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# THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

A new era for information, consultation,  
participation rights of workers and transnational  
negotiations

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Dear all,

Please find below our study. We would like to thank UNI Europa and especially Nicola Konstantinou for its cooperative stance. We hope this report will be helpful and stimulate the discussion. We would like to thank you for the trust you have placed in our company.

Elsa Costanzo

Emmanuel Reich

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# INTRODUCTION

Kurt Vonnegut, in his novel *Player Piano*, published in 1952, painted a world in which production is almost totally mechanised. Machines controlled themselves, having replaced workers. This world is split into two by a river; on one bank is the minority of the population, engineers and managers, chosen according to their intelligence quotient, and who have well recognised and well-paid jobs. The other bank is occupied by the majority, former workers replaced by machines and who have only a useless job, created by the state to keep them occupied by making them dependent on handouts.

Even though it has been almost 70 years since this science fiction scenario was written, the upheavals we are experiencing due to digitalisation and automation are vast and no sector of our economies and our professions is left unscathed. The extent of this disruption varies, and has repercussions on social organisation. Furthermore, the upheavals to come, with artificial intelligence and connected objects especially, are even more difficult to understand but

could be even more significant. In a not so distant future, autonomous vehicles could replace taxi drivers, bus drivers and lorry drivers; drones will take the place of last mile delivery persons; robots will keep the elderly company and serve in restaurants, while artificial intelligence will carry out medical diagnoses, give legal advice or produce press articles.

*Player Piano* forces us to consider the crucial question of the collective solutions to adopt in light of these changes, whether this pertains to the organisation of society, the sharing of wealth, employment trends or company regulation.

With respect to these latter issues, digitalisation through the development of software tools and solutions (robots, process automation, etc.) raises a series of questions:

What will the coordination between robots and humans look like? What will be the impact on employment? What will be the effects on work organisation?

What will be the consequences on the quality and meaning of work?

Although to some extent, digitalisation is synonymous with job destruction, job insecurity and reinforced control over employees, it can also lighten the load of some tasks, especially the most tedious ones and provide tools for collective organisation and empowerment. As is the case with technology in general, digitalisation is ambivalent and does not lead to determinism any more than it constitutes a natural order of things.

The use of technology results from political decisions. At the company level, it results from strategic/economic decisions. It is therefore up to trade unions to not be intimidated by the technical character that these choices may present and to be present at the negotiating table.

## **PROFOUND CHANGES... AND THIS COULD BE JUST THE START**

A few examples suffice to gauge the extent of the changes across decades-long established sectors: convergence and competition of banks and telecoms, illegal downloading and the questioning of copyright (music, books, films, series), free products and services online, trial-and-error press business models, the explosion of artificial intelligence in financial services, the expansion of platform capitalism in the transport and accommodation sectors, etc. Digital technology is spreading in all sectors and is turning everything upside down.

There are also upheavals at the heart of companies: automation of simple legal and accounting tasks, changes in management with the increase in internal networks, increasing digitalisation of client services (chatbots) or sales (digital channels).

Brynjolfsson and McAfee, two researchers at MIT, speak of the "second machine age". The first age would be the industrial revolution with the machine being complementary to humans, providing power.

The second age would be the machine taking the place of humans for cognitive tasks. Basing their theory on Moore's law, which states that a processor's calculating capacity doubles every 18 months (the number of transistors per circuit of the same size doubles every 18 months, at constant prices), they predict that the possibilities for digitalisation will develop exponentially. Chris Anderson, on the other hand, predicts that only 20% of human activities have been digitalised for the moment and with that the combination of technologies (digital design, additive manufacturing and open communities) we can envisage extending digital technology to the remaining activities.

This would also explain the Solow paradox, which in 1978, observed that computers were omnipresent... but this omnipresence was not reflected in the productivity numbers! It took the Watt steam engine 100 years to contribute to the British Industrial Revolution and electricity 40 years. It is therefore, still too early to envisage all the developments of digital technology.

## **NEW GAME RULES DICTATED BY DIGITAL TECHNOLOGY GIANTS**

American technology giants (GAFA: Google, Amazon, Facebook, Apple), like their Chinese equivalent (BATX: Baidu, Alibaba, Tencent and Xiaomi) are increasingly regulating our daily personal and professional lives. Next to these giants, a myriad of digital technology players, start-ups, recent for the most part, have, in a few years, imposed and shaped new rules worldwide weakening or destroying trading, tourism, telecommunications companies and the media. Often oligopolies or monopolies, they position themselves as intermediaries between users and providers; they have been able to capture a share of the profits of these sectors while limiting their investment. Airbnb, hotel rental sites and companies renting vehicles between individuals have destabilised the tourism sector in particular, and this, without holding any assets. The digital technology giants benefit from the "winner-takes-all" phenomenon, which gives them the lion's share of the profits, leaving little room and possibilities for competitors.

Search engines and social networks have captured a part of the profits of press publishers while making them dependent on them. Beyond the "free" element of digital technology it is the business model itself of publishing, audio-visual production and press activities that are being questioned, as is the notion of "copyright". In these sectors, the market is far from being stabilised and the different players are groping around for profitable business models between paid and free offers with monetising the audience.

The development of e-commerce perplexes independent businesses as well as large retailers. The spectacular growth of Amazon has weakened book stores, several of which have closed and resorted to restructuring plans. Large retailers have rapidly developed home delivery or drive-thru services with digital orders, but the redistribution of the market with the major e-commerce players is not yet completed.

In the telecoms sector, players such as WhatsApp, Viber and Skype have contributed to the erosion of operators' revenues, as has the rise of content platforms (Netflix, Hulu, etc.). Operators and cable operators are searching for new sources of revenues (mobile financial services, contents) to restore growth.

These examples have a single common point: profits are captured by digital giants that often have no personal assets in the sector in question (hotel, telecoms infrastructure, taxi fleets, etc.), employing a limited number of employees with regard to their turnover. The share value of these companies is monumental and they often take advantage of their "immaterial" nature to place their profits beyond the grasp of the tax administrations. These players also tend to invest considerably. Whether it is by spending large sums of money on R&D or through acquisitions. Having ensured their domination of a market, they then go in search of new activities to develop. Consequently, the automotive sector and in general, mobility-related services are now being coveted by these giants.

These sectors have been relatively unscathed by digitalisation. Security, for example, uses video surveillance, geolocation tracking of its employees, and communication means, but the nature of the tasks (static guarding, rounds, response if an alarm is triggered) have not yet been disrupted. In the future, this could change with the use of robots and drones.

In the field of home care, the changes are not yet spectacular. Clocking in, employees using communication means to indicate their presence/absence or complete care sheets are all changes but, far from what is observed in other sectors. All will depend on social acceptability, but it is not excluded that companion robots may one day carry out staff's work or some tasks.

## **IN THE BIG DATA AND ARTIFICIAL INTELLIGENCE ERA, DATA IS A KEY ASSET**

After the era of mass consumption, large-scale personalisation is the new differentiating factor for companies: market segmentation and analysing user data to offer clients more adapted goods and services. It is the multitude age (Colin and Verdier, 2013): it is consumer choices that make business models evolve and new monopolies emerge.

Customer experience is therefore the first key factor of success, necessary for staying on track. Attention is constantly riveted on customer experience and each comment; user feedback is scrutinised. The network effect implies an exponential virtuous cycle: service quality increases with user numbers, but not proportionally. Metcalfe's law therefore, states that the effect of a network is proportional to the square of the number of its users. This allows us to understand the ultra-rapid, dominant positions of social network, data storage and e-commerce leaders. However, in a period of decreasing growth, this virtuous circle may also halt and lead to sharp falls. The first problems encountered by Facebook or Snapchat highlight the fragile nature of these business models despite often stratospheric market capitalisations. Several ers-

twihile stars (AOL, BlackBerry, Motorola, Yahoo) have experienced a meteoric rise, followed by an equally vertiginous fall.

