Attractiveness of the professions, attractiveness of the territories[1] and challenges for industry

Summary and main recommendations[2]

Chapter I - Spotlight on "unfilled job vacancies" in industry

After a long period of decline that has affected many territories and that has left a deep and lasting effect on people, French industry is regaining strength at last. However, over the past thirty years or so of deindustrialisation, employment has evolved in a variety of ways depending on the sector and location.

While industry is now being reconstituted in the territories, a bottleneck has emerged which is hampering its growth and modernisation: the skilled workforce needed is in short supply. Recruitment is, indeed, difficult in many trades, industrial sectors and territories. Some companies are forgoing markets because they are unable to hire employees with the needed skills. There is competition between territories and between companies in these territories to attract skills and talent. The case of the shortage of engineers is revealing. The impact is felt in the so-called "volume" professions, where tens of thousands of jobs are affected by recruitment difficulties (e.g., for operators on production lines) and in the so-called "high-tech" professions, where thousands of vacant jobs cannot be filled (e.g., for AI, data and computer specialists); the latter professions being crucial because they drive the modernisation of industry. Recruitment difficulties are, to a large extent, due to the inadequacy of the training system.

[1] The term "territory" (territoire in French) should be understood in the following context: "**Territorial** development is the method used by the public sector to influence the distribution of people and activities in spaces at various scales, as well as the location of various infrastructures and natural and recreational areas. Territorial development activities are carried out at different administrative and governmental levels (local, regional or national level), while cooperation activities in this field are also carried out in a cross-border, transnational and European framework"
https://fr.wikipedia.org/wiki/Am%C3%A9nagement_du_territoire#cite_note-2

[2] Grey-shaded recommendations are considered to be the most important and urgent.

These difficulties are, at least in part, due to a perceived lack of attractiveness of the jobs in question. This attractiveness depends on the image that the individual and the collective have of a job[3]. Thus, an industrial sector is more or less attractive for the younger generations, depending for example on its perceived relationship to the ongoing ecological and digital transitions.

[3] The term "social representations" is also used. Stereotypes are an expression derived therefrom.

Chapter II – The imaginary and the representation in the social sphere: the case of the young generations and industry

Industrial jobs are often either vacant or at least difficult to fill. However, the attractiveness of the job depends on several factors:

(i) firstly, the occupation corresponding to the nature of the job and the training required,

(ii) secondly, the enterprise and its sector of activity,

(iii) lastly, the territories where the job and the employer are located.

The influence of these and other factors varies from one individual to another. The attractiveness - or unattractiveness - of an "object" is the effect, for each person, of an individual mental representation of this "object", which is the result of an interweaving of a social representation, hence of a collective imaginary, and of factual knowledge and/or personal experience. Individual mental representations are strongly influenced by collective mental representations. Only the latter can be dealt with in this report.

A collective mental representation, like any representation, rests on a "metaphorical core"[4], the positive and negative components of which must be known. The modification of the social representation of an "object" (employment, occupation, company, sector, industry or territory) is achieved through the dissemination of factual information about the "object", but just as much through the treatment of its metaphorical core.

The example of the collective mental representation that the younger generations (18-34 years old) have of industry helps to illustrate the point. A lot of information on the sectors and jobs in industry is disseminated through a multitude of local or national events (the Week of Industry, the Paris Air Show, the Extraordinary Factory, the French Fab Tour...).

Generally, only the attractive elements of the metaphorical core of some industries such as advanced technologies, innovation, international openness, etc., are highlighted. This is not

[4] A metaphorical core is made up of a few objectified elements that structure the representation in the social sphere.

enough. Apparently, no systematic and in-depth preliminary work has been done on the unattractive elements (pollution, having to work on an assembly line, difficulties, high turnover, etc.), which more thorough investigations would have revealed. It is in fact essential not to conceal the negative components of the metaphorical core of any "object" when taking action to promote it, and to deal with them together with the positive components.

As regards representations, imaginaries and cultures, a significant result will only be achieved through a systemic approach in which the appropriate means are employed over a sufficiently long period. Sporadic actions are counterproductive.

