with industry stakeholders to ensure that training programs are tailored to the evolving needs of the labour market.

There are some limitations to the indicators produced above, however, as certain jobs that seem to receive a disproportionate focus in the RTC, are in fact less likely to be advertised online. For instance, jobs that require working in close proximity to clients such as beauticians, hairdressers, and related workers may not be advertised online as frequently. This was discussed in Chapter 1. Other jobs that are less likely to be advertised online are those related to the food industry, such as cooks; and bakers and pastry chefs. These jobs constitute a significant portion of all training spots at the RTC, with 5.2%, and 3.4% respectively, while the shares of OJPs are 0.4% and 0.2%. The demand for cooks, bakers and pastry chefs is likely to be higher in practice.

### ***Comparing the labour demand and training opportunities across occupations of different skill levels***

The shares of OJPs for occupations for which there are no training courses are often larger for low-skill occupations (Table 3.2). In particular, the previously mentioned occupations freight handlers; cleaners and helpers in offices, hotels and other establishments; and manufacturing labourers not elsewhere classified, jointly account for 10% of all OJPs. This means that while 7243 OJPs in between January 2018 and June 2022 were looking for someone to fulfil these roles, there are no training courses available in the RTC dedicated to them.

In the case of 11 out of 71 occupations with training in the RTC, the share of OJPs exceeds the share of training spots in the OJPs (Figure 3.3). Six of these occupations, are high-skill occupations like commercial sales representatives, software developers and draughtspersons. Figure 3.3 presents all of the occupations for which there is both demand in terms of OJPs, and at least one course in the RTC. For 80% of the occupations, instead, the relative share of training courses over the total exceeds the relative demand, suggesting that the RTC puts an intense focus on occupations for which the demand is relatively weak.



**Table 3.2. Top 10 occupations without training spots in the RTC, per skill-level**

ISCO code	ISCO name	Skill-Level	Share of OJPs	Number of OJPs
3343	Administrative and executive secretaries	H	2.6%	1883
2149	Engineering professionals not elsewhere classified	H	1.7%	1231
3339	Business services agents not elsewhere classified	H	1.4%	1014
2511	Systems analysts	H	1.2%	869
3331	Clearing and forwarding agents	H	1.2%	869
3323	Buyers	H	1.1%	797
2144	Mechanical engineers	H	1.1%	797
2421	Management and organization analysts	H	0.9%	652
2262	Pharmacists	H	0.8%	579
3423	Fitness and recreation instructors and program leaders	H	0.7%	507
8219	Assemblers not elsewhere classified	M	1.9%	1376
8332	Heavy truck and lorry drivers	M	1.1%	797
4419	Clerical support workers not elsewhere classified	M	1.0%	724
4312	Statistical, finance and insurance clerks	M	1.0%	724
4221	Travel consultants and clerks	M	1.0%	724
7421	Electronics mechanics and servicers	M	1.0%	724
4226	Receptionists (general)	M	0.9%	652
4110	General office clerks	M	0.8%	579
7533	Sewing, embroidery and related workers	M	0.6%	435
8189	Stationary plant and machine operators not elsewhere classified	M	0.5%	362
9333	Freight handlers	L	4.4%	3187
9112	Cleaners and helpers in offices, hotels and other establishments	L	3.3%	2390
9329	Manufacturing labourers not elsewhere classified	L	2.3%	1666
9412	Kitchen helpers	L	1.1%	797
5244	Contact centre salespersons	L	0.8%	579
5242	Sales demonstrators	L	0.7%	507
5249	Sales workers not elsewhere classified	L	0.7%	507
5419	Protective services workers not elsewhere classified	L	0.4%	290
9313	Building construction labourers	L	0.4%	290
5112	Transport conductors	L	0.3%	217

Source: OECD calculations based on Lightcast data.

The analysis shows that the RTC could benefit from offering more courses for engineering professionals. Currently, in fact, no courses are available for engineering professionals not elsewhere classified, despite a significant demand (1.7% of total OJPs). The RTC also does not provide training for mechanical engineers, industrial and production engineers, and mechanical engineering technicians. Demand for these jobs is a relatively smaller but still significant (the shares of OJPs over the total for these occupations are 1.2%, 0.6% and 0.6% respectively). Physical and engineering science technicians not elsewhere classified is one of the occupations that does have designated training in the RTC, but demand for these professionals exceeds the relative share of training spots. Instituting more engineering courses could therefore be beneficial, especially if these were to cover skills useful for multiple kinds of engineering professions.

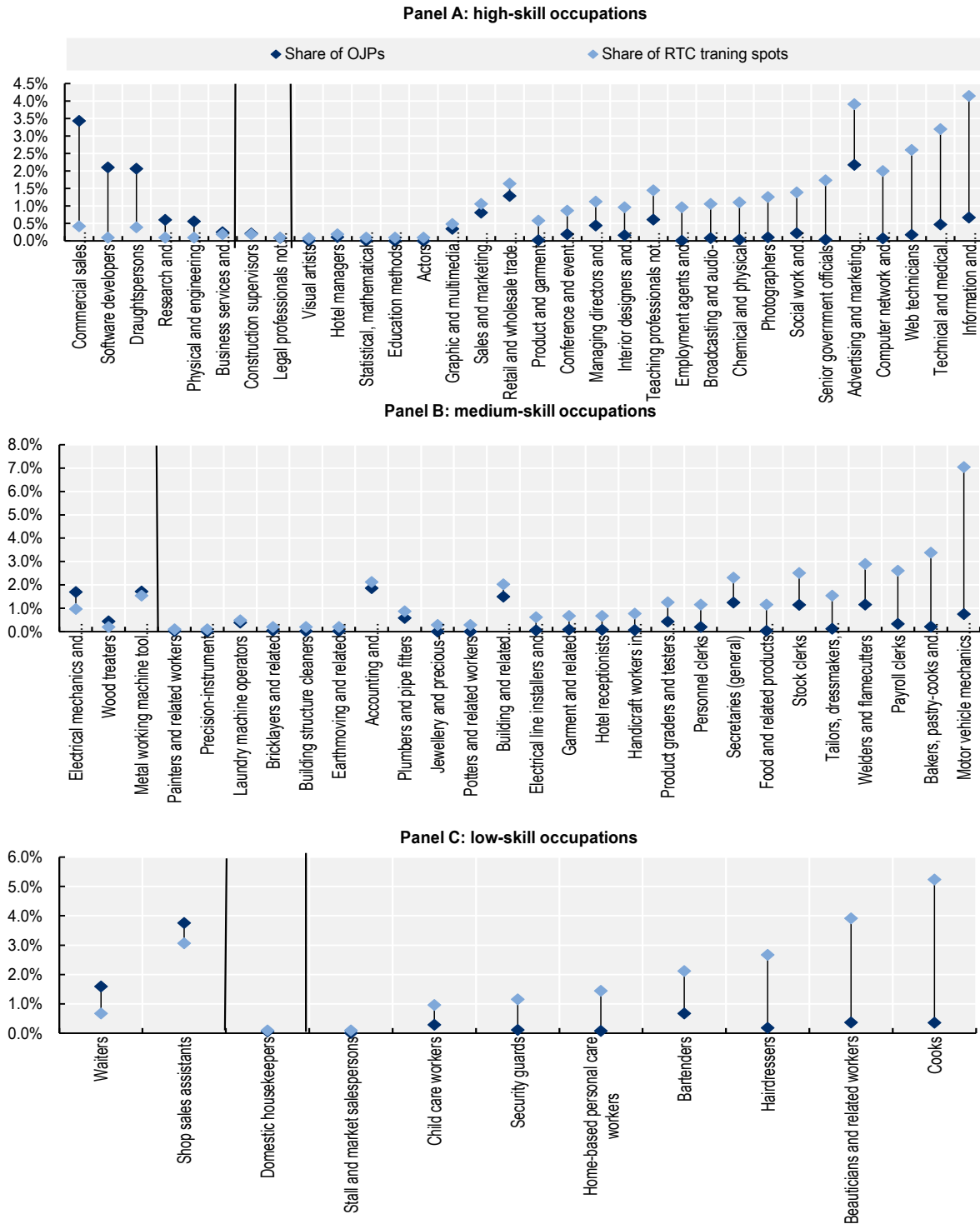
The case of managers is an interesting example of the heterogeneity in the disconnect between demand and supply of training, as the demand for certain types of managers exceeds the number of training spots, while for other types of managers there are more training spots than the share of OJPs (Figure 3.3, Panel A). For instance, the shares of OJPs for research and development managers and for business services and administration managers exceed the shares of training spots, but at the same time the share of training spots for sales and marketing managers, retail and wholesale trade managers and managing directors and chief executives is larger than the share of OJPs. Potentially, courses which are assigned to just one type of manager in the catalogue could be useful for multiple different types of managers. This would mean that there would be an overlap in the skills that are taught in the RTC, which could mitigate some of the perceived misalignment in the training offer and labour demand for managers.

