

Adjusting to a greener world: radical changes or continuing adaptation for workers and firms in France?

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Abstract

Starting from the hypothesis that the greening of production supposedly impacts three interconnected levels (employment systems, value chains and company strategies, occupations, skills, and work activities), the article provides insights resulting from mixed method research conducted by a Cereq team from 2020 to 2023. Firstly, analysis of statistical Cereq databases displays two types of macro-level results: the distribution of young people across green and greening jobs is shaped by segmentation between low skilled and high skilled jobs; the scope and way environmental norms impact workers' activities depends on workplace organisations and management practices. Secondly, a three cases qualitative study in the construction; food retailing, solidarity economy sectors, underlines the importance of the relationship between companies and the market. This linkage remains a determining factor setting two greening trends at work: making profitable what is virtuous or making virtuous what is profitable, each organisation being able to be situated on a continuum from one to the other of these principles. Moreover, whereas environmental norms constrain workers to integrate new operating methods, the company surveys show how essential voluntary standards can be in orienting the trajectory of structures towards a more advanced and complex consideration of ecology in their activities, articulated with the health of the workers, their working conditions and the collective organisation of daily work.

Keywords: Greening, dynamics, workers, collective skills, health at work, deliberation, path dependency

Introduction

The “ecological” or “green” transition has become a key concept in current political debate, following that of “sustainable development” promoted by the Rio Summit of 1992 and “green growth” by the Rio + 20 summit.- The European Green New Deal published in August 2021 as well as the US Inflation Reduction Act underline the need to integrate environmental concerns into production, consumption and our ways of living. In this perspective, what types of radical changes in occupations and firms’ organisation are to be expected? How will these changes impact workers’ career and firms’ practices, employment structures and work organisation, work routines and training provision?

The paper addresses these issues through the French case, using the concept of “greening” to highlight the ongoing processes that lead to integrate environmental concerns in public actions, firms' strategies and jobs practices (Mormont, 2013). Starting from an overview of how statistical data enables to catch the greening of employment in France, the paper thus displays results from firm’s level analysis in specific activities to question the conditions for greening of work and skills. Organising work, reflexive feedback on activity, and an emphasis on the commons including health in the workplace appear to be salient features of organisations with a thorough and ethically coherent approach to greening. Using Cereq databases, the first part of the article sketches out how green occupations occur across youth employment trajectories, and secondly the impacts of environmental norms on workers’ activities and training. The second part questions the conditions for the greening of work, focusing more specifically on the transformation of working practices.

Part 1 – Overview of concerns and measures for the greening of employment in France

There is now a consensus on the need for countries to embark on an "energy and ecological transition", and the impacts on employment and training policies were in France firstly addressed by environmental laws. Edited in 2015, the law on the energy transition for green growth marked a turning point in this direction by associating a set of national plans and schemes, including the Jobs and Skills Programming Plan (PPEC)[1]. Four years later, a report on the prefiguration of this PPEC was published, with the aim of examining " *the conditions under which employment, training and career development policies could be consistent with the objectives set by the energy and ecological transition*" [2] (p.6). The National Council for Ecological Transition (CNTE), a body for environmental social dialogue made up of colleges from the three chambers, the social partners and civil society, produced a report in 2020 entitled " Vision of a carbon-neutral France respectful of the living world in 2050 ", in which it is stated that the ecological transition is having a positive impact on job creation. The more recent "Climate and Resilience" law, adopted in August 2021, enlarged the concern for employment regulation and skills within a chapter entitled "Adapting employment to the

ecological transition" which promotes a change in the governance of employment at three levels: companies, sectors and regions

Finally, as part of a renewal of public planification, a General Secretariat for Ecological Planning (SGPE) was established in July 2022, under the Prime Minister's Office. In March 2024, this new institutional device has promoted a strategy for skills and employment that targets labour and skills needs to operate a green transition.

In relation to these successive public action activities, several data and analysis producers have developed measures at the global level to figure out transformations in the employment system. The first part of the paper review firstly reports about the volume of jobs to be created through the greening of economy; secondly the way green jobs are determined and measured, and finally original statistical data trying to catch on-going changes.

