



Platformisation 2027

Consequences on occupational
safety and health

inrs
Institut National de Recherche et de Sécurité

With the support of:



In partnership with:





Platformisation 2027 Consequences on occupational safety and health



This prospective exercise by INRS (French national research and safety institute for the prevention of occupational accidents and diseases) builds on the previous exercise conducted in 2016 on modes and methods of production in France in 2040¹.

This time once again, the exercise was done in partnership with OSH bodies, institutional players and “new economy” participants.

¹For more information about INRS's previous prospective exercises, go to www.inrs.fr/prospective.

DEFINITION OF PLATFORMISATION

“How did you buy things back in the day without Internet?” This is probably the question our grandchildren will ask us one day, since our ways of accessing products and services have most certainly been revolutionised by new technology. For what was once the result of a sometimes complex process, requiring effort, time, travel and oral, face-to-face communication, progressively became accessible by a simple click, with the underlying assumption that everything is available everywhere, immediately and under optimal conditions. Internet developments first made it possible to make purchases online. This was followed by a gradual improvement in the offering and a simplification of customers’ approach to finding the “right” supplier who would best meet their satisfaction criteria, and create the ultimate “customer experience” as illustrated by the rise in “digital platforms”. Made popular by Uber, which in fact represents only one side of the many different forms of platforms that may exist, this new concept is becoming increasingly prevalent in the economy, to the point of disrupting both the way in which customers buy services and products, as well as how service providers deliver services. It is therefore a new B to C (business to consumer) consumption model and even a new B to B (business to business) model, which is gradually replacing the former model.

THE WORK METHOD USED

As stated, prospective exercises are not about making prophecies or predictions. The future is not presented as a *fait accompli*; rather, we are given indications as to how to build it (Hugues de Jouvenel). It is with this in mind that INRS has conducted prospective exercises since 2013 in order to provide elements for thought, first of all to its management board and board of directors, and then more widely to all those interested in the topics addressed. To do so, the Institute partners with players from different fields which provide it with their knowledge of the topic. They help INRS to fuel reflection about the consequences of the possible futures as regards occupational safety and health (and by extension occupational risk prevention) for topics as varied as physical assistance robots, the use of nanomaterials in micro-enterprises and changes in modes and methods of production in France in the years to come.

The approach is structured and is based on a proven, adaptable method. Regardless of the topic addressed, it is necessary to paint a picture of the current landscape, understand its origins, and identify the main forces of change that have or could have an influence on the matter being studied. This prospective analysis must be able to depict possible futures (scenarios) being mapped out by major trends, possible deviations and prospective hypotheses. As mentioned above, it is not about making predictions about the future but about putting together combinations of certain assumptions to get a glimpse of some possible futures which present strategic issues to decision-makers.

This is the approach followed in this study.

The main results of the exercise will be illustrated in the following pages successively:

- through four scenarios which present possible evolutions of platformisation over the next ten years;
- through two breakdowns in sectors that are already experiencing major changes due to the rise of platforms: the interior construction industry and the retail business;
- in terms of consistency with the general prevention principles as defined in the French labour code.



PLATFORMS FULLY ON THE RISE: MINIMUM RIGHTS

The **digital tidal** wave has profoundly changed activity in the industrial and service sectors. Automation has seen rapid expansion and has led to **massive destruction of conventional jobs**. Platform activities played a major part in this new industrial revolution and very quickly penetrated a host of other domains such as banking, health, retail business, interior construction, all personal assistance activities and more, to the point of becoming a reflex for all potential customers seeking out a company.

This trend is due especially to the qualitative and quantitative boom in information and communication technologies. Developments in **artificial intelligence**, algorithms and big data have increased the performance of data processing necessary for the expansion of platforms. In addition, the sluggish economy increased the pool of human skills available and willing to have temporary work, or even their main job provided through platforms. Moreover, platforms have adapted the level of their services to the resources available to their clients: from premium platforms to low-cost ones.

In the light of this trend, States quickly sought to merely provide assistance, or even facilitate the trend. Through tax-based funding, they guaranteed a **minimum social base** for all citizens regardless of their employment status: the idea was simply to guard against major misfortunes as part of a general public health policy. The role of complementary insurance has taken on greater importance. With regards to labour law, only a few essential safeguards have remained and apply to all types of employment. As concerns training, emphasis is placed on directly useable skills, which determines two priorities: digital jobs and jobs providing the services proposed by the platforms.