For medium-skilled occupations, it stands out that there are no RTC courses for many different types of clerical jobs, which jointly make up 5.1% of OJPs (Table 3.2).<sup>5</sup> However, according to Figure 3.3 Panel B there is a relatively too intense focus on certain other clerical roles like personnel clerks, secretaries (general), stock clerks and payroll clerks. Furthermore, there is even a course for typists and word processing operators, which receives 2.9% of the training spots in the RTC but has no OJPs. This indicates that there is quite a need for clerical personnel, and that while there are quite a few courses targeting these roles, the focus is not always allocated to the different types of clerical roles in a way that matches OJPs. At the same time, just like for managers, it could be the case that skills that are taught in courses for certain clerks are able to be carried over to other clerical roles. This would mean that the contents of the courses do not necessarily need to change much to align with the demand in terms of OJPs. Another subsection focuses on the skills that are taught in the courses of the RTC.

In the case of the low skill occupations that have specialised training in the RTC, the focus of the RTC seems to be too intense for most of them, compared to the demand in OJPs (Figure 3.3 Panel C). The focus seems especially disproportionate for courses for cooks, and for personal care jobs like beauticians and related workers and hairdressers. At the same time, there are no courses that are specifically allocated to kitchen helpers, although that occupation captures 1.1% of all OJPs. It could be that certain courses which are aimed at cooks or at other kinds of food service jobs are already teaching skills that are beneficial for kitchen helpers as well, or could be used as a basis to also develop courses that specifically target kitchen helpers.

Additionally, the lefthand side of Figure 3.3 Panel C shows that there is relatively little training for waiters and shop sales assistants compared to the share of OJPs for these jobs. The differences are 0.9 and 0.7 percentage points respectively. Interestingly, the share of training spots for shop sales assistants is already quite high, as 3.1% of RTC training spots are allocated to them. Scaling up the number of training spots for shop sales assistants to aligning the focus of the RTC with the share of OJPs could therefore be relatively easy. Either more participants could be allowed into the training courses, or more courses with the existing curriculum could be offered.

Figure 3.3. Alignment between share of OJPs and share of RTC training spots



Note: Only occupations that have at least one RTC course and one OJP targeting them are included in the graph. Occupations on the left of the black line(s) are occupations for which demand exceeds training offer. Occupations enclosed between two black lines have an equal share of OJPs and of training spots, while occupations on the right side of the black line(s) have more focus in the RTC than in the OJPs.  
 Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

## Comparing the alignment between the demand for skills and the skills taught in the RTC

This subsection analyses the skills on which the RTC focuses the most and the least, and compares their offer to the relative demand for those skills in the description used by employers to advertise vacancies (OJPS).

In total, the RTC makes available a large number of potential training options that sum up to around 24000 individual training spots across all training types. This section presents indicators of the share of prospective learners that could acquire a specific skill (if enrolling in one of the available courses), relative to the total number of potential participants. As this analysis focuses on the alignment between skills demanded in OJPs and skills that learners could acquire through RTC courses, all training courses are included, not just the training courses that target a specific occupation.

The share of people learning a certain skill is compared with the share of OJPs that require that specific skill. The difference between these shares can be used as a first indication of whether the RTC is focusing on skills that are highly demanded in the labour market, or whether training priorities could be updated and the training offer in RTC modified to better align to skill demands observed in OJPs.

When interpreting the results, it is worth noting that there are some limitations in the ability of these indicators to fully capture the alignment between the skill demanded and those offered. One aspect relates to the fact that some skills may not be explicitly mentioned in OJPs. Being able to write emails may be implicit in some OJPs for secretaries, but knowledge of office software be still a key aspect of the job. If so, results looking at the gap between the skills offered in the courses and those demanded by employers may be biased upward (pointing to excess of supply), in particular if certain skills are indeed offered in RTC training but not explicitly mentioned in OJPs. Similarly, some skills provided in the RTC may be synonyms of keywords used in OJPs but still hard to match to the jargon used by employers. In this case, results may be biased downwards, incorrectly signalling that skill offer is inferior relative to the demand.

While there are many different skills in both the RTC and in the OJPS in Umbria, there is a limited number of skills that are present in both. There are 2 325 skills in the RTC, after matching them to the skills in the language of all OJPs, and there 1 888 skills in the OJPs in Umbria in between January 2018 and June 2022. However, there is not a lot of overlap between these skills, only 6% is both taught and demanded on the Umbrian labour market. This signals that the content of the RTC courses can be largely adjusted to better align the skill demands stemming from the labour market.

Table 3.3 shows the 20 skills with the highest demand, which are not part of the curriculum of the RTC, and Figure 3.4 shows the skills that are taught in the RTC, but are in high demand relative to the supply in training options. The average discrepancy between training supply and demand on the labour market is 0.8 percentage points, which means that even the discrepancy for the last entry in Table 3.3 is 4.3 times larger than average.

