Adapting skills: a challenge digital companies have to meet

Innovation is a key factor in growth in the digital sector. In order to foster innovation, digital companies must, to a greater extent than elsewhere in the economy, recruit skilled personnel and ensure that their employees' skills are maintained and updated. Considerable use is made of initial education, continuing training in its various forms and block-release programmes in a continuum that might prefigure a more general tendency.

Jean-Marie DUBOIS
(Céreq)

Patrick ROUSSET
(Céreq)

The digital transformation of the economy and jobs is happening rapidly and affecting all sectors of the economy. It manifests itself most obviously in the important role innovation plays in production and work practices. The digital sector, which is playing a major part in this transformation, is growing strongly, in terms both of numbers employed and companies' turnover.

In this sector, in which value creation and hence growth are strongly linked to innovation, the acquisition and adaptation of skills have emerged as a major challenge, for both companies and employees. An extensive literature highlights the importance of the role information and communication technologies (ICTs) play in the adaptation of these skills as well as in work organisation. Furthermore, the harmonisation of knowledge and expertise with a view to creating a basis for collective knowledge exchanges is as decisive as the drive to recruit top-quality staff. This results in the adoption of human resources policies with a focus on training in order to strengthen knowledge-driven corporate identities. Such policies are based on two complementary dynamics. On the one hand, it is essential to recruit highly skilled, operational personnel, in a context that is frequently competitive. On the other hand, the various types of continuing training (both formal and informal) are emerging as essential means of adapting employees' skills and expertise to the rapidity of technological change.

This being the case, how do digital companies make use of the various types of initial and continuing training in order to meet the need to keep skills up to date? Analysis of the 'companies' strand of the French training and employee trajectory surveys (*dispositif d'enquêtes* sur les formations et *itinéraires des salariés or Defis*) (cf. Box 1) reveals their willingness to make use of all skill adaptation processes.

Needs greater than the number of graduates

Despite an overall difficult economic situation, the digital sector is expanding rapidly and continuing to create jobs. According to the European Commission, the prospects for employment growth in the sector are estimated at 2% per year on average by the year 2020. A survey report by the Joint Occupations and Skills Observatory for the Digital, Engineering, Consultancy and Events Management Sectors (l'*Observatoire paritaire des métiers du numérique, de l'ingénierie, des études et conseil et de l'événement*/OPIIEC), published in 2016, notes that companies' recruitment needs, although diverse, are nevertheless concentrated on the bac + 5 level (i.e. 5 years' post-secondary education). The focus is mainly on young people graduating from the engineering schools or from universities specialising in information technologies.

And indeed, according to a 2016 inter-ministerial report on training needs and training provision for the digital professions, the sector gives preference to young graduates who have little if any experience and are therefore less expensive to hire but who have particularly high levels of education. Companies seem to pursue a strategy of capturing young ● ● ●

Defis

❶ Defining the digital sector

The boundaries of the digital sector were determined by reference to the definition provided by the Joint Occupations and Skills Observatory for the Digital, Engineering, Consultancy and Events Management Sectors (*l'Observatoire paritaire des métiers du numérique, de l'ingénierie, des études et conseil et de l'événement*/OPIIEC). In 2013, according to a study carried out by this organisation, which was published in 2014, the sector consisted of a total of 17,700 companies, which employed a total of 365,000 people and were distributed among various sub-sectors of the French classification of economic activities (NAF):

• digital services companies, which account for 59% of the sector's employees;
• software publishers, 27% of employees;
• technology consultancy companies, 14% of employees.

According to this same study, 69% of employees in the sector were managers or executives (cadres) and 94% were on open-ended (i.e. permanent) contracts in 2013. In 2016, the total number of hiring intentions declared by companies in the sector was close to 30,000.

The purpose of the training and employee trajectory surveys (*dispositif d'enquêtes sur les formations et itinéraires des salariés*/Defis), initiated by the National Council for the Evaluation of Vocational Training (*Conseil national d'évaluations de la formation professionnelle*), is to compare the training measures attended by employees and their career trajectories. A panel of 16,000 individuals is being surveyed over a five-year period (from 2015 to 2019); the companies that were employing them in December 2013 were surveyed in 2015 in order to gather detailed information on the context in which employees receive (or do not receive) training. A representative sample of 4,529 private-sector companies were surveyed as part of the 'companies' strand. Only the results for companies with 10 or more employees are presented here.

The Defis surveys were initiated by the Conseil National d'Evaluations de la Formation Professionnelle/National Council for the Evaluation of Vocational Training (CNEFP) and are funded by the Fonds paritaire de sécurisation des parcours professionnels/Joint Fund for the Securing of Career Trajectories (FPSPP) and designed by Céreq.