In this environment, data is a central asset, whether it is used internally (segmentation, optimisation), captured and resold (targeting, advertising) or exchanged and shared (prediction, innovation). It is the users themselves who produce this value, by their behaviour (searches, web browsing, geolocation, purchases, etc.). Here, there is a form of free work, which some refer to as digital labour, and from which the technology giants profit.

### **MAJOR IMPACT ON EMPLOYMENT, BUT DIFFICULT TO PREDICT**

In the short term, periods of technological change destroy jobs; it is the creative destruction phenomenon specific to each innovation cycle. Technological unemployment accompanies such changes at first, then costs fall with the increase in productivity, purchasing power increases and focuses on new sectors which, by becoming developed, will generate employment. This known mechanism was observed during the first two industrial revolutions, with especially the development of a services-specific job market in parallel to a reduction in jobs in the agriculture and industry sector. This is the "overflow" [of employment into other sectors] theory developed by Alfred Sauvy. One of the major issues is knowing if this already observed phenomenon will occur again.

Despite the in difficulties anticipating the future of the job market, several studies have sought to determine at the microeconomic level the proportion of jobs that could be destroyed. They waver between techno-optimism and techno-pessimism. They offer divergent conclusions but all agree that the number of jobs lost will far outstrip the number created. According to a study by the Roland Berger consulting firm, 42% of jobs present a high risk of being automated and three million jobs could be destroyed in France by 2025. The company has conducted simi-

lar studies in other countries such as Norway and Finland, with similar results. According to a study by France Stratégie in July 2016 ("The effect of automation on employment"), 15% of jobs would potentially be automated.

Digital technology also favours the development of new forms of employment that fall outside the framework of salaried staff. One such example is the emergence of platforms that stand out as intermediaries offering to connect employers and freelancers. Other companies have developed a software platform that put service providers in contact with clients. The platform takes a margin for each transaction. There, it systematically almost uses freelancers. Trade unions have taken up the case regarding this phenomenon and are trying to organise workers.

Automation, the development of micro-enterprises and freelance work are polarising the labour market: on the one hand, jobs that cannot be automated, often requiring major creativity and/or direct contact, should see an increase in remuneration, while on the other hand, there is an increasing number of people alternating between periods of unemployment and precarious contracts. Furthermore, in addition to the shedding of jobs that should continue to occur, several jobs should undergo profound transformations.

In light of these findings, two elements seem to differentiate this "digital revolution" from the previous ones:

- ▶ The productivity gains are not redistributed into purchasing power towards weak salaries. On the contrary, there is greater inequality, with the most privileged becoming richer and persons excluded from the labour market becoming pauperised. This is the polarisation phenomenon that we have mentioned. But, although purchasing power is not increasing, demand is stagnating and therefore, we cannot see any increase in employment in return.
- ▶ The transfer of jobs to the service industry has no job-providing sector to recruit this labour, as was the case in the past.



Therefore, fear of structural unemployment with an upward curve, has led many to demand a universal income. However, we must put the too gloomy anticipations into perspective as it is difficult to understand predicting the future of employment.

Such changes must be anticipated and redistribution mechanisms rethought to allow progress to benefit as many as possible rather than increase inequalities and exclusions in the sphere of work. Likewise, with many workers no longer being salaried employees, new means of collective organisation must be put in place.

### **A SHARP INCREASE IN NEW OCCUPATIONS, WHICH REQUIRE INCREASED TRAINING**

With digital technology, comes job transformation. The Future of Jobs report by the Davos World Economic Forum (2016) anticipates that 65% of children entering primary school will have occupations that do not yet exist. In the meantime, training and supporting employees must be placed at the heart of the challenges linked to digital technology for employees' skills to be in line with the skills demanded by digital tools. Managing professional paths requires special attention from companies and employee representatives.

The "empowering" effects of digital technology at work may be illustrated in more collaborative, horizontal work resulting from a more direct communication, making employees more responsible and breaking down tasks. Teleworking also offers possibilities to better manage work-life balance. However,

these elements should not eclipse the questions that these new practices raise. Work intensifies with the increase in communication channels and the possibility of constant assessments and reporting. For unscrupulous employers, donning wearable or geo-location tools offers formidable and intrusive means of monitoring. The increasing use of algorithms in behaviour analysis and assessment is also a major source of concern. It is important for employees to understand these algorithms and the decisions that they make to understand and contest them. In some companies, the lines between personal and professional life are blurred because of an injunction to be constantly available.

In the face of these upheavals, society is currently experiencing an institutional failure: regulation and control institutions are no longer adapted to the new paradigms that have emerged and they are unable to tackle the increasing job insecurity facing workers. The pace of the democratic deliberation in the face of the speed of technological changes, reflection on ethical challenges, competition regulation, fiscal optimisation, the polarisation of the labour market and the increasing inequalities are major issues that the public authorities are struggling to regulate.

New reduction in working time, the sharing of productivity gains, taxing corporations, reflection on data protection, transparency and the possibility of contesting algorithm "decisions", lifelong training, new protection for workers, negotiations in companies to adapt digital tools: these are some of the work that needs to be done to prevent the digital revolution from creating the dystopia imagined in *Piano Player*.





A person is sitting on a modern, curved staircase with a glass and metal railing. The staircase is surrounded by a complex, geometric architectural structure with a curved, ribbed ceiling and a floor with a grid of small lights. The overall scene is a futuristic, high-tech interior space.

# SECTORAL ANALYSIS







## #1 THE CHALLENGES OF DIGITALISATION IN THE MEDIA SECTOR

Referred to by some as the third industrial revolution, or even the fourth (Davos Forum Report, early 2016), the development of digital technology has transformed our modes of production, our professions, our lifestyles and our social relationships, through social networks and web 2.0.

The media sector has obviously not been spared by this structural shift: digital terrestrial television, interactive portals, television on demand, content filtering are some of the many transformations that have brought significant changes to the audiovisual landscape.

This has directly affected the business model of media companies: today a so-called «traditional» economy, with huge turnovers, that is fast running out of steam, is operating alongside new digital models, which are still not clear but have a high growth potential. Vivendi, for example, has the «leading pay channel», Canal+, whose offering has been completed with the Mycanal website which proposes all content either direct or on demand, on all media. At the same time, the group also owns the video platform Daily-motion and has launched other digital initiatives such as Studio+, which brings together the group's skills

(Canal+, Studiocanal, Gameloft, etc.) to create mini-series designed for mobile devices.

### #1.1 DIGITALISATION IS TRANSFORMING THE COMPETITIVE MEDIA SECTOR

Digitalisation has changed the practices of a highly competitive sector led by powerful giants. The dispute between the Italian media group Mediaset and Vivendi, who owns a stake in the Italian media group Mediaset and in the Italian operator Telecom Italia, illustrates these challenges.

#### VIVENDI: THE FINANCIAL AGGRESSIVENESS OF A MEDIA EMPIRE

The French group Vivendi, which posted a turnover of €10.8 billion in 2016 - generated equally by Universal Music and Canal+ - is owned by Vincent Bolloré, a double-faceted CEO. The builder of a media empire, present in the logistics and transportation business in Africa, is also a financial «raider», capable making a quick buck, as in 2004 when he acquired a 25% stake in Vallourec that he sold only four years later, making a capital gain of ten times his initial investment.