Key recommendations for all stakeholders:

- A global approach to the problem of unfilled job vacancies is required that targets both the content of the jobs (professions, training, etc.) and the context of the jobs (companies, sectors, territories, etc.)

- Every object has a social representation. In order to devise an action aimed at changing the collective mental representation of an "object" (territory, sector, company, trade or training), a constructive approach is needed to establish in a substantiated and rigorous way its "metaphorical core", which includes its attractive and unattractive components.

- Maintain over the long term, the full diversity and vigour of the local and national communication initiatives that promote industry, its professions, and the territories where it is located.

Chapter III - Training facilities and attractiveness of jobs

Vocational training has a satisfactory social representation and is considered useful and versatile. However, doubts are expressed about its adaptation to the labour market, its innovativeness and accessibility throughout the national territory. Vocational training is seen here as a continuum that starts at lower secondary school.

Building collective mental representation of industry begins at the lower secondary school level.

Early technology-related education at school can be a trigger for children to be interested in an industrial career and thus contributes to the attractiveness of subsequent technological - and by implication industrial - training courses. However, the status and quality of this education is still unsatisfactory in this respect and stereotypes such as "girls and technology don't go together" are already entrenched at this level of education.

Furthermore, the role of secondary school teachers, especially head teachers, is fundamental. Their unfamiliarity with contemporary industry and their reservations about apprenticeships, which many of them still manifest, remain a cause for concern. It is not so much the teaching of technology in secondary schools as the low status of industry-related activities throughout the French education system.

Vocational high schools are an essential route into industry. Their social representation is not commensurate with the challenges.

The choice of a number of school children on finishing lower secondary school to enrol into vocational high school training is due, in most cases, to an orientation by default, since a different cursus, whether general or technological, is considered too demanding for them and therefore doomed to failure. This is a well-known and, for the moment, unchangeable situation. Among the issues to be addressed in this context and in addition to the counselling/orientation practices that are to be reconsidered, is that of how to increase the number of apprentices in vocational high schools. Moreover, the question of attractiveness

of the position of vocational high school teachers (VHST) should also be addressed. These teachers can act as the advocates of industrial training and careers. However, the image of this teaching profession held within the national education system itself by other teachers, by inspectors of general and technological courses, but also by other stakeholders, is poor. The Ministry of National Education must rapidly reform initial and continued training for VHSTs and upgrade their status. Industrial companies should give them attention and support. Of course, there are other ways to enter industry, but two thirds of the flow of vocational training graduates at levels 4 and 5 (in the new classification scheme) come from vocational high schools.

Apprenticeship, a true passport to industry, is beginning to make its way into the collective mindset. This can be seen in the increased number of students in dual training schemes, specifically in the advanced programmes. However, uncertainties remain.

Although apprenticeship is a factor in the attractiveness of training and industrial jobs, not enough industrial companies take on apprentices. Vocational high schools are slowly beginning to welcome apprenticeships. These last two observations are not independent of each other. Moreover, following the promulgation of the law of 5 September 2018, a period of transition and uncertainty is setting in. The future of apprentice training centres (CFAs) now appears to be ill-secured. The disappearance or weakening of small CFAs with an industrial vocation would harm the attractiveness of industrial jobs in some territories. Furthermore, it would be sensible to establish or, where already existing, to strengthen cooperation and cooperative competition (alias "coopetition") between the various industrial establishments.

The attractiveness of industrial training courses that run from three years before the Baccalaureat to three years after it depends, to a large extent, on the interest shown in them by industry.

In order to make vocational education attractive and relevant, the role played by industrial companies is crucial. Their involvement is necessary (in the form of knowledge, skills, resources) as early as the lower secondary school.

The Shanghai ranking, by the structuring and profound effect it had on public higher education, has indirectly harmed industry in the territories.