For further details on the Defis surveys: www.cereq.fr, click on Accès aux données/Access to data.

For more information on the companies strand: *Premiers indicateurs Defis - Volet entreprises*, J.-M. Dubois, E. Noack, J.-C. Sigot, Net.doc n°156, 2016.

the economy as a whole). Individually or through the intermediary of the sector's representative bodies, they involve themselves in various ways in the education and training provision. Thus they may take part in lectures and seminars, get involved in the boards of governors of education and training establishments, contribute to the development of the qualifications listed in the national register of vocational qualifications (*répertoire* national des certifications *professionnelles*/RNCP), etc. Their aim is to improve the contents of the degrees and to match them more directly to demand.

After all, almost 80% of companies in the digital sector report they experience difficulties in recruiting for skilled jobs (compared with 62% on average). Thus the acquisition and renewal of skills through the recruitment process depend on the ability of higher education institutions to supply the labour market with sufficient numbers of high-quality graduates as well as on the ability of companies to make themselves known and to attract new staff. However, according to the same 2016 inter-ministerial report, the number of graduates is not yet sufficient to meet requirements and the published job offers in the sector are not sufficiently attractive. The digital sector does, after all, have to deal with competition from other sectors of the economy as well as from foreign companies seeking to recruit graduates with this type of profile.

The use of block-release training programmes

In this context of skilled labour shortages, the introduction of block-release training programmes is a good lever for meeting digital companies' needs. According to the data from the Defis survey,

●●● people right at the start of their careers in order to establish their loyalty as early as possible. Thus when they are recruiting new personnel, almost half of them contact the *grandes écoles* and universities directly (compared with less than a quarter across

❷ New recruits' skills adapted to the needs of digital companies

Did the new employees recruited over the last three years have the appropriate qualifications and skills? (%)

	Digital	Information and communication	Scientific and technical activities	Financial and insurance activities	All sectors
No	4	5	9	11	9
Yes, some of them	13	17	28	37	31
Yes, all or virtually all	83	78	63	52	60
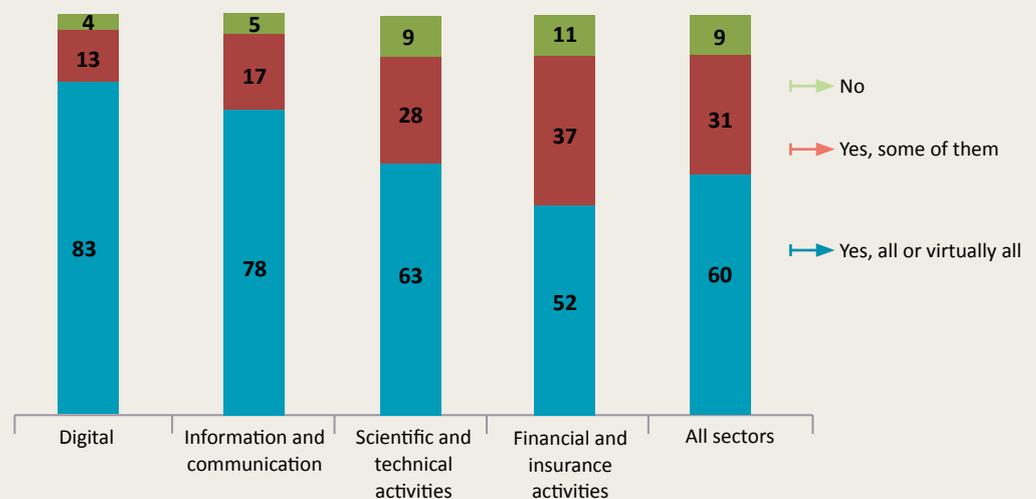
Source: Cnefp-Céreq, Defis 2015.
Field: companies with 10 or more employees at 31.12.2014 and having recruited at least one employee in the past three years.

almost half of them stated that they had recruited staff on "*contrats de professionnalisation*" in 2014 (compared with 27% on average). The use of this form of block-release training programme seems to be a means of testing future employees' skills and expertise, inducting them into the corporate culture and, above all, integrating them into work groups. Thus these companies are tending to break with the traditional sequence of initial education– working life.