In the video games sector, the Guillemot brothers, who owned Gameloft and Ubisoft, bore the brunt



of Vincent Bolloré's financial strategy. He acquired a stake in Gameloft and Ubisoft and aggressively reinforced his stake before making a hostile takeover bid for Gameloft, which is now majority-owned by Vivendi.

The more recent acquisition of the advertising group Havas by Vivendi is also part of a wealth management strategy, according to Maurice Lévy, the chairman of the Publicis supervisory board. It is true that it is hard to see the business rationale behind this project, for which synergies have not been identified and which carries a risk of conflict of interests because some clients of the advertising group could become competitors of the media group.

All these examples therefore illustrate the financial opportunism of a group that is now openly at war with Mediaset, the group owned by Silvio Berlusconi through his holding Fininvest. Mediaset is an Italian media group that posted €3.7 billion of turnover in 2016. It controls in particular the non-paying Italian TV channels Canale 5 and Italia 1, and has a pay television offering through Mediaset Premium. The group also owns the Spanish television channels Telecinco and Cuatro, and is present in audiovisual production.

### **VIVENDI SETS OUT TO CONQUER MEDIASET AFTER BREAKING A STRATEGIC PARTNERSHIP**

In April 2016, Vivendi and Mediaset formalised an industrial partnership that should have been sealed with cross-shareholdings. According to the agreement, the French group would acquire a 100% stake in Mediaset Premium, the Italian group's pay-TV arm, and each of the two groups would swap 3.5% stakes in each other. For Vivendi, this alliance, which had been presented as a strategic alliance was to be the first step in:

- ▶ Developing the «joint production and distribution of programmes»,
- ▶ Creating a new «OTT (Over-The-Top) internet TV platform) capable of competing with Netflix in Europe.

In July, Vivendi backed out by announcing that it wanted to renegotiate the terms of the agreement. Deciding that Mediaset Premium's financial data was less promising than expected, Vivendi proposed to acquire only 20% of Mediaset Premium and gradually raise its stake in the Mediaset group to 15%, provoking very strong reactions in Italy. Vincent Bolloré has thus shifted from an industrial rationale to a financial rationale, putting the Mediaset management on the defensive.

And yet, for Vivendi, Mediaset represented a strategic asset that would have enabled it to create a «Southern European Netflix» in particular through an alliance of content with Canal+ and possibly partnerships with Telcos to develop content distribution. This project has fallen through, like the project to acquire the Italian Champions League TV rights, since Mediaset had refused to take part in the bidding. The sale of these rights was postponed to autumn 2017 and represents a strategic challenge that could be at the heart of a reconciliation between the two players after the conflict that has pitted them against each other.

### **VIVENDI'S CONTROL OVER THE TELECOM ITALIA RESULTS IN THE CREATION OF A JOINT VENTURE**

Concurrently to its relations with Mediaset, Vivendi has reinforced its positions with the operator Telecom Italia, with a 29.34% stake and two thirds of seats on the board of directors. This reinforcement in the telecom sector appears surprising, since Vivendi had explained that it wanted to refocus on content when the group disposed of Maroc Télécom and its 20% stake in SFR to Patrick Drahi, although these two companies were particularly profitable.

However, in April 2017, the Italian communications authority gave Bolloré one year to reduce its stake either in the historic operator, in which it owns a majority stake, or in Mediaset, where it is the second largest shareholder after the Berlusconi family, with a 28.8% stake and nearly 30% of voting rights. Accord-

ding to the authority, and pursuant to the Gasparri Act of 2004, Vivendi does not have the right to own such large stakes in telecom and media firms.

The group must therefore make a choice, at a time when it is in a politically delicate position since the Italian Prime Minister has decided to use his special powers (veto on asset sales) to restrict the growing influence of the French group in the former public jewel Telecom Italia which owns strategic assets:

- ▶ Sparkle, which manages one of the largest submarine cable networks that transports Internet traffic in the Mediterranean, connecting Italy to several European countries and the Americas, and is used by Israel and various intelligence services in the region;
- ▶ Telsy, which provides Italian institutions, the army and secret services with encrypted telephones.

However, despite these difficulties, Vivendi and Telecom Italia, which generated €19 billion of turnover in 2016, have announced the launch of the joint venture, majority-owned by the Italian operator, in the form of a pay-TV channel called Canale+, modelled on the French channel Canal+. Like AT&T (which acquired Time Warner, owner of CNN, HBO and Warner Bros) in the United States, British Telecom (which acquired the Premier League rights) and Altice (formerly SFR, which owns BFM TV, RMC, Libération, Le Groupe L'Express, etc.), this transaction would enable Telecom Italia to engage in a strategy of convergence with the distribution of produced or acquired content, in particular sports content (TV rights of the Lega Calcio).

Bolloré had hoped that Vivendi's stake in Telecom Italia could be used as a bargaining chip in return for its acquisition of a stake in Orange. However, Orange declared that it had no plans to enter the Italian market given the upheaval that would arise with the arrival of Iliad (Free) in 2018. Furthermore, although Orange had initially indicated an interest in Canal +, the group later gave signals conveying that it did not wish to acquire the pay-TV channel.

The media sector therefore continues to be marked by powerful domestic players who are nevertheless active at the European level, modelling a radically changing market through an increasing number of concentrations and strategic partnerships. These two trends have come under close scrutiny by the European Union whose member countries are obliged by the Audiovisual Media Services Directive to coordinate national legislation with each other in order to «create comparable conditions in all countries for emerging audiovisual media» and to «safeguard media pluralism» in order to protect consumers whose habits have been profoundly transformed by digitalisation.

## #1.2 MEDIA DIGITALISATION: A NEW EXPERIENCE FOR CONSUMERS

The findings are clear: consumers are spending more and more time online. In 2015, there were 3 billion Internet users, 2 billion active users of social networks, with an increasing use of mobile phones compared with computers, in particular in emerging countries where consumers have leapfrogged from no digital to mobile digital.

### WHAT EXACTLY IS DIGITAL MEDIA?

Digital media is a product of the information, entertainment or media industry that can be used on various digital devices. It includes:

- ▶ Platforms: websites or applications;
- ▶ Digitised content: texts, images, audio or video recordings;
- ▶ Services: information, entertainment or communication.

The giants of the media sector have therefore naturally positioned themselves on the digitisation of the content using more or less innovative procedures. The incubation of innovating new digital companies is a way of developing:

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- ▶ content: Vivendi has thus launched the Cargo platform to provide support to cultural and creative digital companies (Bustle Music, Brother Tongue, etc.);
- ▶ products and services: TF1 has created a partnership with the IT engineering school, Epitech, to develop research on new uses, replay, 360° immersion, short formats, etc.

The way digital media is used has also changed very rapidly, shifting to mobile use, the multiplication of interactions, a more active role for richer personalised

content that can lead to new sources of revenues that can offset the drop in digital advertising income.

Google has developed a solution to personalise content (and ads) called machine learning which refers to a process of artificial intelligence capable of learning through the processing of huge quantities of data that will be used to calculate the probability that an Internet user will sign up, the level of desire to buy a dress, etc. France Télévisions uses this technology to give viewers ideas for replay programmes.