With regard to OSH, several challenges have been identified for which various answers may exist:

- Some workers are confronted with **fragmented work**, of limited interest, comprising a succession of tasks over which they have no control, while others can take full advantage of the most recent tools to continuously reinvent their work: stress or self-fulfilment?
- Generally, a **situation of labour insecurity** develops: in this respect as well, everyone is not equal before the trend, depending on whether or not they are trained in the field of interest to companies. This situation potentially creates psychosocial risks (PSRs).
- The weight of certain major operators in the economy may be a factor promoting **the standardisation of certain work practices, combining economic efficiency and performance in OSH**: robotisation of certain manual delivery tasks (use of physical assistance robots for example), etc.
- The splitting of tasks, fragmentation of jobs, the relative roles of States and platforms which are often transnational, heavily challenge the **organisation of occupational risk prevention**.



PLATFORMS AND CONVENTIONAL NETWORKS INTERLINKED: INEQUALITIES AND FRAGMENTED WORK

Digital progress has continued throughout the period, both in terms of equipment and algorithms, but despite the substantial advancements in artificial intelligence, such progress is not responsible directly for the growing penetration of platforms in the economy. This is in fact due in particular to the **alliances made between major operators of conventional networks** (mass retail, companies specialised in the supply of services to private individuals or companies, large industrial firms) and global platforms, under the auspices of the tech giants (GAFAM²). Knowledge of markets and presence in the territories of the major traditional network operators on the one hand, and the technological progress provided by the platforms on the other hand, complement each other quite well.

This has led to an even **greater digitalisation of all activities** of everyday life. The distinction between the traditional economy and the platform economy gradually faded, as they increasingly became interconnected. This is also the case at the level of the State, which definitively abandoned physical counters in favour of online administration. The massive rollout of internet of things enables economic players to adopt a proactive attitude towards potential clients to whom they propose both services through commercial networks as well as through digital means.

Clients can more or less sporadically become workers depending on the circumstances: delivery persons for others when they pick up their own online order, handymen that are more or less competent if the package transported in addition to their own in the car trunk has to be assembled. **Task-based jobs and the freelance status develop** to the extent of heavily impacting conventional forms of employment. The limited number of employers and their dominant position in the markets restrict workers' possibilities of autonomy, and **the labour market is heavily stratified and unfair** depending on workers' qualifications and whether they correspond to company's needs.

The State's role has diminished considerably, including with regard to social protection, which is mostly managed by private online insurance firms: the State limits its actions to sovereign functions.

This **economic laissez-faire** marginalised major portions of the society, excluding them rather definitively from the labour market. The production capacity and consumption needs of such fractions of the society have contributed to the **emergence of alternative platforms**, often developed with the support of local government: exchange of services and bartering develop more or less formally building on pre-existing local exchange services which compete with the low-cost platforms developed by the major operators.

With regard to OSH, several challenges have been identified for which various answers exist:

■ A limited number of operators each active in **very different sectors may result in very detailed task requirements and limited control of workers over their job**, including when they are freelancers: this could provide a case for laying down (or not) strict occupational risk prevention rules in the practices imposed (company's social responsibility); the matter is particularly acute for local platforms offering more or less informal jobs.

² Acronym designating the digital tech giants Google, Apple, Facebook, Amazon, Microsoft.

- **We know that work collectives** play a major role in discovering risks and identifying prevention solutions. Would a working world split between polyactive freelancers allow this? Or should we count on centralisation of incidents and accidents recorded by companies (which should have the means to collect information)?
- **In the absence of work collectives, can the capacity for innovation**, which also gives meaning to work and plays a role in prevention, be preserved?
- Wouldn't work intensification heighten in a world in which workers are all in direct competition with each other?
- Will we witness a distribution of work according to age, gender, status, in which it will be the worker that would have to adapt to the work and **not the work being adapted to the worker**?