How can we measure the transformation of jobs and occupations in the context of the ecological transition?

Several forecast models of the effects on employment in France estimate that the number of jobs created will be fairly modest by 2030, ranging from 200,000 to 500,000 additional jobs and regarding the current 27 million of employment in France. Moreover, these forecasts depend on assumptions made about investment and financing of the transition.

Job losses would be concentrated in the transport sector (due to more low-carbon mobility), carbon-intensive industries and non-renewable energies. The impact on agriculture is the most debated, between slowing decline in employment and massive job creation, under the assumption of farming activities relocation.

These job volumes correspond to certain job profiles: those in the construction industry will increase the most (skilled workers in building industry, technicians and supervisors), as well as the maintenance workers and technicians in materials industries. Occupations in agriculture and forestry are also expected to gain as well as those in business services (financial service managers, accountants IT engineers). Conversely, the occupations considered the most polluting will see their share of employment in employment, such as car mechanics.

These figures for job creation and destruction linked to the green transition are highly hypothetical, depending on political decisions both at the European and national levels that are still subjects of debates and protestations (e.g. farmers' protest in the early 2024, debates over the banning of thermic motors expected for 2035). However, these reports draw attention to the impact of such transformations in production models. In the past, the effects of macroeconomic shocks, such as deindustrialisation in the early 21st century, have led to the devitalisation of the employment areas concerned and a deterioration of employment and wage conditions.

Another way of approaching current changes in employment systems is to identify green jobs. Acting in a typical way, the centralised French state has set a specific body to develop statistical categories related to green jobs. Set in 2010, the ONEMEV (national observatory of jobs and occupations in the green economy) is developing two approaches to the greening of employment. The first approach counts jobs in "eco-activities" (see definition box). In 2018, these accounted for nearly 1 million, full-time equivalent jobs, or 4% of total employment in France. This volume is growing, driven by the dynamism of ecoservices activities and the development of renewable energies.

Another approach to jobs in the green economy distinguishes between green jobs and greening jobs (see definition box). The two-level classification is less informative than the one developed by using the O*NET classification that connects each occupation to a specific and standardised list of tasks. Initially designed for the US, this classification suffers from many shortcomings when it was adapted to European datasets (Sofroniou, Anderson, 2021).

In 2019 in France, there was approximately 140,000 green jobs (or 0.5% of total employment) and almost 3.8 million greening jobs (or 14% of jobs). The trend in these occupations is mixed, with a decrease in the volume of green jobs and a slight increase in greening occupations, the proportion of which remained unchanged between 2013 and 2018, while the volume of total employment rose by 1.2%.

Definitions

Eco-activities are activities that produce goods or services for the protection of the environment or the sustainable management of resources.

A green job is a job whose purpose and/or skills contribute to measuring, preventing, controlling and correcting negative impacts and damage to the environment (for example: natural area maintenance worker, forest ranger, technician in charge of water policing, waste collection centre worker, etc.).

A "greening" job is one whose purpose is not environmental, but which incorporates new "skill building blocks" to take significant and quantifiable account of the environmental dimension in the job itself (e.g. architect, thermal insulation installer, logistics manager, gardener, etc.).

Data from <https://www.statistiques.developpement-durable.gouv.fr/emplois-et-metiers-de-leconomie-verte-synthese-des-connaissances-en-2022>

Regardless of the approach adopted, the volume of jobs identified as supporting the transition to a greener economy are low. It is also worth highlighting the fragility of these measures, which take into account all the employees in a given category without distinction the environmental purposes of the occupations. By way of example, jobs in the building

industry are considered to be "greening" jobs, without being able to count the workers who act actually for energy efficiency in the sector.

In fact, the spread of the ecological transition within employment systems is a reality that is difficult to grasp by established categories.

Finally, changes in employment system in relation to greening economy could be captured by two ways to approach job renewal in firms: firstly, the way young people enter the labour market, and secondly the impact of environmental standards on work activities and continuous training.

Interviewing young people from all levels of qualification while they enter the labour market, the Cereq Generation Survey¹ provides insight about how the greening of jobs is making its mark on the careers of young people followed from 2010 to 2017.