In addition to vocational high schools, the presence of higher education establishments (STSs, IUTs, engineering schools, universities or university extensions...) is a considerable local asset. However, the State has abandoned the logic of territorial development, which prevailed until the 1990s and 2000s, in favour of a policy of grouping together establishments to make them "visible from Shanghai", mainly for the benefit of metropolises and other large cities. Despite this, private engineering schools are investing outside metropolitan areas, with the active support of the local authorities concerned, by opening local campuses. Today, industrial training courses, from level 4 to level 6, are being offered in a number of territories in order to provide qualifications and strengthen domestic industries.

In the current social context, vocational training, especially in higher education, should be brought closer to industrial employment areas, where young and active people with a strong attachment to their territories live. At the same time, courses that are tailor-made for industry should be made available, which calls for a greater mobility of individuals between territories. These measures would contribute to the attractiveness of industrial training.

Recently, positive initiatives have been taken to favour connections between territories and universities (these "connected campuses" have a great potential, which needs to be explored) and to establish centres of higher education in territories that lack them (the Cnam, which is "at the heart of the territories", plans to create one hundred new centres for higher education). These approaches are too recent to be evaluated. In particular these centres must provide access to industrial training, organised in sets of skills. Another approach, based on combining the above approaches, consists of permanent or temporary post-Baccalaureate industrial training centres (with EdTech[5], mentoring, regular groupings in the parent institution, etc.). This third type of centre would be established and managed by an industry-oriented institution (school, university, community of universities and institutions) in the small or medium-sized towns (SMTs) in its academic region, with the support of the local authorities concerned and, depending on their size, funding from the Future Investment programmes.

The proposal of tailor-made training cursuses is a key to the attractiveness of educational institutions.

[5] Educational Digital Technologies, contraction of Educational Technology. A project group devoted to this theme will be set up in 2020 within the National Academy of Technologies of France.

In view of the diversity of the origins of pupils, apprentices, students and working people, including those undergoing retraining, and also in view of the scarcity of resources for many industrial jobs, the vocational training system should make it possible to build personalised, tailor-made cursuses. This would be a way of making industrial training courses attractive and relevant. To this end, the possibilities of mobility should be significantly improved (grants for mobility within the national territory, for housing, etc.)[6].

Tailor-made training requires a capacity for guidance and counselling, underpinned by a good knowledge of industrial realities and prospects, and a flexible vocational training system. The networks of educational establishments, the professional and qualification campuses, in principle, satisfy this requirement.

Key recommendations

- Strengthen the attractiveness of technology education at the lower secondary education level. [Ministry of National Education].

- Offer tailor-made training cursuses, accompanied by a comprehensive service to those young people who come from geographically remote areas: reception, accommodation, supervision, grants and mobility services… [educational establishments, local authorities, the State].

- Rapidly launch the reform of initial and continued training for vocational schoolteachers and raise their status. [Ministry of Education]

- Invest massively in boarding schools and accommodation for dual programme students to support the development of apprenticeships. [local authorities, State].

- Extend the territorial development approach to higher vocational education (STS, school or university outposts, etc.); set up new training centres in the territories. [Ministries of higher education, national education and employment; Ministry responsible for territorial development; local authorities].

[6] These points are discussed in Chapter 5 on the territories.

Chapter IV – Industrial enterprises and job attractiveness

The attractiveness of an industrial job, as mentioned above, depends on several parameters. One of them is the attractiveness of the company that offers it. This is itself a function, on one hand, of its sector of activity (branch and/or sector) and the area in which it is located, and, on the other hand, of its own specific characteristics.

Employers generally attribute their recruitment difficulties to external reasons: the absence of candidates, the qualifications and profiles of candidates, their salary expectations and demands, etc. There are, however, internal reasons, in particular the company's social and human resources policies.

Low wages are not necessarily the main reason for recruitment difficulties. From published figures and discussions in the territories visited - mainly small and medium-sized towns and cities (SMCs) - it emerges that, on average, "industry pays rather well"[7]. But it would be advisable to go further.

By being precise about cursuses and careers in industry, which for many are still vague, industry, could make a contribution to social mobility[8] and thereby an essential factor of attractiveness.

In a country characterised, according to the OECD, by an entrenched and worrying social immobility, industrial companies could jointly create the ***social ascendancies*** by facilitating rewarding career paths that would help to ease the situation and thus make these enterprises more attractive.