**New entrants in the digitalized TV market**

| Types of players  | Illustration                    | Strong Points  |
|---|---------------------------------|--|
| Distribution of content on the Internet<br>Users of Over-the-Top services | Netflix                         | <ul style="list-style-type: none"> <li>▶ Data control</li> <li>▶ Content producer</li> <li>▶ International scale</li> </ul>  |
| Super-platforms<br>Web portals  | Google<br>YouTube               | <ul style="list-style-type: none"> <li>▶ Data control</li> <li>▶ Business model based on advertising</li> <li>▶ Powerful audiences</li> <li>▶ International scale</li> </ul>   |
| Telecom players   | BT Sport<br>Orange TV<br>Altice | <ul style="list-style-type: none"> <li>▶ Presence on all segments (live, replay, VOD)</li> <li>▶ Presence on all media and distribution types (DSL, fibre, satellite)</li> <li>▶ Flexible subscriptions (pay-TV platforms, pay channels)</li> <li>▶ Driven by the extension of the Internet</li> </ul> |
| Mobile phone manufacturers  | Samsung<br>Apple                | <ul style="list-style-type: none"> <li>▶ Service and leisure platforms</li> <li>▶ Innovators combining operating systems, modes of interaction with consumers, applications, etc.</li> <li>▶ Players at the crossroads of the Internet, mobile telephony and television</li> </ul>                     |
| Distributors  | Amazon                          | <ul style="list-style-type: none"> <li>▶ VOD promoter</li> <li>▶ Content producer</li> </ul>   |
| Holders of rights   | NBA<br>BeinSport                | <ul style="list-style-type: none"> <li>▶ Players in sectors that generate huge television rights (primarily in sports)</li> </ul>  |
| Open-source development community   | Connected applications          | <ul style="list-style-type: none"> <li>▶ Data interactivity</li> </ul>   |
| Game platforms  | Xbox<br>PS4                     | <ul style="list-style-type: none"> <li>▶ Global interfaces proposing multiple applications</li> </ul>  |

*Les nouveaux entrants du marché de la télévision, par Maria Mercanti-Guérin, according to the study The Disrupted Strike Back, Accenture, 2014.*



Traditional media players are also faced with new production formats in which some firms have become specialists: for example, live streaming is developed by Facebook Live, Twitter, YouTube and Periscope. It often makes it possible for users to take part in conversations, without an audience limit, using just a smartphone. It is developed concurrently with video technology and enables an increasing number of direct interactions among users.

These transformations have disrupted companies and therefore their employees, with an impact on their work organisation. They have to adapt to tomorrow's jobs by acquiring new skills and facing up to new challenges.

### **#1.3 IMPACTS OF MEDIA DIGITALISATION: A NEW WORK ORGANISATION AND A TRANSFORMATION OF JOBS**

Until now, corporate models gave preference to organisations that separated content production, the digital medium and distribution on new web and mobile media. Today, the pervasive nature of digitalisation has led to a change in these organisations which must extend the role of computer technology: from the production of content to new modes of consumption and monetisation of this content.

IT skills are today at the heart of digital transformation. The digitalisation of distribution networks, production modes and media has led to a profound transformation of the business model of media firms. This upheaval has affected technological platforms, the management and monetisation of content, the very definition of services and the relationship with end users.

It has therefore taken a central dimension as a strategic accelerator at the heart of the digital transformation. The major challenges are:

- ▶ the adaptation of content to various distribution channels and multiple media, which requires flexibility and speedier performance;

- ▶ the monetisation of this content through the increase in advertising revenue, in particular on the buoyant segment of programmatic advertising (automated sale of ads). Today, this accounts for more than 40% of the display (advertising banners) market, which, it is true, accounts for only one third of the digital advertising markets still dominated by search (advertising links related to search engine queries).

Data processing is an additional sales argument for media companies which include it in their advertising offerings. For example, the TF1 group is working with Ekimetrics to analyse its «76 million data items» exploited through the audiovisual group's internal platform, One Data.

The monetisation of data is nevertheless an area where the web giants (Google, Apple, Facebook, Amazon) continue to be the most powerful players. For example, in the music sector which seems to have found a sustainable business model through paying platforms, Vivendi is a leading player thanks to its subsidiary Universal Music (valued at \$15 billion, which is more than half the group's market capitalisation). However, the three major labels (Universal, Sony and Warner), which produce content, still own less monetisable information about the clients than the web giants.

The digitalisation of media has led to fiercer competition among players of the sector as well as among the web giants, who are intermediate players. In particular, it has resulted in a far-reaching transformation of professions: developers, traffic manager, SEO managers and data analysts are the new names of digital economy professions.

What will be the place of «traditional» professions in the organisations of tomorrow that will increasingly call for programming skills?

Although media groups like TF1 or Vivendi are placing the emphasis on digitalisation in their professional training policies, the technical level required

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by the new professions linked to programming is so high that it raises questions about the continued employability of employees who cannot attain these levels, and about the possible accentuation of pay differences («over valuing» of new skills).

Digitalisation is an ambivalent transformation that can enable employees to do away with repetitive

tasks that can be automated, but can also increase their workload and expectations about their productivity. The role of employee representatives will therefore be crucial to provide support to employees during the digital transformation that will have consequences on their working conditions in their jobs in a context that is increasingly global and competitive.



## #2 THE NEWSPAPER INDUSTRY IN EUROPE

### A RENEWED THIRST FOR ACCESS TO RELIABLE NEWS BUT A CRISIS OF BUSINESS MODELS HIT BY DIGITALISATION

Digitalisation has radically transformed the relationship with information with the ever growing presence of the internet and smartphones enabling continuous access to a profusion of free news. The press has therefore been one of the first sectors to be deeply affected by the digitalisation of society. All over Europe, this has caused major economic shockwaves for all parties involved in the newspaper industry who have seen their business model severely challenged. These upheavals have had major consequences on levels of employment, working conditions and the status of workers. The quest for a new financially viable business model by the newspaper industry – with the possibility of monetising online content when faced with the digital giants – especially Google and Facebook, is not yet over.

#### #2.1 DIGITAL TECHNOLOGY IS REVOLUTIONISING THE PRESS ECOSYSTEM, AND IT HAS NOT YET STABILISED

Digital technology has led to the very rapid emergence of new ways of accessing news, thus challenging the traditional business models of the newspaper industry. The demand for access to information has been reconfirmed and is spreading thanks to the internet and the use of smartphones: according to the study World Press Trends 2017, more than 40% of internet users in the world read an online newspaper and look for news online.

News has become horizontal (a multitude of sources), free, mobile, instant (permanent connections, the

rapid circulation of information, the importance of algorithms in the offer, innovations such as Instant Articles or Bendle), participative (blogs, social media as relays for news). The process of sorting and selecting news now belongs more to the reader and the algorithms, which changes the role of the journalist. Search, audience measurement, indexing and social media, therefore technical tools, have become preponderant and have an impact on the way the editorial offices work.

Given the situation, the "over-contractors", Google and Facebook for example, capture the lion's share of advertising revenues to the detriment of the written press while neglecting the production of content to concentrate on the design and attractiveness of their offer. The written press therefore finds itself in a position of dependency regarding the notorious indexing process, and they have to deal with the requirements of aggregators that latch onto their content and dictate half their audience.

2016 was a watershed with the crisis of the model of the profusion of free and disorganised news. The American election very clearly demonstrated the crisis of trust on behalf of readers when faced with content that makes it increasingly difficult to differentiate between true and false.

This could herald the emergence of a demand for quality news, editorial policies that are differentiated and for which readers would be willing to pay.

The content aggregators, well aware of the danger that this loss of trust may lead to, are also putting in place means of countering these negative effects, including partnerships with independent "fact-checkers" or new algorithms to increase the diversity of search results.

Strong contrasts between the publishers and the content aggregators characterise the digital distribution model of the newspaper industry, without the sharing of the market between these two types of player yet being a thing of the past.