Green and greening jobs are a little more common among new entrants into the labour market than for employees as a whole. Young people's green jobs display a polarisation between a high proportion of blue-collar workers on the one hand, and engineers and managers on the other. The first type of jobs is held predominantly by men who are often either non-graduates or with low education qualification. Young women are more represented in the second type of jobs and are often better qualified. Green and greening jobs offer stable careers for a third of the young people who have held this type of job, particularly graduates of environmental training courses in engineering and technical occupations.

Another typical pathway displays frequent moves between technician and blue-collar green jobs, particularly in waste treatment, and other types of jobs and periods of unemployment. Young people leaving environmental training courses are not specifically employed in green jobs, even though they are more present, particularly in the most highly qualified jobs. A strong link between training specialisation and the nature of the job appears to be limited to professions with expertise in a field related to environmental protection, forming the "internal green job market".

Other French research work recently established that green jobs have on average lower socio-economic security (Bachelot, Guergoat, 2023). However, this average result hides a strong heterogeneity of green jobs' quality, with clusters characterised with high job quality but also clusters with very low job quality on various dimensions. When all jobs are considered, green jobs also appear over-represented in clusters of lower job quality. Youth employment in green jobs thus is in line with the segmentation of green jobs.

Another Cereq survey carried out in 2019 addresses firms and workers' activities and training (see presentation box). The analysis of this dataset provides insights about the greening of

¹ <https://www.cereq.fr/enquetes-et-donnees/enquetes-sur-linsertion-professionnelle-des-jeunes-generation>

work through the integration of environmental standards and the way it impacts on workers' activities and training.

The training and employee trajectory surveys (dispositif d'enquêtes sur les formations et itinéraires des salariés / Defis2) is produced by Céreq. The purpose is to investigate the dynamics of employee training and firms' practices. This large-scale survey includes two stages: The company stage: a survey of 4,500 companies that are representative of private companies with three or more employees in all sectors of the economy (excluding agriculture), carried out in December 2015.

The employees' strand: a panel of 16,00 individuals, who in December 2013 were employees of one of the responding companies in the company strand, regardless of the nature of their employment contract, are being tracked over a five-year period (from the autumn of 2015 to the autumn of 2019).

One in ten workers questioned in 2019 stated that their work activity had been modified by the introduction of environmental standards (waste management, pollution control...).

These workers are relatively more present in companies in the building industry and food retail sectors and in companies with more than 20 employees. However, the impact of environmental standards is more frequent in the extractive industries, energy, water, waste management, pollution control and food manufacturing sectors, where one worker out of three stated to be affected by the introduction of environmental standards. These workers are more frequently employed as skilled and highly skilled blue-collar and supervisory occupations in production, logistics or sales and technical sales.

Several dimensions of work organisation impact on the probability to be affected by environmental standards: teamwork; multi-skilling; collaborative training with colleagues outside of training sessions. At the same time, work situations dealing with environmental standards are more often located in working groups more conducive to exchanges and more governed by procedures and instructions.

On the other hand, companies interviewed in 2019 about the way they train the workforce stated to devote 16% of their training initiatives targeted to environmental standards. Most of these training courses are compulsory and frequently evaluated to lead to the award of a qualification, diploma or certificate.

² <https://www.cereq.fr/en/data-access-lifelong-learning-and-vocational-training-surveys-defis-cvts-base-reflet/defis-employee>

This statistical analysis displays a form of "greening" of work and training, which is all the more frequent as the activities of workers and the managerial practices of companies prove to be favourable to skill enhancing. Whatever the sector of activity, the size of the company or the occupation level, organisational dimensions of work are crucial for the integration of environmental standards.

Statistical approaches provide few insights into work activities associated with these emerging and changing jobs. Numerous in-depth research on work activities has proved that skills are always contextual and evolving, that they relate both to individual and collective level, and are assessed by mechanisms such as job interviews. In fact, estimating the need for green skills, which are not green "by nature", means looking at production methods and value chains, what will be done in the second part of this paper.