These social ascendancies would go hand in hand with the necessary improvements in the skills of the workforce. Industrial companies, individually or collectively, could, for

[7] This is not true for the "global talent war" in the digital world, for example. France is less attractive than Germany, the Netherlands and the United Kingdom for the salaries offered to computer scientists from North Africa or Eastern Europe.

[8] The social mobility referred to here is assessed in terms of certified new competences, the extension of responsibilities assumed, and not only or necessarily in terms of new degrees earned.

example, invent a "new (better) promotion of labour" in the spirit of the 1959 legislation, but in the regulatory and social context of 2019. Today, the questionable quality of certain jobs in industry and above all the lack of any perspectives for future development explain some of the difficulties in recruitment. Recruitment, particularly for medium- and low-skilled jobs, should be accompanied by prospects for valorising career paths leading to social mobility, subject, of course, to the involvement of the workers concerned.

In order to achieve this, industrial companies need to regain room for manoeuvre.

The announced significant reduction in production taxes could constitute an opportunity. The industry could, by allocating a share of new resources to it, make social mobility a motivating factor. It would thus gain in competitiveness and the local authorities, currently recipients of a significant share of the production taxes, would find it in their interest to see an increase in the quality of the workforce employed in their local industry.

In this context, having the right HR policy is essential, and the HR function is of strategic importance.

The mission of HR is to base the attractiveness of the industrial company on a policy of social differentiation. Using new selection methods and broadening the source of labour are possible solutions to the problem of hiring employees. The lack of attractiveness of the manufacturing industry for women - even of a modernised (4.0) and more environmentally friendly industry - remains a problem[9].

While the recent reform of vocational training - like any major social reform – has set in motion a period of 'wait-and-see' on the part of companies, an ambitious professional training policy is a factor in attracting and retaining employees, especially the younger generations. In-house schools and apprenticeship training centres (CFAs) attached to companies[10], should add to the attractiveness of the Large (LEs) and Intermediate-Sized Enterprises (ISEs)[11] that run them. By opening these facilities to employees of their

[9] In October 2019, the President of the National Academy of Technologies of France entrusts a woman academician with a mission of reflection and proposals concerning the place of women in the world of technology.

[10] Possibility introduced by the law on the "Professional Future" of 5 September 2018.

[11] Large Enterprises (LE). Intermediate-sized enterprises (ITEs).

subcontracters, which are generally SMEs, they should also add to the attractiveness of the industrial sectors to which these SMEs belong. Despite the change in the legal rules on continued training for companies with more than 50 employees, these companies should not lower their ambitions for developing skills, which, in these times of profound change, would be perilous.

Through concerted action, industrial SMEs can increase the attractiveness of the industrial jobs they offer in their territories.

Individual SMEs are limited in their ability to reduce the difficulties inherent in the management and valorisation of their human capital and to increase the attractiveness of industrial jobs. These limitations could be overcome by cooperation within the framework of business assemblages (groupings, clusters, bundles ... or at the level of industrial sectors, around major industrial customers) within a territory. A concerted organisation, favouring social mobility, could be decisive.

Finally, the employer image and the "raison d'être" of the company are factors in the attractiveness of the jobs it offers.

These two notions are linked. Entrepreneurs, collectively or individually, can present an attractive image of their activities, particularly to the younger generations, by turning the "raison d'être" of their company, and more broadly that of their sector of activity, into a response to major contemporary issues (ecological transition, social fractures, etc.) or by showing how their industry is transforming itself to better respond to them.

Key recommendations

- Make social mobility an essential factor in the attractiveness of the industry. Launch a comprehensive social mobility plan in the industry. When the time comes, allocate part of the abolished production taxes to this plan. [State, local authorities, industrial sectors, companies].

- Thus, for each recruitment in a low- or medium-qualification job, formulate an appropriate and commensurate support package,

favouring the social mobility of the employee [branches, companies]

- Turn continued vocational training into a factor of attractiveness and as a way of building loyalty. In this time of profound change, maintain - or even increase - internal efforts to develop employee skills. Let this be known. Recreate "professional schools" in the territories, particularly in the form of company apprenticeship training centres (CFAs). [companies].