**Table 3.3. Top 20 Skills that are in high demand but have no explicit training modules in the RTC**

Italian name of the skill	Translation of the skill	Share of OJPs	Number of OJPs
servizio clienti	customer service	14.8%	10720
principi bilancio	budget principles	12.4%	8982
creare soluzioni problemi	create problem solutions	10.7%	7750
comportarsi modo responsabile	behave responsibly	8.7%	6302
standard qualità	quality standards	7.6%	5505
software ufficio	office software	7.6%	5505
utilizzare sistemi ufficio	use office systems	6.7%	4853
guidare altri	guide others	5.9%	4274
pensare modo proattivo	think proactively	5.9%	4274
creazione spirito gruppo	group spirit creation	5.9%	4274
database	database	5.6%	4056
pensare modo analitico	think in an analytical way	5.2%	3767
gestire tempo	manage time	5.0%	3622
guidare gruppo	lead group	5.0%	3622
budgetary principles	budgetary principles	4.9%	3549
osservare norme aziendali	observe corporate rules	4.2%	3042
communication	communication	3.9%	2825
lavorare indipendentemente	work independently	3.9%	2825
economia	economy	3.4%	2463
precision	precision	3.4%	2463

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

As is to be expected, (almost) all of the most highly demanded skills are transversal skills, especially the skills for which there currently is no explicit training offer. The first reason being that transversal skills pertain to many different occupations and can therefore be demanded in OJPs across sectors, which increases the share of OJPs that ask for these skills. Secondly, skills that are very general like “adapting to change”, which is demanded by around 30% of OJPs, can be difficult to train for. This makes it harder to integrate them into the RTC curriculum, which leads to a low share of training spots. Lastly, it is possible that training courses in the RTC teach their students specific ways to incorporate the more generally demanded skills. For example, instead of explicitly teaching students how to work in a team (demanded by 24% of OJPs), they could be teaching students how to guide others, or how to motivate team members. In that case, the misalignment in terms of skills is smaller than it seems at first glance. It could be beneficial to see how teamwork or knowledge about group dynamics are already incorporated in different courses, and how this could be improved to meet the needs on the labour market.

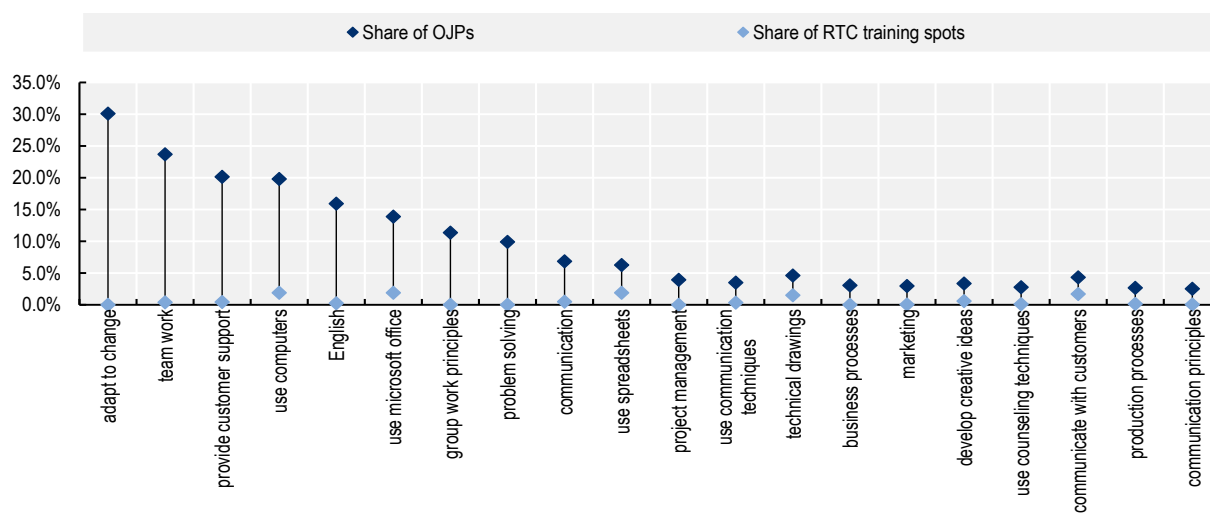
There are several digital skills that are in high demand on the labour market, with limited to no training allocated to them. For instance, knowing how to use a computer, and being able to use Microsoft office. There are some training courses that teach people how to use a computer and Microsoft office skills, as 1.9% of training spots teach these skills (Figure 3.4). The shares for demand in the labour market are 19.8% and 13.9% respectively. In Table 3.3, office software and how to use office systems are mentioned as highly demanded skills as well, at 7.6% and 6.7% of OJPs. While white-collar jobs are often overrepresented among the OJPs, these basic digital literacy skills are important skills generally. Potentially, the RTC is not providing these courses because it is assumed that the target audience is

already aware of how to perform these tasks, or it could be that the need for these courses has not been signalled yet.

Knowledge of the English language is in high demand across OJPs (15.9% of OJPs ask for proficiency in this language). The cluster analysis in Figure 2.6 in Chapter 2 already showed that the current catalogue does not have a particularly strong focus on English. In fact, only 0.2% of all participants in the RTC are in a course that specifically mentions English as a skill in their course guide. Including working knowledge of English into more RTC courses could therefore be a strategic move, given that 18760 OJP in between January 2018 and June 2022 demanded explicitly knowledge of this language.

Providing assistance to clients and customer service are two skills that are also in high demand (10.1% and 14.8% of the OJPs respectively). Again, courses are either not present or less than 1% of potential participants is learning about these skills. This is rather unexpected as the RTC had a strong focus on the cluster that included skills and knowledge of customer management and the cluster with the management of services and processes and the evaluation of quality (see Chapter 2). This could be an indication that what is mentioned in the course guides of the RTC is in close to what is demanded in the OJPs, but does not exactly match.

**Figure 3.4. Top 20 skills which are most demanded and least offered**



Note: Only the skills that are both present in the RTC and in the OJPs are included in the graph.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

Unlike for the occupations, most of the skills that the RTC focuses on intensely, are not at all demanded on the labour market. For that reason, both skills that are demanded in OJPs and those that do not capture any of the demand in OJPs are presented in Table 3.4. Only two skills that are demanded in the OJPs make the top 30 in Table 3.4.<sup>6</sup>

Health and safety related skills are the skills in the RTC which receive the most disproportionate attention compared to share of OJPs that shows demand for them.<sup>7</sup> Demand for health and safety skills is non-existent in OJPs, but at the same time the cluster for work safety is the largest cluster of skills that is being taught in the RTC, as was already discussed in Chapter 2. While work safety training courses might not directly improve someone's chances to get hired on the labour market, they do provide a service which is mandatory in Italy, although these training courses could also be provided elsewhere.

The skills that are present in Table 3.4 are often of a much more specific nature than the skills that are in high demand on the labour market. For instance, using software to manage client relations (18% of training

spots), and promoting communication in the internal organisation (16% of training spots). These skills can be seen as a more specific subset of general skills such as customer relations and communication.