COMPETITION BETWEEN COMMERCIAL AND ASSOCIATIVE PLATFORMS: INSTABILITY AND INCOHERENCE

The dominant feature of the period is that of **major instability**: first at world level, with a succession of geopolitical crises, weather disasters and the disclosure of serious mishandling of personal information collected by the major information technology players; then more specifically, in France and in Europe, a succession of crises has led to economic and labour policies that are contradictory or even incoherent.

This has resulted in an **extremely disparate economic fabric**, with large companies benefitting from recovery and market protection measures, others on life support to safeguard employment, and other small spinoff structures. In concrete terms, economic constraints have led the labour market to be much more flexible, **with a single status for workers** and **a limited set of social rights**, which may be enhanced by an individual or collective agreement. This market is not very dynamic and the unemployment rate remains high. Freelance work and co-ops have developed considerably.

Platforms have seen very different outcomes, some becoming a huge success and others complete failures related in particular to people's mistrust as concerns the use of data.

However, the main feature in this field is the co-existence of two main models:

- **commercial platforms** which were forced to find their economic model: the need to become profitable in a stagnant market resulted in an increase in the price of services;
- **associative platforms** supported by local government, possibly in the form of semi-public companies or successors of local exchange systems; one of the objectives sought is to maintain social inclusion in a difficult economic context.

Competition between the two models is exacerbated.

With regard to OSH, several challenges have been identified for which various answers may exist:

- How can a structured **occupational risk prevention system exist** in a context in which State labour policy interventions are contradictory? How can **companies and workers be addressed directly**?
- In the event of a partial failure of this system, what motivation might the different players have as concerns prevention? If the objective of **short-term profit** prevails, how can the argument



of increasing economic efficiency by **taking into account working conditions** be heard? This **direct and indirect** impact must be measured in the immediate term and **in the medium term**.

■ **Can associative platforms** created to protect social cohesion guarantee that the quality of working conditions and **occupational risk prevention** are taken into account? Or isn't there a risk of seeing them placed on the back burner in a context of increased competition and limited means? Especially for forms of work such as professionalised handy work, work in small repair workshops and personal assistance actions where there should not really be any serious risks but for which the **accumulation of "small" exposures** could lead to major pathologies.

PLATFORMS DISCREDITED: TRANSPARENCY AND RELOCATION

Non-regulated digitalisation of the economy and the development of big data have led to the occurrence of events with serious economic and political consequences. The proliferation of computer hacking has caused the failure of businesses of all sizes. Several data leakage scandals (concerning health, personal or strategic data) have created **a climate of mistrust of major digital players**. Lastly, several cases of big data capacity exploitation for political purposes have been proven. A hacker attack even caused serious malfunctions in European electricity distribution networks with major health and social consequences.

In this context, the French State and the European Union have taken measures to restore their digital sovereignty. They took advantage of the faster data obsolescence due to the exponential development of the internet of things to liberate French and European companies from the grasp of the digital giants. This occurred in **a context of European nationalism** with a relative closing of borders and the **relocation** of parts of industrial production made possible by progress in automation. This policy led to an upturn in growth, but at the cost of higher prices of certain consumer products and equipment, and to the detriment of purchasing power. However, the emphasis placed by States on social protection somewhat offset this element and is appreciated by the population.

Against this **strong mistrust** of any type of electronic transaction, the **development of platforms has been limited**. They are especially used for activities that do not really compete with established jobs: private lessons, occasional babysitting, etc.

Other platforms operate to link qualified and certified interior construction tradesmen with customers seeking a quick service. Some other activities are managed by platforms (repairs, retail), still under guaranteed transparency conditions.

Blockchain³ developments appear to be promising: by eliminating the need of a trustworthy third-party in the exchange, blockchains enable platforms, in their role as intermediary centralised systems, to be replaced by computer systems distributed at a low cost. In 2027, this is the prospect that appears to be most promising for managing the relationship between suppliers and clients.

With regard to OSH, several challenges have been identified for which various answers exist:

■ Platforms are required to have **transparent algorithms**: with regard to customers and the data collected, but also in relation to service providers. Minimum rules aimed at preventing

³ A "blockchain" is a transparent, secure data storage and transmission technology operating without a central control organ.



any temptation for the “lowest social price” have been laid out and applied to all. They concern remuneration, but also working conditions.