- Pay more attention and give more support to middle schools, vocational high schools and branches of higher technical schools present in the territories (skills, resources). Begin internships as early as the ninth grade. [companies].
- Improve the image of industry conveyed by the companies themselves. [companies].

- Bring the "raison d'être" of companies into line with the major contemporary issues - first and foremost the ecological transition - in order to make them more attractive, excluding greenwashing. [branches, sectors, companies].

Chapter V – Territories, attractiveness, mobility

Many small and medium-sized towns and cities (SMCs) find it difficult to attract young people and a skilled workforce. However, a significant part (at least 20%) of the nation's industry is located there. Certain factors (housing, health, mobility, culture, leisure, etc.) can handicap the SMCs in very different ways. They are much talked and written about in the media and a generally degraded representation of SMCs and the rural areas that are often associated with them[12] is thus being moulded in the collective imagination. However, this hides certain realities, some of which are the opposite of the dominant representations. There are many ways to make unpopular territories more attractive. It emerges from various studies and visits to industries in the territories that each industry and territory is a special case, with singular characteristics linked to the specific history, geography, economy, culture, etc. There are many paradoxical situations that reinforce the idea that there is no common law for territorial development. A few recurring observations can, however, be highlighted.

First observation: the territories that are progressing most are those that benefit from a dynamic and closely knitted governance that is centred on elected officials and entrepreneurs.

Second observation: In addition to the quality of the training establishments located in these areas, the attractiveness of an industrial territories is largely determined by the housing supply (diversity and dynamism of the real estate market, costs...) and by the density of medical professionals and/or clinical establishments[13].

Third observation: attachment to the territory is, for many reasons, particularly strong in many SMCs. However, the degrees of the geographical matches between training offers/demands or job offers/demands depend on labour mobility. The drivers of residential mobility (or immobility) vary with economic cycles but are also cultural.

[12] To which are now added unfavourable environmental considerations (violent natural phenomena, pollution, etc.).

[13] Chapter 3 is devoted to training. The remainder of this report focuses on housing.

The future of industry depends on an ambitious housing policy for the benefit of the younger generations (starting with boarding schools and residences for alternating work-study students) and other support for their residential mobility.

The housing situation of the younger generations is untenable: in 1984, about 25 per cent of social housing was occupied by persons under 30 years of age; by 2014, this proportion had fallen to 10 per cent. For the revival of industrial development in the territories, the housing of young people (apprentices, students and people in work, whether single or in couples) must become an **absolute priority**. Boarding schools contribute to this mobility, enabling young people to follow the training courses to which they aspire and at the same time contributing to the attractiveness of training. The effort currently undertaken by the State falls far short of what is needed. Residences for apprentices and students must also be a priority for the local authorities concerned, as must be the creation of places in affordable rental housing for young employees and young couples. Business initiatives can supplement the offer in rural areas. The availability of land can be an obstacle in larger cities, but not in rural areas and rarely in SMCs.

In the current situation of the housing market and the desired support for residential mobility, incentives for the younger generations to become homeowners could work against the interests of industry. Indeed, home ownership ties the workforce to their territory and when this territory is in an economic downturn, it locks them in[14]. This is potentially an obstacle to the redeployment of industrial activities as it impedes the geographical mobility of human resources that should accompany the mobility of industry. The effect is less noticeable in a metropolitan or urban area (large city) because employment and commuting opportunities[15] are more developed there than in an SMC.

The future of the industry lies in making residential mobility easier. This does not concern all individuals and territories in the same way. Easier commuting also contributes to better mobility and to the attractiveness of a territory, as does a concerted reduction in the need for daily commuting.

[14] Reselling a property then becomes very difficult, if not impossible.

[15] Commuting is the daily movement of the population between places of residence and places of work or schooling.

From the point of view of a job seeker, commuter mobility is a response to matching job offers with demands by integrating economic considerations (availability and cost of housing). Improving the commuting mobility on offer would involve the sharing of massive data on daily journeys between all possible operators and the creation of platforms and applications that bring together all uses and needs, and all offers. However, this type of daily mobility can still be difficult to support while not being inevitable.