**Table 3.4. Top 30 skills which are least demanded and most offered**

Italian name of the skill	Translation of the skill	Share of RTC training spots	Number of training spots
sicurezza lavoro	work safety	53%	12530
gestire attività modo indipendente	manage business independently	49%	11501
valutare qualità servizi	evaluate service quality	34%	8047
analizzare processi influenzano erogazione assistenza sanitaria	analyze processes affecting health care delivery	24%	5777
gestire conoscenze commerciali	manage commercial knowledge	20%	4689
misure igiene luogo lavoro	workplace hygiene measures	19%	4479
utilizzare software gestione relazioni clienti	use customer relationship management software	18%	4265
gestione relazioni clienti	customer relationship management	20%	4782
promuovere comunicazione interno organizzazione	promote internal organization communication	16%	3731
garantire parità genere luogo lavoro	ensure gender equality in the workplace	11%	2717
fornire assistenza pianificazione programmazione produzione	provide production planning assistance	10%	2428
mantenere sistemi comunicazione interni	maintain internal communication systems	9%	2228
gestire qualità pellami durante intero processo produttivo	manage leather quality during the entire production process	9%	2140
organizzare partecipazione manifestazioni internazionali	organize participation in international events	9%	2106
valutare esigenze produzione pianificare programma produzione	assess production needs plan production schedule	8%	1992
analizzare processi produttivi migliorarli	analyze production processes and improve them	8%	1990
applicare standard qualità interazione candidati	apply candidate interaction quality standards	7%	1772
stabilire relazioni commerciali	establish business relationships	7%	1708
lavorare équipe settore alberghiero	working as a team in the hotel sector	7%	1554
gestire sistemi software gestione richieste pianificazione	manage planning request management software systems	7%	1541
gestire piazzale stazione servizio	manage the service station square	6%	1480
gestire risorse esterne	manage external resources	6%	1407
pianificare attività produzione	plan production activities	6%	1407
utilizzare software pianificazione produzione	use production planning software	6%	1385
coordinare attività	coordinate activities	6%	1375
fornire assistenza produzione documentazione laboratorio	provide assistance in the production of laboratory documentation	6%	1343
gestione impianti organizzazione	plant management organization	6%	1309
legislazione ambientale	environmental legislation	6%	1306
controllare condizioni ambientali lavorazione	check processing environmental conditions	5%	1240
coordinare comunicazione interno gruppo	coordinate internal group communication	5%	1214

Note: work safety is the maximum of: regulations\_safety\_firefighting, legislation\_matter\_health\_safety\_higiene, respect\_regulations\_safety\_work, health\_safety\_place\_work, legislation\_matter\_safety\_mine.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

### ***Comparing the alignment between the demand for skills and the skills taught in the RTC in courses for different skill-levels***

In general, there seems to be substantial misalignment when it comes to the demand for skills in the OJPs and the share of training spots in courses that teach these skills, at all different skill-levels. For instance, only 2.2% all of the skills that are either demanded for low-skilled occupations or taught in the RTC, have an overlap between demand and training offer. The same holds for 3.1% of skills for medium-skilled occupations, and 2.6% of skills for high-skilled occupations.

There are several skills that are highly demanded in OJPs for multiple different skill-levels, which the RTC does not teach. Table 3.5 shows these thirteen skills, which are all part of the top 20 of at least two out of the three skill-levels. When a cell in Table 3.5 is empty, that either means that the demand for this skill lower, which means that the skill did not reach the top 20, or that there is at least one course at that skill-level that teaches it.

Some of the skills which have an empty cell in Table 3.5 can be found in Figure 3.5. Figure 3.5 shows the skills per skill-level for which the demand in terms of OJPs is greater than the number of training spots in the RTC. For instance, demand for people that speak English is 22.8% for high-skill OJPs, and 11.6% for medium-skill OJPs, without any courses (Table 3.5). It is actually highly demanded within low-skilled OJPs as well, it is mentioned in 8.9% of OJPs, but there are low-skilled courses that teach this skill: 1.6% of low-skill training spots are in courses which feature English (Figure 3.5 Panel C). So, even though there is more demand for medium- and high-skilled workers to have a working knowledge of English, the only courses that focus on it are being taught to low-skilled workers. Potentially, it is assumed that the other skill-levels already possess English-language skills, or the need for English training for these skill-levels was not visible.

While there are only a few skills that are part of the RTC curricula for which demand exceeds the share of training spots, there are a significantly higher number of skills that are in high demand, which are not part of any of the RTC's courses. This is why there are only 25 skills presented in Figure 3.5, while there are a total of 236 skills for high-skill occupations, 104 skills for medium-skill occupations and 66 skills for low-skill occupations for which there is demand in at least 1% of OJPs, without being part of any of the courses.<sup>8</sup> This shows that it is difficult to pinpoint the skill needs of the labour market, as most of the highly demanded skills are not being taught at all.



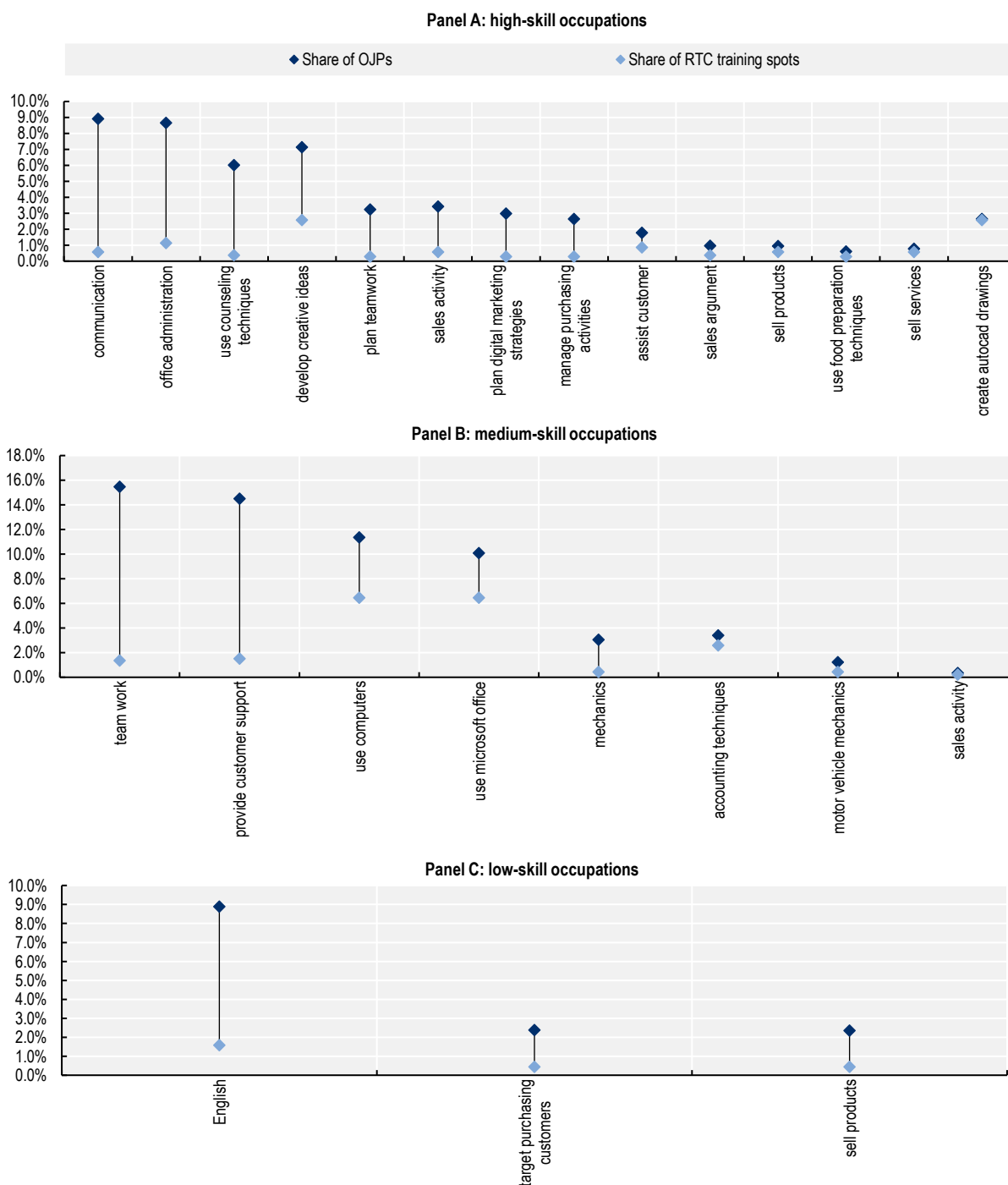
**Table 3.5. Skills that are in high demand that are not offered in the RTC, which are among the top 20 highly demanded skills for multiple skill levels**