■ The greater cost of living due to the closing of borders generally resulted in an **intensification of work rates**. Even though an inspection body associated with the social protection system checks to ensure that working conditions in general are acceptable, in particular for platform-based activities, wouldn't economic constraints hinder **compliance with good practices**?

■ The relocation of certain activities resulted in the **return of risks that had been more or less eliminated** for some fifteen years, related in particular to small equipment repair or certain handicraft productions. Some of these activities concern workers commissioned by platforms. These platforms, like the other economic players, must ensure that these workers are given only tasks that correspond to their level of competence. This takes place against a background where **risks have resurged**, questioning the **capacity to share and use valuable knowledge in OSH**.

INTERIOR CONSTRUCTION MOVED TO PLATFORMS IN 2027

1. Background

As of 2017, the interior construction industry⁴ employed about 700,000 employees, i.e. two-thirds of workers in the construction industry. Clients and service providers (mostly micro-enterprises or one-man companies) are connected directly or through a contractor.

Also in this sector, the use of Internet has led to the emergence of platforms for bringing together private individuals and professionals. According to the French building federation, more than 150 platforms are currently in operation⁵.

2. Scenario

In 2027, all linking of individuals and service providers in the interior construction industry takes place through platforms.

These platforms offer services that exceed the mere role of intermediary: consulting, project funding, guarantees, insurance, sale and lease of material and equipment, etc. They may be associated or partnered with DIY or distribution stores, building manufacturers or insurance firms.

3. Evolutions promoting this scenario

Regulatory evolutions

The economic and regulatory context favourable to self-entrepreneurship eliminates any attraction towards undeclared work, causing business to be redirected to companies and craftsmen.

Social evolutions

The development of Internet promotes the use of e-commerce and changes the habits of customers, who wish to be able, for all purchases, and therefore for interior construction work as well, to browse for products and services simply, in the comfort of their homes, at any time, and immediately access the corresponding services.

Moreover, clients seek out interior construction service providers less frequently, and often for more expensive services, than they do for a nearby tradesman. Therefore, they cannot afford to make mistakes, and become increasingly cautious and demanding. Turnover of craftsmen and the anonymity of large cities no longer favour the "word-of-mouth" process, which had been the main means of finding a high-quality service provider for a long time. In this context, mediation between private individuals and professionals, offered by platforms, reassures the customer.

Lastly, customers appreciate having simple access to services associated with construction work (insurance, maintenance, etc.) which a craftsman, with his traditional organisation setup, cannot offer.

Technological evolutions

Progress in Internet applications makes e-commerce, which tends to become the norm, increasingly user-friendly.

The processing of customers' and professionals' data helps platforms to better match supply and demand.

⁴Interior construction or light work refers to all work not involving the structure of the building.

⁵*Les plateformes numériques dans le bâtiment, état des lieux et enjeux*, FFB, May 2017.

In parallel, the development of the internet of things enables platforms to be more responsive and to propose new services (preventive maintenance, energy savings, etc.) and to assist professionals with certain tasks.

Organisational evolutions

With the change in customer behaviour, craftsmen have an increasing need for support.

To better attract craftsmen, the platform must be able to increase its service offering (commercial and administrative procedures) so as to allow them to devote their time to the job.

The major construction players are very in tune to the flexible “platform” model which, in 2027, meets the expectations of private clients. By taking over platforms or creating partnerships with them, these major players extend their business by proposing a complete service offering, which enables them to control the sector and secure the loyalty of their clients.

4. Consequences on working conditions

Elements potentially bringing improvements to working conditions

Platform intermediation enables the market to be regulated by avoiding low-cost services that promote occupational accidents.

To attract and retain craftsmen, platforms invest in risk prevention. With their data processing capacity, they can advise craftsmen, give them support in their operations, and assess risks beforehand for each of their contracts. Occupational health and safety becomes a marketing element for platforms.

Working conditions are improved compared to the market previously composed of mainly very small companies lacking the time and resources to invest in prevention.

Professionals, relieved by platforms of their administrative and commercial tasks, can devote more time to their work and to the improvement of their work conditions.

Elements potentially deteriorating work conditions

Craftsmen’s dependence on platforms reduces their room for manoeuvre in their work organisation, without the platform assuming an employer’s responsibility in terms of prevention.