The use of block-release programmes is even greater when companies are growing and have to deal with rapid and/or unforeseen increases in their activity. Under these circumstances, it becomes important that the new recruits are operational straightaway – and young graduates seem to fulfil this condition. Indeed, 83% of digital companies say that all or almost all of their new recruits already had adequate skills (compared with 60% of firms on average) (cf. Figure 2). Companies' efforts to improve their employees' operationality by getting involved upstream of the recruitment process seem to have paid off, since they tend to be satisfied with the skills acquired in initial education.

Continuing training as the key element in the adaptation of knowledge and skills

Logically, companies' investment in the acquisition of new skills through the recruitment process carries over into their use of continuing training to update those skills. After all, a high level of skill and qualification does not necessarily mean that employees will automatically adapt to changes in work processes and products. Many digital companies adopt strategies involving frequent changes in their mode of operation (introduction of new technologies or new procedures) and the introduction of new working methods or new types of external relations (partnerships, outsourcing of activities). Thus the skills required to work in a given profession are constantly evolving and continuing training is one way of supporting employees in their efforts to adapt. It is logical, therefore, to find that more than half of the digital companies that had organised continuing training in 2014 stated that their main objective in doing so was to help their employees adapt their skills.

Like all companies that provide training, most digital companies use classes and courses (82%) and work-based training (61%). Nevertheless, many more of them use other types of training. About half of them declare that they also make use of self-directed training, participation in lectures and seminars and e-learning, compared with just one quarter of companies in the economy as a whole. On-line training courses (MOOCs) are very successful, notably because of their ease of access and the fact that they are free of charge. The act of 5 March 2014 and the introduction of personal training accounts ("compte personnel de formation") have accentuated this phenomenon since completion of these training programmes now increasingly leads to certification. In general terms, the acquisition of knowledge and know-how takes place in the course of these firms' day-to-day operations and collective work practices: 86% of employees state that their work involves constant learning. The training specialities reflect the specific characteristics of the digital sector.

Thus 81% of digital companies financed training in IT and office automation in 2014 (compared with 49% ● ● ●

* MOOC • Massive open online course

---

3 **Mentoring more widespread in digital companies**

Share of companies that have identified members of the workforce as mentors or trainers (%)

	Digital	Information and communication	Scientific and technical activities	Financial and insurance activities	All sectors
dformally	70	61	44	65	51
informally	86	80	78	85	76

Source: Cnefp-Céreq, Defis 2015.
Field: companies with 10 or more employees at 31.12.2014
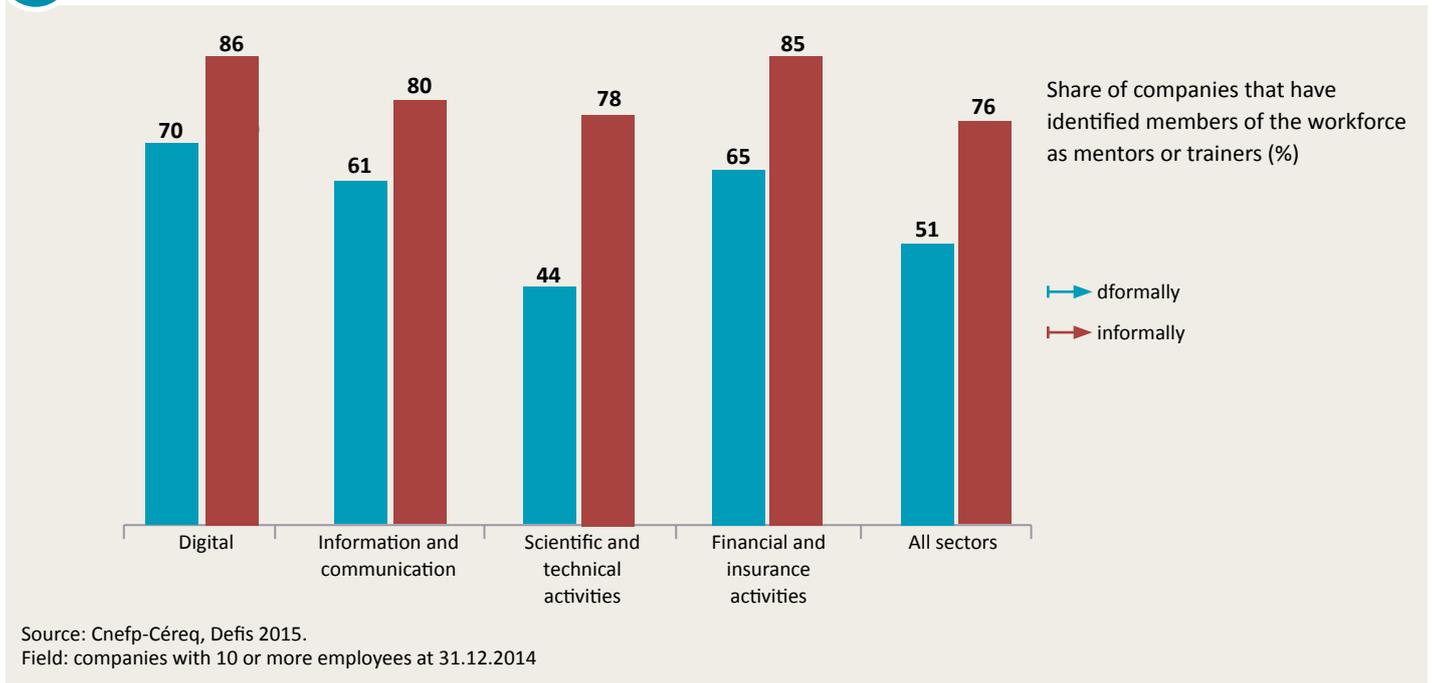
on average) in order to update employees' skills in the use of tools that are constantly evolving. 44% financed foreign language training (compared with 21% on average) in order to meet the demands of a very English-speaking market and 46% financed management training (compared with 32% on average) in order to meet the considerable need for managerial staff in rapidly expanding companies.