Between a limited importance of green and greening jobs and a growing role of environmental standards in employees' activities and continuing training: getting back to work

Several research works carried out since the mid-2010s have studied in greater detail the nature of the transformations at work in green sectors, i.e. offshore wind energy, smart electricity grids or eco-construction (Drouilleau and Legardez 2020). These analyses have not revealed new occupations as such but highlighted different ways in which skills are being reconfigured.

While the notion of transition implicitly conveys a gradual, linear approach to change, or even orderly coordination, our research highlights the need to take work as the starting point for understanding these contrasting greening dynamics and their situated stakes. Mirroring this last decade of Céreq research, literature reviews emphasize the focus on highly skilled and specialized work. They invite greater attention to practices, rules, and orientations affecting workers in all types of occupations, including at the shopfloor level, as crucial to understanding the potential and impacts of sustainable transition in different industries, socio-technical systems, and industrial regimes (Moilanen & Alasoini, 2023; Coutrot & Nizzoli, 2023; Cukier et al., 2023). Additionally, the various ways ecological transition and decent work are articulated to form a "just transition," a framework developed by the labour movement, are explored. Unanimously, the literature highlights the need to consider a broader scope of workers while considering industrial characteristics; this is an area where humanities and social sciences research on work and sustainability is scarce. The social aspects of the sustainable transition have been little studied so far (Upham et al., 2020; Wittmayer et al., 2017).

Part 2. What does greening do to work? A Broader Public Action Approach to Greening Skills

The second part of the article questions the conditions for the greening of work, focusing more specifically on the transformation of working practices. From the nature of the transformations of work in green sectors and occupations to a broader perspective, we insist on the necessity for research to adopt a larger and dynamic scope, both in terms of industries, organisations, occupations and skills.

This perspective shift also implies a focus on work where concerns about employment in industries facing ecological transformations often tend, like its digital counterpart, to overshadow the transformations of everyday work, working conditions, and processes, the qualitative challenges posed by the greening dynamics, and the role of workers in related workplace innovations (Hocquelet, 2024).

As a contribution to bridge this blind spot, between 2020 and 2022, we investigated six companies in three industries (two companies from each industry), examining the actual transformations occurring in the workplace through a situated analysis of work practices. Subsequently, six monographs were documented based on a corpus of fifty interviews and a series of observations of work situations (about six hours per monograph).

Understanding the conditions for greening work in three industries

Through these monographs focusing on work analysis, we have sought to understand the realities of greening dynamics in various industries. The qualitative and inductive approach adopted focused on some of the central occupations in contrasting industries, which have not been identified as green or greening at first glance: food product sellers-producers in a small urban dairy and cheese store, multi-skilled salespeople in a national cooperative chain in food retail; construction site managers in one of the main French companies and rope access technicians working for one of its subcontractors in the construction industry; production workers who have reclaimed their plant from a multinational tea company and “multipurpose ecological workers” working in the field of professional training and integration in the SE sector.

Thus, by focusing on the main issues in key occupations, the six monographs emphasize companies' and industries' contexts and configurations, highlighting a plurality of greening mechanisms and dynamics. What then are the conditions for greening in these organisations? In what way is the renewal of industries linked to the ecological transition (repair, maintenance, recycling, etc.) a lever for the development of new trades and professional knowledge to be built? What resources have been mobilised and what obstacles have been encountered? Our monographs highlight several specific features that distinguish these organisations from the dominant industrial models and practices, especially in retail and construction industries, two oligopolistic industries in France, counting some of the biggest companies in the world. Here, we discuss and illustrate the main cross-cutting features

influencing, but also sometimes hindering, greening dynamics in the industries, organisations, and occupations surveyed.