Mandatory use of platforms may further isolate craftsmen, as they are no longer in contact with their suppliers and have minimum interaction with their clients.

COMMERCE MOVED TO PLATFORMS IN 2027

1. Background

The quick evolution of retail trade should accelerate due to different factors:

- development of e-commerce: +11% in the second quarter of 2017 (FEVAD⁶);
- scattered purchases (web, nearby groceries);
- growth of one-hour delivery services;
- growing environmental constraints (circulation restrictions on utility vehicles).

The combination of these factors allows the scenario below to be formulated. It serves as a starting point for the formulation of trajectories and of impacts on OSH.

2. Scenario

In 2027, households consume almost exclusively through platforms. A neighbourhood logistics organisation is set up through multiservice spaces (food, services, reception, dispatch, etc.) designed for flexible deliveries.

Some shops continue to exist in the form of showrooms rather than retail outlets (zero stocks).

These neighbourhood multiservice spaces fulfil several functions:

- nearby logistics to receive and dispatch packages;
- groceries for fresh products;
- fast food/takeaway;
- services: dry cleaners, concierge services;
- place for socialising, additional meeting point for platform participants (for example DIYers and clients).

In the course of the day, customers fill their shopping carts through platforms and may choose (even at the last minute) between pickup at this place or home delivery.

Such areas also require an evolution in upstream logistics, massifying deliveries from very responsive logistics warehouses.

This form of distribution is not limited to cities, it also concerns suburban and rural areas.

3. Evolutions promoting this scenario

Social evolutions

The continuation of current trends (low economic growth, major underemployment, stagnating purchasing power) leads to a bipolar working world, with, on the one hand, social categories with a sufficiently high income to consume, and on the other hand, a precarious labour force seeking out (additional) income. Labour law allows very flexible polyactivity.

An ageing population and difficult journeys due to saturated networks encourage the development of home deliveries. The need for trust in the delivery operator may serve to promote delivery by autonomous robots, and/or neighbourhood jobs.

⁶ French federation of e-commerce and distance selling.

Technological evolutions

Progress in robotisation thanks to artificial intelligence enables transformations in the logistics chain. Upstream of urban logistics places, storage and transport are optimised. The use of consumption data from platforms and retail outlets provides solutions tailored to needs (customised products, predictive logistics).

Retail giants

The resources necessary for this model (property investments, big data) limit it to economic players such as the GAFAM or mass retail, which may possibly be associated. The challenge is in controlling the infrastructure and client data, while avoiding “traditional” forms of employment, replaced by short-term or freelance contracts.

4. Consequences on OSH

According to the managerial choices made by players and the regulations put in place, consequences on OSH may vary.

Generally, this scenario involves a change in the notion of work time with a normalisation of Sunday work and night work.

Segmentation and work intensification can exclude certain categories (seniors in particular).

Upstream, the development of very responsive logistics may have different consequences:

- man/robot collaboration in warehouses and maintenance problems;
- manual handling with time constraints;
- normalisation of unusual working hours;
- weakening of work collectives because of heavy rotation of workers.

Downstream, last-mile logistics generates the most risks (road and handling):

- freelance workers having to manage their equipment and their working pace and hours;
- greater competition among individuals;
- work defined by algorithms without regard for the real work situation;
- manual handling in changing contexts (floors, weight and dimension of loads, etc.);
- initial training inexistent, low qualifications, operators not in tune to prevention;
- exposure of delivery persons to clients’ discontent.

Elements potentially bringing improvements to OSH

Robotisation in warehouses could lead to a reduction in the carrying of heavy loads and repetitive movements.

The need to retain skilled delivery persons may lead platforms to adopt prevention measures:

- training;
- increase in job decision latitude;
- design of manual handling support tools.



THE GENERAL PRINCIPLES OF PREVENTION DISRUPTED

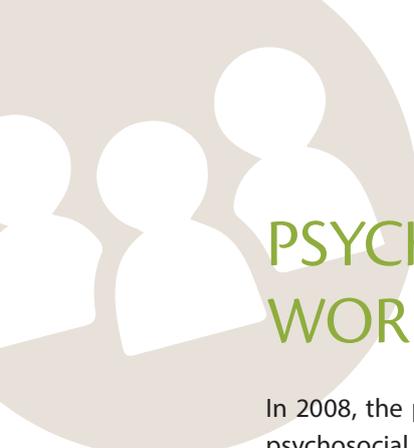
Prevention action in companies is guided by fundamental principles known as the general principles of prevention. These are listed and defined in the main texts governing occupational safety and health at European level (framework directive 89/391/EEC) and national level (Art. L.4121-2 of the French labour code).