Italian name of the skill	Translation of the skill	Share of High-skill OJPs	Share of Medium-skill OJPs	Share of Low-skill OJPs
budgetary principles	budgetary principles		6.00%	5.6%
comunicazione	communication		4.80%	5.6%
creare soluzioni problemi	create problem solutions	15.70%	7.3%	5.6%
inglese	English	22.80%	11.6%	
guidare altri	guide others	11.10%		2.9%
principi bilancio	budget principles		16.00%	14.3%
problem solving	problem solving	13.80%	7.4%	5.9%
servizio clienti	customer service	21.60%	13.2%	4.3%
adattarsi cambiamento	adapt to change	37.60%	20.3%	28.6%
comportarsi modo responsabile	behave responsibly	14.00%		5.5%
utilizzare computer	use computers	34.50%		3.7%
utilizzare microsoft office	use microsoft office	22.40%		3.1%
lavorare gruppo	teamwork	30.50%		21.7%

The skills in Table 3.5 are transversal, as they are even applicable for occupations across skill-levels, but the intensity of demand at each skill-level differs. What stands out is that the demand for any skill that occurs across multiple skill-levels, the intensity is always the strongest for the high-skill level. For instance, creating solutions to problems is a necessary skill in 15.7% of high-skill OJPs, 7.3% of medium-skill OJPs, and 5.6% of low-skill OJPs.

Analysis of the skill-level specific skills which are in high demand but not part of the RTC shows that these skills often belong to widely different types (details can be found in Annex 3.A). For instance, mental skills like analytical thinking and proactive thinking are in high demand for high-skilled occupations, as 10.7% and 10.4% of OJPs ask for them respectively. For medium-skilled occupations on the other hand, 6 different of machine-related skills are in high demand. For instance, installing, inspecting, and maintaining machinery are all asked in 5.4% of OJPs. Two important skills for low-skilled occupations are executing operations in a warehouse and performing warehousing operations, as 8.1% of OJPs and 4.5% of OJPs require these skills. These skills could be related to the demand for the occupation of freight handler, which is one of the more highly demanded low-skilled occupations.

Figure 3.5. Skills for which demand in OJPs exceeds the share of RTC training spots



Note: Only skills that have at least one RTC course and one OJP targeting them are included in the graph. Only the skills for which demand outpaced the training offer are presented.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria.

Combining Figure 3.5 with Table 3.5 shows that the only courses that teach how to use the computer and how to use Microsoft office are courses for medium-skill level occupations, although these skills are in even higher demand for high-skill occupations. The demand for people to know how to use the computer

and Microsoft office for medium-skill occupations relatively high as well, 11.4% and 10.1% of OJPs mention them. And while the share of potential medium-skill participants learning these skills is non-negligible, at 6.5% for both (Panel B), demand still exceeds it. Potentially, there are no courses for high-skill occupations that teach these skills as they are seen as too basic, however, it would be good to investigate whether the high-skilled population actually already is familiar with these skills, given their great importance on the Umbrian labour market.<sup>9</sup>

The number of skills for which the demand outpaces the training offer is largest for high-skill occupations (Figure 3.5 panel A). However, even in this case, there are only eight skills which are offered in the RTC courses, for which the gap between share of OJPs and share of participants is larger than average. The gap is largest for communication, as 9% of OJPs specifically require someone with skills in communication, while just 0.6% of participants are being taught this skill. Again, this might be due to the fact that texts in the OJPs are more general than the texts in the course guides. There might be courses that deal with aspects of communication, but these skills are described in a more specific manner.

In case of the skills for which the training offer exceeds the demand in the OJPs, it holds true for all skill-levels that the RTC is most likely to overly focus on work safety skills, and skills that are formulated in less general terms.

Skills that are the focus of many courses for high-skilled occupations are sometimes closely related to skills that were in high demand but had too few training offers. This is the case for amongst others, digital media/marketing skills. For example, the skills: developing digital content; planning a social media campaign; planning marketing events and promotional campaigns; defining a media communication strategy; elaborating a marketing sales plan; and planning a digital marketing strategy are all much more prominently featured in the RTC than in the OJPs. At the same time, demand for the planning of digital marketing strategies exceeded the share of people learning this skill.<sup>10</sup> It is likely that there is some overlap in the skills as present in the RTC course guides and the skills that are necessary for the OJPs, although the context as described in the OJPs is often more general.

A skill that is particular to courses for medium-skilled occupations seems to be negotiation and contacting commercial relations. Managing negotiation of titles is taught to 13.7% of participants, and carrying out political negotiation, and establishing commercial relations are taught to the same share of participants as well. The demand for these skills in the way they are formulated in the course guides, however, seems to be non-existent.

Some skills that courses for low-skill occupations focus on intensely compared to the demand in OJPs, are food industry related skills. The food skills range from: analysing the characteristics of food products (which has a discrepancy between share of training spots and share of OJPs that is 57 times larger than average), to working independently in the production process for food (discrepancy that is 56 times larger) evaluating the characteristics and quality of food products (discrepancy that is 32 times larger) and preparing things in the oven (discrepancy that is 23 times larger). As discussed in Chapter 1, demand for food industry jobs has increased after the pandemic, which likely would have led to increased demand for food related skills. However, the mismatch can occur either because the demanded skills are described in a different (more general) way in the OJPs, or perhaps the skills for food industry jobs are often implied by the title of the job posting, instead of mentioned in the text. For instance, it is rather self-evident that kitchen helpers and cooks should be aware of how to prepare things in the oven and how to evaluate the quality of their food products.

Lastly, what stands out for low-skilled occupations is that there are no beauty related skills that the RTC focuses excessively on relative to demand on the labour market. This is interesting as there are many courses for beauticians, which coupled with a relatively low demand for this occupation. That the focus is not too intensely on beauty related skills could be an indication that the courses for beauticians are much more general, and often teach transversal skills.