Reframing work within a systemic vision of greening

Firstly, referring to the way in which the environment is framed (Lakoff, 2010) in the workplace and its effects on the field of possibilities, the monographs underline in most cases a systemic vision of greening. This dynamic appears to be driven above all by company professionals, not by the regulatory universe or the most widespread initiatives and labels in each industry, mostly considered insufficient, poorly enforced, and unequal by managers and workers surveyed. Supported by minority organisations in oligopolistic industries (retail, construction), this holistic approach to greening is put into practice both through commitment to prioritising and promoting local production, fair trade, organic farming, the respect of labour laws all along the supply chain, accounting transparency, hiring of permanent staff and promoting gender equity, refusal to use plastic bottled water while promoting glass deposit systems, synthetic flavours, colourants, and other additives, animal and human welfare, prioritising small producers and the development of fair trade and sustainable supply chains.

In turn, this consensus around the way ecology is framed at work in the organisations surveyed highlights the importance of voluntary standards in greening dynamics in the workplace and beyond. The role of voluntary standards has been underlined since the 1990s by international institutions such as the United Nations and the OECD as a way to complement national and supranational rules and regulations that are not sufficient. Indeed, if sectoral or cross-sectoral regulations push professionals to integrate new operating methods, the company surveys show how essential voluntary standards can be in orienting the trajectory of structures towards a more advanced and complex consideration of ecology in their activities. Whereas in the construction sector, the changes observed in the objectives pursued as a result of greening appear to be largely linked to exogenous factors, such as technological developments and the transformation of construction methods, the two monographs conducted in food retail underline their ambition to transform food retailing at two different scales and offer examples of local and global (national) ways to get off the industrial path taken by mass retailing and agro-industrial production for decades (including the end of European milk quotas in 2015), inherited from the still dominant commercial and agricultural sides of Fordism.

Both try to maintain a balance between their activist environmental orientation and a viable business model in the face of dominant generalist competition that rarely imposes such ethical standards, which often results in higher prices. Finally, the cooperative structures of the Social Economy (SE) we studied, two highly contrasting cases, explicitly aim at a virtuous project in terms of environment. The first, a tea factory under the cooperative and participatory association status, was born in 2014 from a plant previously owned by a multinational company, defending the reintroduction of natural flavourings. In this workplace, about forty cooperators are turning around a plant that once employed nearly 300 people.

The second cooperative structure, professional training and integration co-operative society of collective interest, considers ecology as its *raison d'être*. Both companies are characterised by democratic and horizontal governance; they try to articulate ecological and social issues such as working conditions, work organisation, and gender equality.

However, these strategic orientations can be partly hindered by dependence on the principals or prescribers who have in their power the financial survival of these structures and embody the path dependency of their industry. Indeed, the importance of the relationship between companies and the market clearly appears as a determining factor influencing the greening dynamics, bringing into play two greening trends: making profitable what is virtuous (minority cases studied here) or making virtuous what is profitable (Ceccere et al., 2014). Thus, companies are situated on a continuum ranging from one to the other of these principles, with constraints linked to dependence on the paths established by the sector's dominant players (supermarkets, agribusiness, construction).

Breaking away from industrial paths: re-organising work and advocating for new production-consumption paradigms

Using the contributions of Gorz on the question of autonomy and heteronomy of production (1988), and Béreni & Dubuisson-Queliet (2020) on the diversity of interactions between the activist and economic worlds, we display a first form of theorizing. From an industrial standpoint, the greening dynamics observed in workplaces depend on the structure's position on an axis ranging from activist commitment to compliance with market rules, intersecting another axis from autonomy to heteronomy, both specific to each industry. Fighting dependence on pathways, particularly the paths taken by major companies in each industry, which persist in adopted choices even if better alternatives exist, is one of the main practical obstacles.

If the dynamics between market greening and concrete ecologism constitute a first axis of tension, a second axis could be formed by the autonomy/heteronomy dyad in the sphere of production relations. According to Gorz, autonomy characterises a form of production in which the individual or group has control over the means of production, the work process, and the product, both in terms of design and quality (Gorz, 1988). Even if the means of execution are decided, Gorz underlines that work is heteronomous if its goals are determined by external wills. Discourses and representations reveal a tension between the autonomy and heteronomy of work, as these concepts, which are not mutually exclusive (autonomy is gained by negating heteronomy), frame action. Discourses and representations related to greening in the professional worlds investigated bear multiple translations of these concepts. Heteronomy thus appears in relation to professional hierarchies, which impose specialised positions in the division of labour, subordination in working relationships, and market constraints. Autonomy can be embodied in democratic organisational forms, oriented by a renormalisation of work from an emancipatory or ecological perspective.