Today, most of the general principles of prevention appear to be out of tune with the functioning of platforms. This could be due to their creators' and managers' lack of prevention culture, but especially to **the economic model and the organisation of these companies which are outside the regulatory and insurance framework encouraging prevention.** The occupational accidents/occupational diseases pricing rules and business owners' responsibility are not relevant when the work is done by freelancers and not employees.

However, with regard to the general principles, **nothing prevents players from referring to them to implement action means to protect the health of workers.** This is why the table below highlights, on the one hand, the issues raised by the economic model and the organisation of platforms as regards compliance with these principles, and on the other hand, positive prospects which players can take advantage of to incorporate prevention into their economic development.

Principles	Observations	Prospects
Avoiding risks.	Given the jobs made available to a large extent on platforms (drivers, delivery persons, personal assistance, interior construction, etc.) the primary objective of eliminating risks (for example those associated with manual handling or travelling) appear to be difficult to attain.	Some tasks identified as being particularly hazardous could be excluded from the scope of services handled by certain platforms, which would therefore redirect them towards specialised, skilled partners.
Evaluating the risks which cannot be avoided.	Platformisation seems to tend towards a deferral of risk evaluation and prevention to freelancers.	Algorithms could incorporate a risk evaluation dimension associated with tasks and therefore launch prevention recommendations. An evaluation approach adapted to platforms' operating mode could be designed and shared.
Combatting the risks at source.	Workers often find themselves performing a task downstream, enduring the conditions resulting from a process over which they do not have full control. This work fragmentation is not conducive to an overall risk approach.	Incorporation of prevention as early as possible could have a positive impact on the working conditions of many platform service providers. Analysing beforehand the risks associated with tasks given to workers by the platform could limit workers' exposure through organisation measures integrated into the process.

Principles	Observations	Prospects
Adapting the work to the individual , especially as regards the design of work places, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health.	Work proposed by platforms is predefined by nature; workers must adapt and conform to the requirements. It will often be monotonous, repetitive, and at an imposed rate.	Adapting work to the individual is above all a matter of approach. Platforms can make this choice by involving their service providers.
Adapting to technical progress.	Technical progress is used primarily for the purposes of optimisation (matching algorithms, use of customer data, etc.). Staying alert to innovations, and the acquisition of recent equipment, are the worker's responsibility.	Platforms' innovation capacity could also be used to improve prevention. For example, by developing suitable work equipment or information systems supplying service providers with all of the data useful for limiting the risks associated with their operations depending on the feedback from previous service delivery.
Replacing the dangerous by the non-dangerous or the less dangerous.	This decision depends primarily on the operators, who decide based on their priorities.	This dimension could give rise to the development of artificial intelligence configured to avoid hazards (choice of itinerary). A change in work equipment handled at platform level could be an important factor of prevention whose cost would be shared.
Developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors related to the working environment.	The prevention dimension is poorly taken into account in the organisation. At times, compensation is even prioritised, which may encourage service providers to expose themselves to unsafe working conditions (bonus to deliverymen when weather conditions are particularly poor for example).	The prevention dimension could be included in the process. The platform could put in place a follow-up for these matters (equipment, dialogue with workers, adapting their organisation).
Giving collective protective measures priority over individual protective measures.	Since work is often done by freelancers working alone, this principle is marginalised.	The platform could, in certain cases, provide workers with shared protective equipment (handling aids, physical assistance robots, tools for detecting hazardous substances).
Giving appropriate instructions to the workers.	The platform is in permanent contact with workers and can give them targeted and immediate information.	This capability could be used to convey prevention information to workers, including very precise information on the place of operation by capitalising on information that may have been collected from workers that have already worked at that place.