## The skill-match between labour demand and training supply for each occupation

This section analyses the alignment between the training provided for each specific occupation and the skill demands for that occupation as they appear in OJPs.<sup>11</sup> To assess this alignment, a skill-match score is calculated. This is done by combining two metrics:

- Comparison of the share of skills typically required in a particular occupation (based on OJPs) with the skills taught in each RTC course for that occupation. For example, this metric calculates the percentage of skills taught in the RTC that also appear in the typical demand for a given occupation. The higher the share of skills taught in the RTC relative to the total skills demanded for that occupation in OJPs, the stronger the alignment between the RTC and the OJPs.
- Calculation of the semantic proximity between each pair of skills demanded in an occupation and the corresponding skill taught in the RTC. This metric captures the ‘qualitative’ alignment between the RTC course content, and the specific skill demand expressed in OJPs. For instance, a course devoted to developing the skill to “use using electronic spreadsheets” aligns relatively well with demand for “Excel” skills, but a course in PowerPoint may align less well if the occupation requires specific knowledge of Excel. The analysis using semantic similarity between the keywords describing the course content and those describing the job’s tasks is used to approximate for the alignment between the demand and the supply of skills for each occupation.

Table 3.6<sup>12</sup> presents an example of how the two metrics above are combined at the occupational level to create an indicator of both qualitative and quantitative alignment between the RTC and the demand in OJPs for a specific occupation (in this example “ISCO-7212 Welders and Flamecutters”).

Column 3 lists all the keywords used to describe the typical RTC course for Welders and Flamecutters while column 4 presents the keywords used to describe job’s tasks in the same occupation across OJPs.

The approach followed in Table 3.6 associates each OJPs keyword with one (and only one) RTC keyword picking the combination of RTC-OJPs keywords that has the highest semantic similarity score.<sup>13</sup> In the example in Table 3.6, for instance, the specific skill demand around knowledge of “Techniques (for) Welding” has been associated with the RTC’s learning goal of developing knowledge related to the use of a “welding electrode”. The semantic similarity between the two set of keywords is high (0.87, see column 6), hinting that the RTC training programmes that target Welders and Flamecutters teaches knowledge related to “welding electrodes” which is in line with the demand of employers of “welding techniques”. Column 5 also show that welding techniques represent a key skill for the occupation as this skill represent 20% of total skill demand for that occupation across all OJPs.

The sum of the share in column 5 is used to create a composite indicator reflecting the “quantitative” alignment of the RTC and the OJPs in the occupation at hand. In the example in Table 3.6, the shaded skills are those that are summed up, as these are the 10 skills that are most closely matched between RTC and OJPs. Summing the shares shows that the RTC course for Welders and Flamecutters ‘covers’ 31% of total number of different skills that are demanded to Welders and Flamecutters across OJPs, so that the quantitative alignment of the RTC’s course content with the labour market demand is modest.

Column 6, instead, approximates for the “qualitative” alignment between the learning goals in RTC and the skills requested by the employers in OJPs. In the example in Table 3.6 the course content (i.e. skills that are taught in the RTC) aligns relatively well with the demand of the employers, with several RTC’s learning goals being semantically close to the keywords mentioned by employers in OJPs for Welders and Flamecutters.

The approach then combines the two sub-indices discussed above in one value for each occupation, where the sum of the values in column 5 (the relevance- how many of the OJPs skills are taught in the RTC) is given a final weight equal to 0.2 and the quality of the alignment of the learning goals (the average of the values in column 6) is given a final weight of 0.8.<sup>14</sup> The final indicator, hence, ranges in between 0 and 1,

with larger values representing a stronger quantitative and qualitative alignment of the RTC course content to the typical demands of employers for the occupation at hand.

For the example in Table 3.6, this means that the total skill-match score is 0.63, as the average similarity score is 0.71, while the sum of the demand for the skills that are shaded is 31%.

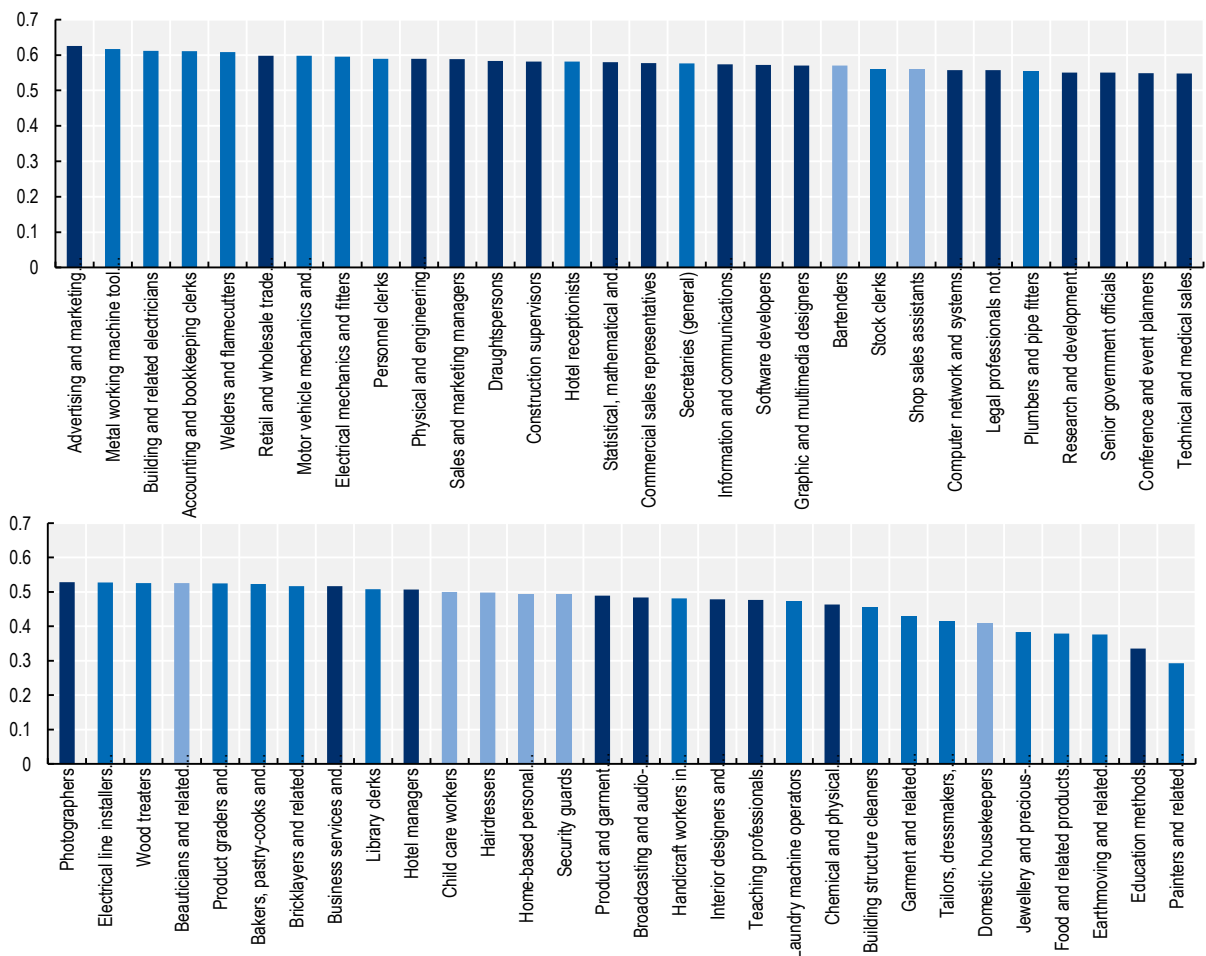
**Table 3.6. Example of the skill-match score calculation**