Numerous publishers of the written press in Europe have gone into battle to defend their resources and denounce the exploitation of their content with no financial reward. This is particularly true of the Open Internet Project which includes several hundred publishers in Europe and has started proceedings against Google to establish that there is abuse of a dominant position. Another way might be to recognise the right of publishers to decide on the distribution of their content, along the lines of copyright law. The Axel Springer Group, a member of the OIP is particularly virulent in this area: after an initial revolt against Google by voluntarily delisting (an initiative aborted after two weeks due to a 40% fall in audience), in 2014 the group acquired 20% of the Qwant search engine, an alternative to Google which stores no personal data.

As for the 'GAFA', they seem to want to put in place mechanisms to encourage the digital monetisation of content for the traditional publishers. In October 2017, Google announced a series of measures, including the end to the obligation for the publishers to supply three free articles in order to be indexed: choosing the 'paywall' is now an option for them. Services will also be made available to the publishers to facilitate the paid conversion of readers.

Finally, from the technological point of view, these upheavals are definitely not yet at an end. Particularly the recent developments in artificial intelligence and machine learning processes could still transform the

attitude towards information. These technologies are capable of analysing billions of pieces of data covering the behaviour and preferences of the readers, which will make it possible for advertisers to precisely target their offers, but also improve recruitment policies for subscribers. Over time, one can imagine that the media will be able to supply entirely customised content.

## **#2.2 GIVEN THIS NEW CONTEXT, THE NEWSPAPER INDUSTRY IS LOOKING FOR LONG TERM BUSINESS MODELS**

The issue of business models for the press is central, and has not been resolved. The equation is decidedly complex between the difficulty of monetising digital content and the decline in paper circulation figures.

### **PRINT HAS SEEN A DRASTIC DECLINE IN CIRCULATION AND ADVERTISING REVENUE**

With discontinuous, paid, top-down news, the business model for written press would seem to be less and less suited to the new uses of digital technology. Five years after the economic crisis of 2007/2008, and according to the annual report World Press Trends 2017, the circulation of newspapers (dailies, weeklies and monthlies included) had dropped by 25% in western Europe and 27% in eastern Europe.

Advertising revenues for print have suffered an even sharper decline than circulation figures: not only have they been affected by the drop in volumes, but the price per page to advertisers has also been considerably reduced.

Since the crisis in 2008, numerous European publications have either disappeared or had to make drastic savings:

- ▶ In France, 2012 saw La Tribune and France Soir disappear from the newsstands. As for magazines dealing in general and political news, a





market specific to France which once flourished, they too need to reinvent themselves due to digital competition and reposition their offer accordingly: their circulation dropped by almost 10% in 2016 alone.

- ▶ Since the start of the Greek crisis, two dailies have closed down: Apogevmatini and To Vima, while the journalists' union Poesy has reported 4,000 layoffs in the industry.
- ▶ In Spain, the free newspaper ADN ceased to appear in 2011, whereas Publico, after an initial restructuring plan that affected one fifth of its employees, had to abandon its paper version in 2012 due to the sharp decline in its advertising revenues. The editorial staff of El Pais was reduced by one third in 2012 (129 journalists made redundant) after a fall of 15% in its circulation figures.

### INCOME FROM DIGITALISATION IS FAR FROM BEING ABLE TO OFFSET THE FALL IN PAPER REVENUES

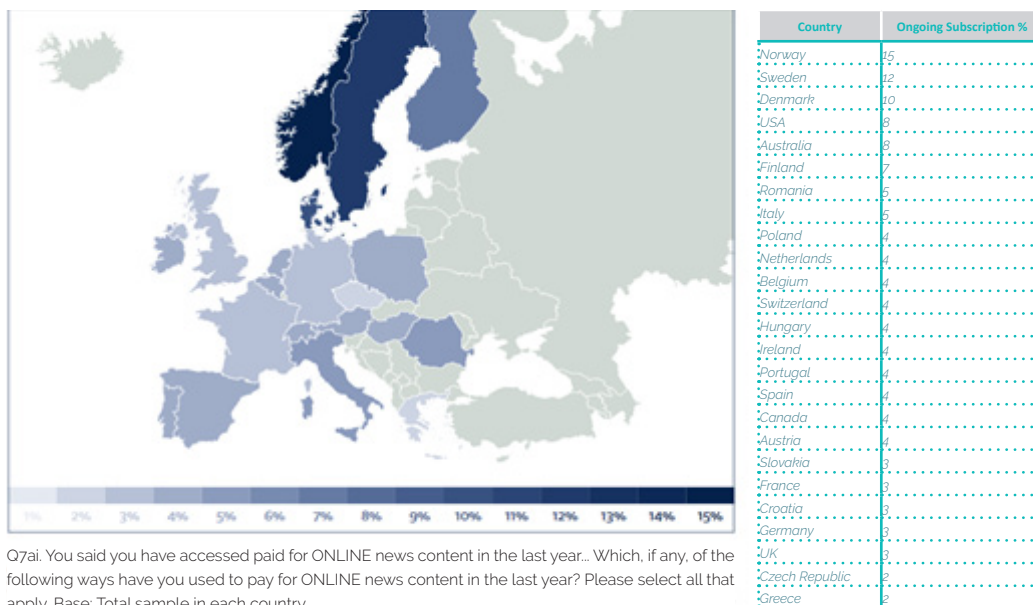
According to the study World Press Trends 2017, in 2016, between 80 and 90% of total worldwide reve-

nue for the press came from paper despite considerable investments in digital technology.. investments that are also a burden for already fragile structures.

Concerning advertising on the internet, most of the incremental revenue is captured by the aggregators, the 'GAFA', as we have already noted. Furthermore, there has been a drop in the unit prices of digital advertising. These revenues are also being limited by the increasing use of 'adblockers'. According to the firm Juniper Research, the use of adblockers is the cause of a loss of earnings for the publishers that is expected to reach about \$27.8 billion worldwide by 2020, equivalent to almost 10% of the global market for digital advertising. Several newspaper groups are implementing joint initiatives to counter the dominance of the aggregators: we could mention the Gravity platform in, launched in 2017 by a number of media groups such as NextRadio TV and M6, the purpose of which is to bring together all the user data to a single interface for selling programmes to the advertisers.

The second possible means of monetisation lies in the selling of content by the publisher using various methods (integral or partial paywall, freemium,

Proportion that have an ongoing online news subscription - selected countries



Q7ai. You said you have accessed paid for ONLINE news content in the last year.. Which, if any, of the following ways have you used to pay for ONLINE news content in the last year? Please select all that apply. Base: Total sample in each country.

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

Proportion that paid for online news in the last year - all markets\*



Q7ai. You said you have accessed paid for ONLINE news content in the last year... Which, if any, of the following ways have you used to pay for ONLINE news content in the last year? Please select all that apply. Base: Total sample in each country. \* Urban samples Turkey, Brazil and Mexico excluded for fair comparison.

Reuters Institute Digital News Report 2017

subscriptions...). In fact, digital distribution is enjoying continuous growth. The New York Times was one of the first to put in place a paywall on its site as early as 2011, and the majority of the big dailies in the world then followed suit. There have been some definite successes, starting with the New York Times which in 2016 had 1.1 million digital subscribers.

However, the proportion of digital subscribers in the general population remains relatively low as is apparent in the illustration below, and it should be noted that the figure has been stable for two or three years (except in the United States with the American election). This possible from of monetisation varies widely from one country to the next: the countries in northern Europe have a greater potential for monetisation than those in the south. According to the study, 54% of those interviewed claimed that the principal reason for not subscribing was the profusion of free online news.