PSYCHOSOCIAL RISKS IN PLATFORM WORKERS

In 2008, the public authorities expressed the desire to have a statistical follow-up system for psychosocial risks. For that purpose, a team of experts, bringing together confirmed researchers from different disciplines, representing French but also international research, was set up and chaired by Michel Gollac, sociologist, administrator at the national statistics institute (INSEE) and a research director. A major pluridisciplinary and international literature review identified a set of occupational, psychosocial risk factors, which they grouped together into six categories⁷.

Here, we have matched the six risk factor categories with the main characteristics of platform work. Such work is mostly performed by freelancers whose substantial exposure to certain PSR factors is increasingly highlighted, in particular as regards managers of micro-enterprises⁸. Platform freelancers have the particularity of being economically dependent on these platforms, which brings additional constraints, one of which is heavily limiting their autonomy compared to a business manager. We have used the example of deliverymen to simply illustrate this part (a common job involving exposure to numerous risks) but the exercise could be reproduced for other activities.

PSR factor categories	Characteristics of platform work	Example of deliverymen
Work intensity and work time , related to qualitative and quantitative work requirements, work rate constraints, the existence of unrealistic or vague objectives, requirements for multiple skills which workers might not have, contradictory instructions, long work weeks, unusual working hours, unpredictability of working hours.	Work rate imposed by artificial intelligence, task-based remuneration , performance assessment criteria, distinction not clear between private life and working life	The platform algorithm allocates delivery runs. The faster the deliveryman, the more runs he can make and the higher the income he can obtain. The most well-paid working hours are often atypical (evenings, weekend). Deliverymen can however choose their off-periods.
Emotional requirements , related to the need to control and fake one's emotions: forced smiles, good mood, tensions with the public, confrontation with suffering or human distress The requirement of having to hide one's emotions involves total self-control, regardless of the circumstances, and constantly showing a positive attitude.	Client ranking system imposing a "positive attitude" (forced smile) Confrontation with clients' discontent	Deliverymen must be punctual, pleasant and polite failing which they may be given a bad score or a negative comment from a client. If the client is unhappy about the service, it is the deliveryman who is in the direct line of fire.

⁷Gollac M. & Bodier M., *Mesurer les facteurs psychosociaux de risque au travail pour les maîtriser*. Rapport du Collège d'expertise sur le suivi des risques psychosociaux au travail, faisant suite à la demande du ministre du Travail, de l'Emploi et de la Santé. Avril 2011. <http://www.college-risquespsychosociaux-travail.fr>.

⁸Lechat T., Torres O., « Les risques psychosociaux du dirigeant de PME : typologie et échelle de mesure des stressés professionnels », *RIPME* vol. 29, pp. 135-159, 2016.



PSR factor categories	Characteristics of platform work	Example of deliverymen
<p>Autonomy, possibility of having one's own say in one's work This includes not only room for manoeuvre but also participation in decision-making and development of skills.</p>	<p>Work defined and controlled by artificial intelligence Operators' room for manoeuvre can be very narrow. Moreover, they can be given tasks that don't allow them to use or develop their skills.</p>	<p>The platform traces all of the deliverymen's activities (times of their runs, itinerary, speed, etc.). They have to conform to requirements with no real room for manoeuvre. Deliverymen can be overqualified for this work.</p>
<p>Social relations at work This includes relations with colleagues, management, remuneration, career prospects, how well the task is adapted to the person, work assessment procedures, attention paid to workers' wellbeing.</p>	<p>Workers isolated, lack of close supervision and a work collective Relationship managed remotely</p>	<p>Deliverymen are on their own. If there are any difficulties, they cannot seek assistance from a colleague or supervisor. Social support will depend on the relationships that they may create with other deliverymen, but all deliverymen individually manage their own relationship with the platform.</p>
<p>Conflicts of value, intrapsychic conflicts over "what matters" for workers in their jobs, i.e. what they consider important in professional terms. Not being able to do quality work, having to fulfil tasks that go against one's professional, social or personal values, or doing work that one deems useless are some of the forms of conflicts of value that can challenge the meaning of work.</p>	<p>Fragmented work, lack of visibility into the outcome of the work</p>	<p>For example, a deliveryman could be required to deliver a meal which he personally thinks does not meet satisfactory preparation requirements.</p>
<p>Insecurity of the work situation This includes both socio-economic insecurity (job stability, level of remuneration, absence of career development) and the risk of uncontrolled change in the task and the work conditions.</p>	<p>Dependence on platforms, unpredictable work load, lack of visibility into the economic health of the platform</p>	<p>Deliverymen are dependent on the activity generated (or not) by the platform and the number of deliveries they are assigned. Moreover, the platform can terminate their collaboration unilaterally. Deliverymen can have no visibility into the platform's economic health or the development of its strategy. The platform can change the work conditions or remuneration of its deliverymen unilaterally.</p>

CONCLUSION

So, what does the future hold?