	Heteronomy		
Economic Worlds	1. Strong roots in the economic worlds / strong heteronomy: Major influence on standards in terms of production conditions, adaptation to regulations, greening, and struggle to maintain a dominant position in the sector (e.g. construction and retail majors).	3. Strong roots in activist circles / strong heteronomy: Struggle from within in the face of greening and market greening (scaling up), performativity based on experimentation and links with local associations (e.g. national organic store cooperative).	Activist Worlds
	2. Strong anchorage in the economic worlds / strong autonomy: Market bifurcation, new sources of productivity, "green economy", subcontracting organisations linked to the diversification and greening of the activities of dominant groups within varied sectors (e.g. rope access technicians in construction).	4. Strong roots in activist circles / strong autonomy: Political bifurcations, experimentation, local roots (e.g. dairy and cheese store, SE organisations).	
	Autonomy		

Table 1: Four dynamics of greening at the crossroads of tensions between economic and activist worlds (M. Hocquelet / F. Séchaud, 2023)

Consequently, three businesses studied, two of which are cooperatives, are caught up in agri-food chains they wish to transform. Their greening dynamic and orientation require the involvement of all players, from producers to consumers, and a better understanding of their economic and environmental stakes. The activities developed within the framework of the professional training and integration SE structure by its employees and users (people

affiliated with "remobilisation" schemes and directed towards it by employment prescribers) respond partly to profitability or social order logics and partly to non-market or non-monetary logics, especially when they aim at particularly pronounced sustainable development objectives.

In the construction sector, the changes observed in objectives pursued due to greening appear largely linked to exogenous factors, such as the industry's long-standing regulatory framework, technological developments and the transformation of construction methods. This sector is emblematic of the importance given to the "upstream" (suppliers), whether they offer structural elements, low-carbon concrete, or more ecological treatment products. This aspect is less often considered than the "downstream aspect", such as waste treatment, which is partly outsourced to specialised companies in the two cases studied.

More room for deliberation, reflexivity on the meaning of work and workers' safety and health

At the organisational level, greening is linked to measures to protect workers' health, improve their working conditions, and give the collective more control over work organisation. The creation of deliberative spaces to question the activity, its aims, and how to organise work collectively, contributes effectively to this in-depth greening. As we've previously seen with SE organisations and the importance of voluntary standards, the role of deliberative spaces and times, and the desire for more democratic, horizontal governance appear intertwined and articulated with ecological and social issues such as work and employment conditions, work organisation, and gender equality.

The establishment of deliberative spaces and time slots that allow for the questioning of the activity and its goals contributes effectively to this increased greening (importance of reflexivity). In different production contexts, an articulation of the ecological dimension with that of workers' health, their working conditions, and the organisation of day-to-day work emerges transversally. In the case of the tea factory, the dynamics of greening work is linked to the search for a sustainable cooperative project based on its core values and a form of regulation of work through deliberation, distinct from managerial and hierarchical organisations. The democratic modes of governance and regulation in both structures, by encouraging time for deliberation on the work and employee participation in decision-making, support the integration of ecological concerns into their activities. As a result, employees' appreciation of the meaning of work has increased, though this has been nuanced by mixed trends in terms of job quality and working conditions.

Here, greening is diffused within the framework of collective organising of work, evolving daily because it is a process "in the making" whose effects are perhaps still somewhat evanescent to date. According to Bruère and Chardeyron (2013) the concept of "organising work" was initially proposed by de Terssac and considers the fact that the functioning of the organisation, including the work collective, is the result of individual regulations (Terssac & Lalande, 2002). Organising work allows us to group together, in the same category, a set of

organising activities. In our case, we can talk about ecologically led organising work, where the role of “professionals whose job it is—managers, executives, methodologists, equipment designers, supervisors, to name but a few—who are (usually) in charge of structuring the activity of others, and who therefore largely determine the characteristics that will define the work” is fading in favour of a greater focus on “the (collective) organising activities of all individuals, which are present in all types of professional activity: the work activity I deploy to carry out the tasks assigned to me, my strategies and operative compromises, will, at one and the same time, organise my work and that of others, within the same team or between interdependent teams, who will have to adapt” (Bruère & Chardeyron, Op.cit, p. 75).