### TWO CONTRASTING EXAMPLES OF DIGITAL STRATEGIES BY MEMBERS OF THE PRESS: THE GROUPS AXEL SPRINGER AND PRISA

Very early on, in 2005, the Axel Springer Group developed a firm policy for digital.

Firstly, the group made a number of acquisitions in the digital world, for service companies (Seloger.com, Immoweb, LogicImmo, Lacentrale.com, the

price comparator Idealo, the Xanox affiliation platform) and publishers (Auféminin.com, 50% of the European version of Politico, and the German version of the Business Insider site). To finance these acquisitions, the group sold off its regional papers in 2013 and its catalogue of magazines (including tél magazine) to focus on its two flagship publications Die Welt and Bild.

In a further move, it began a move towards digital technology for these two flagship publications with, among other things, dual media editorial staff. The journalists work the same way for paper media and the web. Offices have been opened in Los Angeles in order to be able to follow the news 24/7. A strategy of monetisation for online content has also been put in place: on Bild.de, certain articles are only accessible to subscribers (from €5 per month), whereas on the Die Welt site, a paywall has been set up for twenty monthly articles.

The strategy seems to be paying off in terms of financial results: Bild claims 250,000 digital subscribers in a year and a half, and Die Welt 70,000. From a financial perspective, the indicators are also green, with net profits of nearly €600 million for 2016, up by 6.5%, with turnover stable at almost €3.3 billion. The digital sector represents 67% of the group's turnover and 72% of operating income, and is expected to give the group growth of 5% and a 10% rise in EBITDA in 2017.

Prisa, the leading media group in Spain (with turnover of €1.4 billion in 2016), and the owner of the daily EL

Pais, as well as radio and publishing businesses (San-tillana), has taken a very different approach to digital: the group has decided not to invest early in digital. In fact, the financial difficulties encountered since the economic crisis in Spain have not allowed it to free up the resources necessary to invest in digital developments.

In 2011, a massive redundancy plan involving the loss of 2,500 jobs (almost a fifth) had been undertaken to balance the books while a large number of assets were sold off (its stakes in the Digital+ pay television package, in Mediaset Spain and the publisher Alfaguara) in an attempt to wipe out debt that nevertheless still remained significant at €1.5 billion in 2016.

Today, digital revenues are enjoying rapid growth (+21.4% in 2016), still represent no more than one third of the group's resources: neither have they been sufficient to offset the fall in paper circulation and the related loss of revenue. In 2005, El Pais had a daily circulation of 453,000 copies, as opposed to just 275,000 in 2016. The catalogue of magazines has all but disappeared: the Spanish versions of Rolling Stone and Cinemania have been dropped, while the business paper Cinco Días is up for sale.

**RIGHT ACROSS THE  
INDUSTRY, TWO PROCESSES  
ARE UNDERWAY: EITHER  
CONSOLIDATION OR STRONG  
DIFFÉRENTIATION OF CONTENT  
FOR THE INDEPENDENT  
PUBLISHERS**

The economic difficulties encountered by the newspaper publishers have led on the one hand to major consolidation: this has seen some independent publications being bought due to their financial difficulties. So we are seeing a process of consolidation within multi-channel news groups. In France, the movement has been particularly rapid: the Le Figaro group with the diversification into the digital services business (acquisition of CCM Benchmark), the Le Monde group with investment in the pure players

(Huffington Post, Rue 89) and other titles (L'Obs). As for the Altice telecoms group, its owner has acquired a number of publications (L'Express and Libération, among others), and has invested in audiovisual in the form of BFM TV to integrate it into SFR as part of a content provider strategy, the idea being to offer telecoms subscribers digital access to the publications while paying very small sums to the advertisers for each download.

Other players, on the contrary, have benefited from digital technology thanks to a strong differentiation of their offer and working on the monetisation of high added value news. Digital technology can therefore be a unifying force for a community of readers and so help to develop loyalty leading to numerous possibilities: live content for the subscribers, videos, data journalism, confidential letters... The French Médiapart site (a pure player) is a typical example with 130,000 subscribers, turnover of €11 million and a margin of almost €1.9 million in 2016.

**#2.3 ECONOMIC PRESSURES  
AND THE INEVITABLE QUEST  
FOR PRODUCTIVITY HAVE A  
HIGH IMPACT ON JOBS AND  
THE PROFESSION ITSELF**

The contracting revenues of the newspaper industry started off by causing a large number of redundancy plans in Europe.

The conversion to digital implies, for the business strategies of the newspaper industry, major restructuring and redundancy plans that to a large extent affect editorial staff. Two examples in Great Britain illustrate the consequences. The digital first strategy pursued by The Guardian was accompanied by the loss of more than one hundred jobs in 2011. The end of the paper version of The Independent on 26 March 2016 – the paper's circulation had plummeted from 420,000 to 60,000 copies between 1989 and 2016 – resulted in the loss of more than 100 jobs out of 160, while 25 jobs were created by the digital version of the publication.

The direct consequence is a reduction in the number of journalists, and thus the number of press card holders. This phenomenon varies depending on the country: whereas it is a downturn in France, in other countries we are seeing a drastic reduction with, for example, one third less jobs in Spain between 2007 and 2010.

In addition, most news organisations have chosen to focus on looking for models to increase productivity rather than working on content: this can be seen in the development of newsrooms, where journalists work for all the media without controlling the whole chain of information, or in the automation of production with the use of algorithms. The consequences are significant, both for working conditions and on levels of employment. Feeding the web also implies longer working hours that can be burdensome in terms of working conditions with evening and night work, being on call at all hours and a potential for time pressure on journalists.

Lower staffing levels following on from redundancy plans also implies increasingly calling on the services of external contributors, freelancers who may or may not be press card holders. In France, a quarter of journalists (9,000) have no salaried work, while over 20,000 people, non-journalists, contribute occasionally to press articles. This phenomenon contributes to a polarisation and a proletarianisation of the work of the journalist that has been denounced in many a manifesto published by groups of freelancers.

The issue of working conditions ultimately relates to that of the quality of the news. According to the economist Julia Cagé in *Sauver les médias* ("save the media" - Le Seuil, 2015), there is no doubt about it: "The quality of news reporting is declining. We see it every day: there are fewer investigations, less "fo-

reign" papers due to a lack of correspondents. On the web, a lot of the content is a copy-and-paste of AFP articles. This contributes greatly to the lack of trust in the media among the general public".

These tensions not only affect journalists and technical staff, but also the management and support staff, including the less numerous other employees who nevertheless have to take on additional tasks, train on new tools, reinvent the content of their publications and diversify their activities to include events and trade fairs; a part of the support functions having been outsourced.

We are also seeing changes to the profession. Journalists now often have to master digital channels. Furthermore, new professions are emerging, digital experts – developers, designers, programming experts (meaning automated sales) as far as the advertising departments are concerned – and data-scientists in the marketing teams.

Finally, some initiatives to improve productivity have been carried out jointly.

On the European scale, seven big dailies – Le Figaro, Die Welt, El País, La Repubblica, Le Soir, La Tribune de Genève and Tages-Anzeiger – have signed an official partnership agreement known as the Leading European Newspaper Alliance which aims to exchange content via a shared platform, and conduct joint investigations.

In Germany, since 2015, eleven publishers, including Axel Springer, Bertelsmann Group, ProSiebenSat and Der Spiegel have been sharing the behavioural and socio-demographic data of their subscribers within Emetriq, a company created by Deutsche Telekom, in order to further refine their marketing strategies.