Most likely none of these four scenarios, and that wouldn't be a surprise: the prospective exercise presented here did not aim to predict the future. But the elaboration of each of these scenarios enabled us to depart from the present, from the certainties, to attempt to imagine what could be another world transformed both by the evolution in technology and in human behaviour. Is that all? No, because this work, these meetings with INRS's partners have been the starting point of a more profound reflection about INRS' core activity which is prevention. In 2027, will we be able to address prevention as we do currently? In trying to imagine possible futures, the development of activity sectors, it is the fate of this mission that is questioned.

What have we learned from this exercise? Among the many possibilities uncovered, two will be outlined here. First, the offering to consumers will be increasingly specific, to the point where demand will even be anticipated. Faced with competitors made more and more visible that can take advantage of technology to access all markets without any limits, in terms of distance and culture, companies wanting to maintain their market share will have to innovate and adapt in real time to the customer. The volume of data and their processing will enable them to have a better knowledge of the behaviour of each client and to anticipate it. The service provider will therefore be increasingly exposed and vulnerable, depending on the customer's expectations. This vulnerability will be even greater considering that the protection required of employers vis-à-vis their employees will no longer exist, since workers will no longer be employees.

The second possibility, which is almost a certainty, and which mitigates the abovementioned risk, is related to the role of human relationships in the commercial relationship: the optimisation of the customer's experience, which is one of the objectives shaping platforms, cannot bypass the need for direct, face-to-face contact. Several platforms have already grasped this: maintaining a real person at the other end of the phone line, opening a show-room which becomes a base, a place for discussion, meet-ups, etc. After moving to all things digital, which leaves customers alone in front of their screens, players are reinventing places, gradually taking the disrupted economy towards a new equilibrium.

It is probably based on this essential need for human relationships, that the means should be provided to reintroduce occupational risk prevention at all levels and all stages involved in the platform's commercial relationship. However, it remains to be seen what will be the driving force (regulations, entrepreneurial initiative, social dialogue).

List of people having participated
in the working group meetings:

Daniel Boguet, U2P
Marie Defrance, INRS
Anne Delépine, INRS
Nadiège Félicie, INRS
Bernard Gäisset, ACMS
Pascale Hebel, CREDOC
Michel Héry, INRS
François de Jouvenel,
Futuribles David Le Glanaer, CJD
Grégoire Leclercq, FEDAE
Jacques Leïchlé, INRS
Antoine Lepocreau, RSI
Marc Malenfer, INRS
Ophélie Morand, INRS
Benjamin Paty, INRS
Patrick Richard, OPPBTP
Philippe Rollandin, Bouclages
Thierry Rousseau, Anact
Hervé Sageot, Cramif
Bernard Siano, INRS
Pierre Thillaud, CPME
Jean-Paul Thonier, HPR

Sector workshop participants:

Retail:

Pascal Brighi, GeoPost
Jérôme Pimot, CLAP

Interior construction:

Julien Desarnauts, HelloCasa
Solenne Xavier, AlloMarcel

Health:

Catherine Bricot, CGI
Frédérique Pothier, DSSIS, ministère des Solidarités
et de la Santé
Thierry Sauvage, SSGM





Institut national de recherche et de sécurité
pour la prévention des accidents du travail et des maladies professionnelles
65, boulevard Richard-Lenoir 75011 Paris • Tél. 01 40 44 30 00 • info@inrs.fr

Édition INRS PV 9

1^{re} édition • avril 2018 • ISBN 978-2-7389-2360-8
Conception graphique : Éva Minem / INRS

► L'INRS est financé par la Sécurité sociale - Assurance maladie / Risques professionnels ◀

www.inrs.fr