Towards collective skills: organising a greening workplace while advocating for a greener industry

These organisational principles lead to the development and promotion of workers' organising skills, accompanied by reflexive feedback on their activities and consideration of the commons. These commons refer here to the collective use and management of resources by a community of workers, allowing them to move away from the binary alternative between private and public, by focusing more on equal access, sharing and decision-making than on ownership. More broadly, to green their activities and industries, professionals need to think increasingly globally and sensitively, while situating and modulating their specific contribution to the different systems of activity, production processes, sectors, and chains of action in which they participate, in terms of Life Cycle Thinking as seen in food-related cooperatives and beyond. This transformative way of framing work through the global impact of productive activity is mobilised individually and collectively in the organisation of day-to-day work, as well as in advocacy work with customers (e.g. introducing adults and children to traditional cheese-making methods during regular workshops) and stakeholders (e.g. open days to discover the local activist ecosystem) throughout the production, distribution, and consumption chain. This is in line with a more specific definition developed by Ludovic Ginelli and his colleagues (2020), who refer to the ‘greening of practices’ as any “cognitive and normative reframing exercise” aimed at bringing about an environmental shift in social norms and practices.

In the professional training and integration SE structure, recruitment is a gradual process, from volunteering to obtaining initial financing for a project personally supported and defended by the newcomer-contender, leading to an employment contract. The aim is to initiate candidates into its ecological project while keeping them out of the position of mere executioners. Additionally, skills (such as accounting and project writing) are pooled during regular training sessions so that each employee becomes a "Swiss Army knife" (as stated by the founder of the SE structure), enabling the team to respond to changing demands. In addition to tasks related to financing schemes (writing reports, delivering training courses, user support), each employee undertakes to maintain the workplace (courtyard, vegetable garden, henhouse) and offer workshops for staff and users, such as making objects using recovered or recycled materials, repairs, and urban agriculture. Therefore, employees

modulate and develop activities. Nevertheless, while the ecological aspects of production sometimes lead to a diversification of tasks, ways of working are not systematically transformed. The greening process, though still in its early stages, is already impacting some professional postures of the employees observed.

Whether driven by regulations or customer choice, this process changes the purposes of occupations and consequently some of their action processes, with waste management being the most emblematic example. In food retail organisations, multiskilled jobs flexibility is not driven by a strict Taylorist division of labour and just in time but by principles of "greening", prioritising workers' health, knowledge, know-how and getting the message across over productive efficiency (e.g. limiting working time in direct contact with customers, from counter service to checkout in order to preserve workers, the quality of customer relations and advocacy for a thorough greening). In the retail monographs, salespeople still aim to sell food products, guide, advise, and develop customer loyalty. However, the goals pursued by employees are significantly impacted by including their commercial actions within a systemic greening philosophy. At the heart of the professional goals are relatively original missions of raising customer awareness in ecological and environmental fields, with a dual activist and commercial dimension intended to be complementary.

However, ways of working are not systematically transformed. In some cases, considering the ecological aspects of production leads to a diversification of tasks without questioning the fundamentals of the division of labour. This is especially true in organisations dominating the market and subject to adopting an adaptative greening dynamic in the face of regulatory constraints. Besides, the "new skills" may also turn out to be old and/or collective skills that had been devalued or made invisible by profitability considerations and Taylorist division of work, returning to processes linked to proto-industrialisation aiming at craft work, as seen in the food trade, agri-food-related industries, and activities outsourced by major companies such as rope access technicians in the construction industry.