## #3 THE DIGITAL TRANSFORMATION IS RUNNING AT FULL THROTTLE IN THE FINANCE INDUSTRY OF DEVELOPED COUNTRIES: BUT WHERE IS IT HEADED?

*"So many hands to transform this world, and so few glances to contemplate it"*

*Julien Gracq, Lettrines*

The financial industry currently finds itself in a paradoxical situation: banking, insurance and asset management giants in the United States and Europe seem to have put the economic crisis behind them. Admittedly, some German banking groups (notably Deutsche Bank and Germany savings banks), as well as Italian banking groups (Monte Paschi di Siena) are still facing solvency problems, but overall major Western banks and insurance companies are showing that it is possible to thrive and generate historically high net earnings at a time of low rates and lacklustre economic growth. However, this better fortune in financial terms has occurred against a strong headwind full of threats in the longer term: customer distrust, especially private individuals, in respect of the financial sector as a whole.

Within this context, banks and insurance companies alike have embarked on a phase of massive investment for years, one that undoubtedly, has never been seen before in terms of the financial effort compared to revenues, with at times hundreds of millions of euros or dollars invested each year by companies with the deepest pockets to explore the most diverse fields, from the search for a new wave of automation of administrative processes to extracting and using data through the capital risk aspect of digitalisation, which is the purchase of financial startups, FinTechs.

With respect to quantity, the acceleration of investments in digital technology-related products in the broad sense is a reality. It remains to be seen where this racing car going at full throttle is headed and if employees the most exposed to changes in the finance profession will be collateral victims at the first sign of danger.

After a few reminders on the definition of "digitalisation" (1) and the major technical breakthroughs in the financial sector (2), this document will highlight the most visible investment priorities (big data, the new wave of robotisation and the connection with FinTech) to then question the changes in business models and opportunities for extending services (4), as well as the first implications on changes in the professions during the digital wave (5).

### #3.1 AN OVERVIEW OF DIGITAL TRANSFORMATION: A FEW DEFINITIONS

The notion of digitalisation of an activity historically covered the process of going from physical support to paperless support in an industry as well and the ensuing opportunities and risks created by this transformation. At times, digitalisation also covers a broader concept, namely not only the use of paperless supports, new services and technologies resulting from this transformation, but also new automation opportunities for all or part of the company's value chain through new software tools.

Digital technology is also an industrial sector at the upstream of the financial sector with its manufacturers of electrical components, IT equipment manufacturers, software editors and IT services companies. Last but not least, the digital transformation has caused new players to emerge: fast-growing giant companies, often posing as intermediaries between the traditional economy and customers. The Google, Apple, Facebook and Amazon quartet have changed the balance of power of the economy at such a speed that the acronym regrouping them, GAFA, has become the symbol of a cutting-edge American

economy that is in a strong position in the face of customers (only a few Chinese companies such as Alibaba and Tencent seem to be seeking a role as a long-term challenger).

The well-advanced process of transforming the economy as a whole through the digital transformation, has resulted in the appearance of a "law of impact": the richer an activity, a product or service is in terms of information, the more likely it is for the information to be transformed by the digitisation of the economy, by upsetting distribution, vulnerability risk to IT security problems, and especially through the danger of intermediation and customer relations being captured by a new economic player. Digitalisation has upset the balance of the film and music industry, whose productions are by definition pure information content. Logically, the financial sector, which is at the crossroads of information flows and monetary flows, is questioning the transformations to come.

### **#3.2 DIGITAL ACTIVISM: AN ABUNDANCE OF BREAKTHROUGHS IN DIGITAL TECHNIQUES AND DIVERSE INVESTMENT CHOICES FOR COMPANIES IN THE FINANCIAL SECTOR**

If the progress in new information and communication technologies appears to be a continuous flow since the 1960s (symbolised, for example, by Moore's law on the continuous and exponential gains in the speed and power of microprocessors), the current wave of digitalisation is different in its pervasive nature, that is, its capacity to influence the entire economy (from financial services to the automotive sector, from agriculture to heavy industry) through innovation clusters around technical breakthroughs or combinations of technologies: the Internet of things, the cloud, big data, artificial intelligence, 3-D printer, etc.

Since the dawn of the Internet, the banking sector has been searching to reach its customers through non-physical channels, but the emergence of a

mobility ecosystem largely centred around mobile applications has given a new thrust to the attempt to increase the frequency and intensity of customer relationship as well as data collection. For several years now, the financial sector has been investing in innovations such as facial recognition, artificial intelligence and big data (or data science): the capacity to store, analyse and increase the value of unprecedented volumes of data).

For insurance companies, they are focusing their interest on most of the above-mentioned breakthroughs, in addition to paying special attention to developments in self-driving vehicles due to the huge revenues and jobs volume linked to car insurance for private individuals.

Finally, with respect to asset management, it seems priority has been given to analysing market data and the automation of processes, while keeping an eye on possible breakthrough innovations that are capable of reducing cost significantly (for example, the Blockchain as a substitute for the depository function) or to significantly increase collection volumes by directly offering investment support on the Internet.

### **#3.3 THE CHOICE OF WEAPONS: DIGITAL INVESTMENT PRIORITIES OF COMPANIES IN THE FINANCIAL SECTOR**

The major investment phases for companies in the financial sector during the digital transformation reveal a marked increase as of 2010, which at times were a hotchpotch that spread itself thinly, in sharp contrast with the constant, long-term investment in IT infrastructure since the 1960s. This financial strategy of broadly exploring the possibilities of digital technology had one logic, however: on the one hand, banks and insurance companies ensured in particular that they never allowed any player capable of coming between established companies and customers to develop. In this respect, major banks systematically purchased bank account aggregators with the aim of



nipping in the bud (and at a low cost in the end) the possible emergence of a mobile financial data aggregation portal that would deprive banks and insurance companies of direct contact with private customers. On the other hand, in periods of peak uncertainty regarding the evolution of business models in the sector, betting on all emerging technologies was this safest means of backing the right horse, even if this led to many loss-making investments.

In the three main sectors using financial services (banking conglomerates, insurance and asset management), investments have started to be streamlined and to be grouped into four main families of digital technology-related programmes:

- ▶ The development of new services or new distribution channels through digital solutions, in particular mobile applications.
- ▶ Partnerships with digital ecosystems (such as the partnership between the insurer AXA and the Chinese e-commerce group Alibaba to explore the insertion of AXA insurance products in the global sales offer for goods, or partnership between banking groups and Apple with payment using mobile phones).
- ▶ Holding a stake or taking control of the digital innovation startup applied to finance and insurance.
- ▶ Last but not least, investment in innovations capable of improving the operational efficiency of the organisation with priority given to reducing structural costs (new wave of robotisation and automation and the use of artificial intelligence).

### **CLIENT AND MARKET DATA, THE PETROL OF THE DIGITAL REVOLUTION AND THE CHALLENGE OF FIGHTING BETWEEN PLAYERS**

One of the most profound new features that has appeared with the digitalisation of the world economy is the surge in data generation. Through objects or sensors or through commonplace actions of individuals, mankind is generating data at a time when

IT infrastructure makes it more expensive to store or transport it, and when data science must make it a raw material that is easy to be refined and for its value to be increased (sell it to third parties or use it to reduce one's expenses or increase one's revenues, for example, through more targeted marketing).

If data is the petrol of the digital revolution, all players systematically go on the offensive to be in a position to capture it: the GAFA-type digital giants, insurers with their connected objects, banks with their interactive applications ... and even car manufacturers. If Google has embarked on the project of a Google car, which is nevertheless a field far removed from its original identity as an Internet search engine giant, it is precisely because cars are places where people spend a considerable amount of time, and control of which would allow very pertinent data to be collected on individuals (journeys, areas of interest and day-to-day behaviour).