ISCO Code	ISCO name	Skill keywords used in RTC	Skill keywords used in OJPs	Share of skill demanded in OJPs over total skill demand	Keywords similarity between RTC and OJPs skills
7212	Welders and flamecutters	welding electrode	techniques welding (1)	20%	0.87
		prepare materials instrumentation machinery welding	to execute processing metals (2)	0%	0.85
		light drawing technician	use measurement instruments (3)	2%	0.84
		manage documentation reference processing mechanics	use documentation technical (4)	0%	0.81
		evaluate quality operated process productive manufacturing	processes processing machine abrasive (5)	1%	0.75
		cure location work processing	instruments measurement precision (6)	1%	0.75
		to interact resource organization	management project (7)	0%	0.69
		follow measures	to assemble components (8)	0%	0.57
		activity employee or autonomous	creation spirit group (9)	0%	0.54
		measures	drawings technicians (10)	6%	0.50
Total scores				31%	0.71

Note: The RTC provides a longer list of skills than the one presented in this table, including “welding row” and “to interact resource organization building mechanics”. Those skills, however, map into the same OJPs skills as the skills that are presented in the table, convoluting the example. Source: OECD calculations based on Lightcast data and data by ARPAL Umbria.

While the alignment scores in Figure 3.6 are relatively high, the relevance scores contained within them are all rather low. These relatively low relevance scores indicate a mismatch between the skills taught in RTC courses and the skills demanded in the job market at the occupation level. The best alignment (both in terms of quantitative and qualitative scores) is found for Advertising and Marketing professionals, Metal working machine tool settlers and operators and Building and related electricians. For these occupations, the quantity of relevant skills taught in the RTC is higher than the average, meaning that the RTC courses do a relatively better job at providing training that matches the demands of employers both in terms of “quantity” of skills covered and “quality” of the training content. Conversely, the overall alignment between the training provided in the RTC and the skills demands of employers for Earth moving and related plant operators, Education method specialists and Painters and related workers is relatively weaker (see Figure 3.6 panel B).

Figure 3.6. Top and bottom 30 occupations by total alignment score



Note: The darkest blue bars represent high-skill occupations medium blue bars the medium-skill occupations, and light blue bars are low-skilled occupations.

Source: OECD calculations based on Lightcast data and data from ARPAL Umbria. Note: The darkest blue bars represent high-skill occupations medium blue bars the medium-skill occupations, and light blue bars are low-skilled occupations.

## Recent training options: The GOL initiative

In March 2022, Umbria's regional council approved the regional implementation of a national programme that is meant to increase workers' employability. For the Umbria region, this means that additional training courses are going to be opened in 2023 within the "National programme for the Guarantee of Employability of Workers" (Programma Nazionale per la Garanzia di Occupabilità dei Lavoratori – GOL).

The GOL initiative consists of three different types of courses: reskilling, upskilling and digital skill courses. This subsection discusses the reskilling and digital skills courses in particular. As the courses contained in GOL were not yet part of the Regional Training Catalogue at the moment when the analysis of this report started, it was impossible to systematically assess the alignment of those new courses with the demand expressed in OJPs as it is, instead, done for the RTC. The GOL initiative is, however, a very interesting development in the training options available to individuals in Umbria that merits attention. This is, hence, discussed in this section in a qualitative manner.

### ***GOL programme – Reskilling courses***

At the moment of drafting this analysis, the GOL initiative offers 66 reskilling courses, 64 of which are explicitly targeting one or more ISTAT occupations<sup>15</sup> (ARPAL Umbria, 2023<sub>[1]</sub>). The courses range from 154 to 575 training hours, with an average length of 254 hours. This means that the reskilling courses in GOL are typically more extensive and detailed learning programmes especially when compared to the average course length in the RTC which was 187 hours.

Preliminary evidence seems to suggest that the GOL initiative is filling some of the gaps in training options by providing new learning opportunities in occupations that are in high demand and for which the RTC training offer was relatively small. In particular, seven highly demanded occupations that were not commonly offered in the RTC will receive new training courses under the GOL initiative.

Among the occupations that are now targeted by new training in the GOL initiative, shop sales assistants, draughtspersons and systems analysts are roles for which the training options in the RTC were falling significantly short relative to the demand expressed in OJPs. Furthermore, the GOL initiative also targets other occupations in high demand with limited to no training options, such as clearing and forwarding agents; kitchen helpers; statistical, finance and insurance clerks, travel consultants and clerks all of which collect approximately 1% of the total OJPs each over the period January 2018 and June 2022.

At the same time, however, the GOL programme still provides training to 12 occupations on which the RTC already focused rather intensely relative to the demand expressed in OJPs. While this new offer focuses on occupations whose demand may be under-estimated by OJPs, some courses are likely to be in excess relative to the demand and may require future modulation, also in light of some of the evidence presented in this report.

As of now, new courses will be provided for motor vehicle mechanics and repairers; cooks; ICT user support technicians; bakers, pastry-cooks and confectionery makers; typists and word processing operators; technical and medical sales professionals (excluding ICT); gardeners, horticultural and nursery growers; web technicians; payroll clerks, and beauticians and related workers. All of these new learning options are therefore for occupations, who have been already heavily targeted in the past by the RTC.

### ***Digital skills in the GOL programme***

The digital skills courses in the GOL programme all aim to support individuals develop core digital competencies following the indications contained in the digital competence framework for citizens by the European Commission<sup>16</sup> (Vourikari, Kluzer and Punie, 2022<sub>[2]</sub>).

At the moment of drafting this report, the GOL initiative provides training for 67 digital skills courses in the GOL programme (ARPAL Umbria, 2023<sub>[1]</sub>), which all have a generally short course duration. The courses are between 15 and 40 hours, with an average of 38.5 hours.

The majority of courses offered by the GOL initiative to improve digital skills cover multiple areas. Among the courses, 50% focus on digital content creation, while 42% teach information and data literacy and communication and collaboration skills. Additionally, around one-third of the courses teach safety related to cybersecurity, but only 11% concentrate on problem-solving skills.

Previous analyses showed that many basic digital skills like using a computer and using Microsoft office are, indeed, in high demand and a clear focus/target in the GOL initiative on digital skills is very much welcome.

In particular, courses related to the first digital competence pillar “information and data literacy”, as well as the third pillar “digital content creation” align particularly well with the observed labour market demands in Umbria. Interestingly, learning goals even explicitly mention some of the specific keywords that are frequently used by employers in OJPs, such as for instance, Microsoft Office. It is important that these

basic digital skills courses encourage people of all three occupational skill-levels to participate, as the demand for these skills was rather high across all skill-levels.

Skills related to data management are also in high demand in the Umbrian OJPs and much of this demand is not met by specific training options in the RTC. Some 5.6% of OJPs analysed in this report, for instance, is looking for people with knowledge and skills related to database management, mostly in high-skill roles. The GOL programme provides some data focused courses to meet this demand.