The emphasis on certain areas of training is also linked to the fact that more than three quarters of companies in the sector conduct analyses of their employees' qualification and skill needs (compared with 61% on average). Thus these employees are more involved in the running of their companies (work organisation, definition of their job content, distribution of work, etc.), which in turn facilitates their access to training.

Digital companies also pay particular attention to collective knowledge transmission and sharing processes by formalising operating methods and procedures at a group level. Thus almost two thirds of them use internal trainers (compared with 41% on average) so that the less experienced can benefit from their colleagues' knowledge and expertise and are able to progress more rapidly. Consequently, there is a highly developed mentoring system that operates both formally and informally (cf. Figure 3). Moreover, nearly two thirds of digital companies state that some employees have already trained their colleagues on returning from training (compared with 50% on average). By encouraging exchanges, they provide significant learning opportunities. Thus two thirds of employees state that one of their colleagues taught them how to do part of their work (compared with half of all employees). These practices are also justified by the fact that a large part of the knowledge and skills required for work originates within the firm itself and that they are very difficult – or even impossible – to "find" in the training market.

This diversity of (formal and informal) training modes is more a reflection of the sector's culture of knowledge renewal rather than a reaction to a specific lack of knowledge. Moreover, it is part of a collective performance enhancement dynamic in which individual and corporate interests currently seem to be converging.

Initial and continuing training: from sequential to interlinked activities?

Skills renewal is situated at the point where companies' collective strategies meet employees' individual behaviours. For the latter, the skills acquired in a company are sought in the labour market, which energises their career trajectories. Companies seek to capture new skills that are likely to foster innovation, through recruitment in the external market and through continuing training in the internal market. In digital companies, therefore, skills renewal seems to be the product of a culture of adaptation to change. This contributes to the strengthening of corporate identities, a goal that is often pursued in innovative sectors or within network organisations.

Some of the characteristics of training in digital companies reflect features specific to innovation in a context of rapid growth. Beyond that, the impact of technological developments has speeded up the changes taking place in occupations and skill needs in large swaths of the economy. A cultural shift in the approach to the link between training and employment could gather pace over the coming years, leading in particular to greater complementarity between formal and informal modes of training and to the development of a framework of initial and continuing training provision in which sequentiality would give way to interlinked activities. The harmonisation of changes in training practices by individuals, companies and institutions could become a major issue in the digital transformation. ■

Further reading

« Les freins à la formation vus par les salariés », *Formations et compétences chez les éditeurs de logiciels en France,* rapport d'études, Observatoire paritaire des métiers du numérique, de l'ingénierie, des études & conseil et de l'événement, 2016.

Les besoins et l'offre de formation aux métiers du numérique, C. Bergman *et alii*, rapport remis au ministre de l'Education nationale, de l'Enseignement supérieur et de la Recherche, au ministre du Travail, de l'Emploi, de la Formation professionnelle et du Dialogue social et au ministre de l'Economie, de l'Industrie et du Numérique, 2016.

Transformation numérique et vie au travail, B. Mettling, rapport à l'attention de Madame la ministre du Travail, de l'Emploi, de la Formation Professionnelle et du Dialogue Social, septembre 2015.

Les prestataires de services informatiques : une branche en expansion, des salariés qui bougent, D. Roualdes et P. Simula,*Céreq-Bref,* n°189, septembre 2002.