In order to reduce the need for daily mobility, policies should be implemented in companies and territories to encourage the use of teleworking (or remote work) - admittedly fairly marginal for a production unit[16]. In addition, “third places” as intermediary locations between densely populated areas and dense employment areas that are far away from one another should be set up in an optimised manner. This would help to strengthen the attractiveness of the territories concerned and the jobs that are offered there.

In addition to housing, health and training[17] measures, personal services (including early childhood services and employment assistance for spouses), provided by public and/or private actors, contribute to making the territories more attractive to families.

The state has recently taken the initiative to launch the "Territoires d'industrie" (Industrial-Territories) programme...

The programme aims to provide collective responses to enhance the attractiveness of certified industrial areas and to encourage those initiatives that are appropriate for each of these areas because they have been conceived in a bottom-up way. It is too early to make a definitive corroborated assessment. In addition to metropolitan areas and certified territories (not all scrutinised territories will be certified), “diffuse” industries scattered across the territories must not be forgotten. The government has also launched the

[16] But industry doesn't just consist of production units...
[17] See Chapters 3 and 4.

"Territoires d'innovation" (Innovation Territories) initiative and there are points of overlap.

The multiplicity of State mechanisms, initiated at different times and implemented by different administrations, without coordination, without setting up a system, and on to which regional and local mechanisms are superimposed, is detrimental to their understanding, their scope and their effectiveness.

In the future, an rational law must imperatively prevent any disordered piling-up of economic and social measures concerning industry, innovation, skills and training, and employment. In this respect, it is essential to opt for a strengthening of the role of the regions as the sole coordinators of policies contributing to the attractiveness of industrial territories. New laws and regulations should contribute to this.

Key recommendations

- Encourage the emergence of a cohesive and active governance in all industrial territories, involving at least elected officials and entrepreneurs. [regions, local authorities]

- Make accommodation/housing for the younger generations (high-school and university students, apprentices, young working people) a major political priority in all industrial areas. Launch a vast "industry and accommodation programme for young people". [local authorities, State, public and private operators].

- Reduce the need for commuter mobility through a bold policy in favour of teleworking and through the optimised creation of intermediary (third) locations; integrate teleworking into branch and industrial enterprise agreements. [regions, state, branches, companies].

- Develop services for individuals, families (crèches, physical and digital car-pooling platforms, etc.) and support for the employment of spouses. [local authorities, enterprises, business associations].

- Ensure coordination between the various initiatives taken, which may have thematic and/or territorial points of overlap; ensure consultation/collaboration between the various public services involved that may fall under different supervisory authorities/tutelage; strive towards designating a single lead partner, in this case the region, in each territory and for all issues related to the attractiveness of the professions and industrial territories. [regions, State]

- Ensure that the "Productive Agreement" currently being prepared, and the "decentralisation, differentiation, deconcentration" law currently being drafted, put an end to the organisational disorder existing in the territories. [regions, State]

Conclusion

In conclusion, it is important to emphasise the contribution that the various uses of technology can make to the attractiveness of jobs, companies, training and regions.

Technologies, particularly the digital technologies, but also technologies that contribute to the ecological transition and the fight against global warming, help to improve the attractiveness of the industry's trades/professions and territories.

The digital technologies reduce the handicaps of small and medium-sized towns and rural territories by reducing distances; they facilitate access to health services, they enable the development of knowledge and skills everywhere, and they contribute to the competitiveness of industrial companies, wherever they are located[18]. In the medium term, they enable the creation of a new industrial system consisting of small, networked units in all the territories, thus strengthening their attractiveness and improving their development prospects.

The technologies aimed at sustainable development, in addition to their contribution to environmental protection or the limitation of global warming, reinforce the "raison d'être" of the industrial companies that integrate them, thereby giving meaning to the activities of these companies and contributing to making them more attractive.

[18] These technologies, if considered alone, cannot be the answer to the challenges. In the two previous reports, the precautions to be taken and the flanking measures to be considered are dealt with