Developing skills in the area of “communication and digital media” is also a top priority in the new training proposed in the GOL initiative and it aligns well with the skill demands extracted from OJPs which frequently require effective communication skills (mentioned in approximately 7% of OJPs). To put this into context, despite the strong demand, the RTC currently lacks clear options to develop those skills while some 42% of the GOL courses focus on the core competency of “communication and collaboration”.

Finally, training options targeting the development of problem-solving skills are currently under-supplied in the RTC. Figure 3.4 shows, for instance, that approximately 10% of OJPs mention this skill requirement, no training options specifically have learning modules devoted to it. Interestingly, around 11% of the new GOL training options mention developing problem solving skills as an explicit learning goal, highlighting closer alignment of the GOL initiative with the demand of employers in Umbria relative to the existing RTC.

The preliminary analysis of the GOL initiative and of the new courses recently proposed by ARPAL seem to suggest that this initiative could be closing some of the observed gaps between the needs for training and the supply of learning opportunities. Currently, the number of training courses implemented is, however, still limited (as one could expect due to the short life of the initiative). The breadth of the new training options could be extended to capture an even more varied range of skills and occupations, following also the indications contained in this report and the priorities highlighted in the results. Also, the current focus on some occupations, such as beauticians and motor vehicle repairers, seems excessive relative to the observed demand and future revisions of the initiative may decide to shift resource towards providing training for occupations where demand is stronger.



## References

- ARPAL Umbria (2023), *Catalogo offerta formativa GOL*, <https://www.arpalumbria.it/catalogo-offerta-formativa-gol> (accessed on April 2023). [1]
- Carnevale, A., T. Jayasundera and D. Repnikov (2014), *Understanding Online Job Ads Data*, Center on Education and the Workforce, <https://cew.georgetown.edu/wp-content/uploads/2014/11/OCLM.Tech.Web.pdf>. [3]
- Vourikari, R., S. Kluzer and Y. Punie (2022), *DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes*, Publications Office of the European Union, <https://doi.org/10.2760/115376>. [2]

## Annex 3.A. Unique skills across skill-levels

**Annex Table 3.A.1. Skills that are in high demand that are not offered in the RTC, which are unique in the top 20 highly demanded skills for each skill-level**

Italian name of the skill	Translation of the skill	Skill-level	Share of OJPs
fornire assistenza clienti	provide customer support	H	24.90%
principi lavoro gruppo	group work principles	H	23.90%
software ufficio	office software	H	14.20%
creazione spirito gruppo	group spirit creation	H	11.70%
utilizzare fogli elettronici	use spreadsheets	H	11.20%
database	database	H	11.00%
pensare modo analitico	think analytical way	H	10.70%
guidare gruppo	lead group	H	10.60%
pensare modo proattivo	think proactively	H	10.40%
gestire tempo	manage time	H	9.70%
standard qualità	quality standards	M	11.00%
disegni tecnici	technical drawings	M	8.00%
precision	precision	M	7.30%
machine elettriche	electric cars	M	6.90%
utilizzare sistemi ufficio	use office systems	M	6.30%
funzionalità macchinari	machinery functionality	M	6.00%

## Notes

<sup>1</sup> There are 72 434 OJPs in Umbria in this timespan.

<sup>2</sup> This means that training spots for courses such as health and safety, that are not assigned to a particular occupation are disregarded for this analysis. There are 15 548 training spots in this timespan.

<sup>3</sup> Notice, however, that previous research has shown that high-skilled occupations are often overrepresented in online job postings (Carnevale, Jayasundera and Repnikov, 2014<sup>[3]</sup>). It could be the case that there is more demand for jobs of other skill-levels as well, but that is not visible in the OJPs.

<sup>4</sup> This implies a discrepancy between the share of OJPs and the share of training spots which is nearly 16 times larger than the average discrepancy in the observed sample.

<sup>5</sup> The jobs in question are clerical support workers not elsewhere classified, statistical, finance and insurance clerks, travel consultants and clerks, receptionists (general), and general office clerks.

<sup>6</sup> The two skills in question are `management_relations_clients` which has 3.19% of OJPs, and `establish_relations_commercial`, which is mentioned in 0.34% of OJPs.

<sup>7</sup> To be able to put more focus on non-work safety related skills, Table 3.4 shows just the highest value of `regulations_safety_firefighting`, `legislation_matter_health_safety_hygiene`, `respect_regulations_safety_work`, `health_safety_place_work`, `legislation_matter_safety_mine`, which would otherwise jointly make up the first five skills in Table 3.4. These five work safety skills are all taught to a share of between 52 and 53% participants of RTC courses.

<sup>8</sup> Table 3.5 shows just 13 of these skills, and several more can be found in Annex 3.A.

<sup>9</sup> Basic digital skills are also part of the curriculum of the newly announced GOL programme, which is discussed in a later section. It therefore seems a need for more courses that incorporate digital skills has been spotted. It is important, however, to make sure that people looking to apply for occupations of all skill-levels are made aware of how to perform these tasks.

<sup>10</sup> The algorithm classified `pianificare_strategia_marketing_digitale` and `pianificare_strategie_marketing_digitale` as two different skills, but it can be assumed that these skills are likely very closely related.

<sup>11</sup> There are jobs for which there is reasonably high demand, but there are no specific training courses in the RTC. These are jobs like administrative and executive secretaries (2.6% of OJPs), engineering professionals (1.7%), assemblers not elsewhere classified (1.9%), heavy truck and lorry drivers (1.1%), freight handlers (4.4%), and cleaners and helpers in offices, hotels and other establishments (3.3%). These highly demand occupations are not included in the current analysis, as it is impossible to evaluate how well the content of the non-existing courses matches the labour demands.

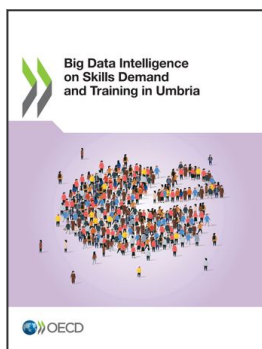
<sup>12</sup> Table 3.6 is translated to English for presentation purposes, the analysis is always performed on Italian text.

<sup>13</sup> For more information on the cosine similarity, see Annex A.

<sup>14</sup> The reason why the quality of alignment receives more weight is to balance out the possibility of profession having a much lower total number of skills mentioned in the OJPs.

<sup>15</sup> After mapping the ISTAT occupations to ISCO 4-digit occupations, there are 79 different occupations that are currently targeted in the GOL initiative.

<sup>16</sup> The five digital competencies are: 1) Information and data literacy, 2) Communication and collaboration, 3) Digital content creation, 4) Safety, and 5) Problem solving. The GOL courses do not mention any specific occupations that they are targeting, but they do all mention which digital competency is trained.



**From:**  
**Big Data Intelligence on Skills Demand and Training in Umbria**

**Access the complete publication at:**

<https://doi.org/10.1787/4b9bbfd6-en>

**Please cite this chapter as:**

OECD (2023), “The alignment between training offered in the Regional Training Catalogue and the labour market”, in *Big Data Intelligence on Skills Demand and Training in Umbria*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/ac67ca43-en>

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. Extracts from publications may be subject to additional disclaimers, which are set out in the complete version of the publication, available at the link provided.

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at <http://www.oecd.org/termsandconditions>.