In the case of the tea factory, which seeks to maintain its production, the activity of machine operators on the production line seems to be changing little. Their ability to work on different machines is considered obvious but does not imply profound changes in ways of doing things, prescribed by the IFS Food standard required by the client-retailer. In this case, the activity is constrained by the need to deal with mass retailers to balance the economic model, whereas, according to workers, the meaning of work is reinforced in the activity dedicated to manufacturing the cooperative's specific tea brand. The fact that the 40 cooperators work in the same factory where they used to produce for a multinational company ten years ago has led them to become "Swiss Army knife" employees in practice, balancing specialisation (working on a machine) and versatility (developing the production line according to fluctuating orders).

Thus, greening does not always lead to changes in working methods. The close observation of professional practices and rules, also called "action processes," underlines that if the aims

of the activity (what guides and gives meaning to the goals pursued) and the tasks they consist of (what determines what needs to be done at any given time and how it should be distributed: actual tasks, work organisation) are undergoing major transformations, the ways of carrying them out in the organisations observed (the most efficient and effective ways of doing things according to the workers) doesn't necessarily change radically. However, monographed companies generally combine collective activities and individual tasks, which, due to their original and systemic ecological purpose, modify work for some or all of their employees.

This dynamism does not appear restricted to the organisations studied, mainly representing economic models dominated by market mechanisms, due to their systemic impact on most organisations, industries, and trades. These ecological dynamics of work profoundly change how employees work and interact with various entities and stakeholders. Consequently, whether considered from the perspective of sector-specific work greening or the adoption of activist greening practices, these dynamics appear to transform certain professional representations of employees concerning their work, the meaning given to it, and the purposes pursued through their activity. The examples and principles for greening work and workplaces are simultaneously translating work processes and developing the means to act on organisational, political, social, and environmental issues, establishing links between work in specific sectors and transformations at the individual and collective levels.

Conclusion: value chains, organisational configurations, dynamics and scope of greening

In view of our results, the analyses both underline the organisational and collective dimensions of greening and the importance of collective skills in these greening dynamics. To continue understanding the greening of jobs and skills would thus require studies and investigations to be directed, on the one hand, towards questions of organisation and the work environment, by widening the focus beyond the company to the production sectors and value chains, and on the other hand, towards skills useful for deliberation and organisational action by employees, opening up a shared meaning and purpose of the activity and its greening by workers' collectives. More broadly, organising work, reflexive individual and collective feedback on everyday activity, and an emphasis on the commons, including occupational health and the ability to organize, as well as advocating a systemic ecology appear to be the principal characteristics of organisations with an in-depth and ethically consistent (Coutrot & Perez, 2022) approach to greening.

To green their activities, professionals need to reason more and more systemically (chains of interrelations, causes, and consequences) and sensitively (impact of business on the environment, practical knowledge of natural raw materials) at the same time, situating and modulating their specific contribution in the different systems of activities, production processes, sectors, or chains of action in which they participate. Besides, in the different

productive contexts, an articulation of greening dynamics with the health of the workers, their working conditions, and the organisation of the latter has appeared.

In this context, how can the prospects observed in these three sectors move beyond niche production and consumption? This research questions the conditions for the most virtuous forms of greening to reach wider populations of workers and consumers, who are often, as in retail, the targets of the practices of dominant market actors, defining path dependency guided more by productivism and increased profits than by a transformative vision of their activities. The central role played by workers at a micro level underlines the importance of understanding the role of industrial relations and, more broadly, of workers' collectives in the greening of work.

Finally, we can turn the original question on its head, from asking: "what does ecology do to work?" to "what does the context of work—productive configuration and socio-industrial trajectory—do to/with ecology"? In other words, the "already there" or socio-technical systems can lead to strong structuring, path dependencies, and locks due to a high level of institutionalisation of technologies, policies, markets, and values that act as constraints in the face of any sudden or radical change in these same systems (Fuendschilling & Truffer, 2016; Geels, 2004 and 2011). Nevertheless, this research partly answers questions about the possible and existing connections between workers and transition at the micro level of industries, particularly the roles of workers as actors in transition, the different dynamics that characterise this relationship according to industrial contexts, and, in so doing, the possibilities of influencing the latter. It emphasises the crucial role of workers' practices in explaining path dependency (continued use of a product or practice based on historical preferences or usages, even in the face of available innovations and efficient alternatives) and invites further research into this question.

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