Data analysis generates as much hope on the part of financial services companies as it does fears by citizens regarding privacy. The banking sector is working to extract from it the means to refine its credit risk analysis (in August 2017, Ford Auto Credit announced a new data analysis tool that will be more effective than the classic credit analysis in analysing a borrower's default probability). Insurance companies invest in tools that improve marketing selection, price segmentation and fraud detection. Finally, big data seems particularly useful to the asset management industry, as much for customer knowledge as for improvements in its predictive capacity (predicting the American GDP by analysing satellite photos of car parks of Walmart supermarkets, predicting the short-term movements of financial markets by detecting weak signals). Customers' fear of being constantly observed is weighed against possibly accepting to provide their data in exchange for reductions in the price of products.

Nonetheless, there are limits to data stupor. The work on volumes of imperfect data (not reprocessed or standardised such as, for example, photos published

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on social networks) remains difficult and costly. The vast majority of data produced by the economy does not provide any pertinent additional information. Therefore, for an insurer, it is simpler to assess a driver's driving style using a box than by analysing photos on the Internet. The big data challenge for financial services is therefore as much a matter of capturing data as it is analytical capacity. In this game, most traditional companies are dominated by the ability of the GAFAs to collect data from customers that are constantly interacting with their systems.

**TOWARDS A NEW WAVE OF AUTOMATION AND ROBOTISATION THROUGH ARTIFICIAL INTELLIGENCE?**

The general economic context in the financial industry (low rates for an extended period, sluggish economic growth in Europe, the emergence of new players seeking to position themselves by interacting with customers of the banking and insurance sector) has resulted in aggressive structural cost and staff reduction plans being carried out.

The acceptance of self-service solutions (customers conducting operations themselves) is a major driver for automation and cost reduction. Interactive robots appear to be the new front line for substituting capital

with work, as a first step, for the simplest and most repetitive customer relations tasks. There are numerous reasons behind these robotisation plans. Firstly, using software solutions allows for scalable robotisation solutions: artificial intelligence systems are fixed investments whose costs vary slightly according to the volume of activity to be handled (i.e. they are scalable, which refers to an economic entity's ability to stabilise its costs while increasing its business volumes). From then on, once the investment cost is covered by a sufficient volume of activity and if it has a long enough lifespan, artificial intelligence solutions become factors for reducing unit costs in the financial sector. However, robotisation can increase the number of jobs in which there is direct interaction with customers on more value-added tasks, especially commercially. Because, even if the pre- and after-sales service becomes smoother, it still does not appear as if it will be easy to sell savings or insurance products at the click of a mouse and without human contact.

**FINTECHS: A RESEARCH & DEVELOPMENT OUTSOURCING PHENOMENON BY THE FINANCIAL SECTOR?**

Since 2016, it has been probable to say that the biggest investment wave in FinTechs worldwide is over. According to a study by KPMG conducted at the start



of 2017, the enthusiasm of 2015 (close to 900 investment operations in FinTechs through capital risk funds or direct acquisitions with a peak at \$25 billion of investment worldwide in the last quarter of 2015) has given way to prudence, except in Europe, where the capital risk industry remains active with a record amount of €600 million of investment in the third quarter of 2017. The prospects of the entry into force in 2018 of the directive on payment services and its commercial opportunities explain undoubtedly the continued high level of activity in Europe in FinTechs specialising in open banking (the sale of banking services by non-established players) and account aggregators.

Logically, FinTechs often give priority to strategies focusing on the most profitable links in the value chain such as payments in the banking sector or capturing customer relationships in the insurance sector. In the case of the insurance industry, recent studies by specialist firms agree that managing accidents offers the best prospects for insurtechs. In fact, accident management seems particularly buoyant: it is a business line which requires large human and financial resources that represent a significant portion of bonuses and for which innovation could improve the customer experience.

The strategic reaction of the financial sector in the face of the effervescence of startups in the financial sector has taken many forms. Acquisitions by banking giants motivated by the fact of refusing the risk of intermediation in the field of account aggregators have already been mentioned. Generally, financial companies view with suspicion FinTechs that can offer services for which they do not bear infrastructure costs or are not responsible for creating the services, a de facto possibility encouraged by the directive on payment services in Europe with respect to banks. Nonetheless, the FinTech wave may also be analysed as a phenomenon of the massive outsourcing by R&D departments of the financial sector. The traditional financial sector finances this research and development effort after the fact, at the time of the buyout. Staff contribution, however, is done prior to the fact: the major successes of FinTechs in the investment

banking business line (FinTech for regulating and evaluating complex banking products) were due the work of former employees of BFI subsidiaries of the major groups, who were well acquainted with the thorny aspects of customer relationship or activities with abnormally high margins where excess competition by FinTechs made exchanges seamless.

### **#3.4 THE CHALLENGE OF TRANSFORMING BUSINESS MODELS IN THE FINANCIAL SECTOR: PROMOTING A STRATEGY OF SERVICE EXTENSION?**

The financial sector remains above all an industry, and therefore with fixed costs and heavy investment in infrastructure and distribution network. This capital intensity that might serve as a barrier to entry in the context of a classic industrial economy, no doubt works fully to limit the impact of competition from FinTechs but may prove of little use in the face of the American behemoths of the digital economy that are not seeking to compete directly with the financial sector but to position themselves as intermediaries with private customers to concentrate on the most profitable segments, capture data and eventually move up the value chain, to the detriment of historical companies. While Amazon has launched a payment card and Apple is trying to get its customers into the habit of paying with a telephone, it is only a matter of time before these giants enter directly into the financial services.

Faced with this danger, major Western financial groups tend to be embarking on service extension strategies for the time being, while adjusting the distribution networks sometimes significantly. A service extension strategy consists in multiplying contact opportunities with high value-added customers, occasions that generate useful data. The aim is to avoid the risk of going between the company and the end customer by diversifying its activities. For example, for the major retail banks in France, the success of the banking and insurance model has encouraged most of the players to continue the effort of extending activities towards

intangible and multi-year services such as telephone-related, personal data or home protection services. For the major European insurance groups, the implementation of the service extension strategy revolves around capitalising on the experience of assistance subsidiaries to position themselves as future integrators of the connected house, care coordinators in cyber insurance and even as insurers of new risks (for example, cyber risks). The success of change management in this type of strategic movement is essential but may be facilitated through partnerships.

The advantage of this type of service extension strategy is that it is relatively favourable to employment in the financial sector: a physical distribution network may be preserved, new job opportunities may appear for employees who are well trained on average. But if the financial sector fails to reinforce the link with the customer, their attachment to brands and if it does not collect useful data, the danger of a major problem facing the industry may become clearer, notably for distribution networks, with as a consequence, complex transitions in terms of human resources.

### **#3.5 THE SIGNIFICANCE OF HUMANS: FINANCIAL SERVICES JOBS IN THE FACE OF THE DIGITAL TRANSFORMATION**

The development of digital technologies in the financial sector has already allowed some inevitable trends to be identified; these are not necessarily always negative with respect to employment and working conditions. Simple and repetitive tasks, as well as quantified data processing functions, or indeed analysis work would be done by automated systems beyond what they are today. However, in a complex world and in the face of savvy customers who nonetheless still seek advice, the fear of an employee-customer interaction being replaced

completely by digital technology is yet to be confirmed. Furthermore, numerous research studies have highlighted the increasing complexity of jobs in the digital age, with the rising increase in the request for analytical and interpersonal skills as well as transversal skills (project management, the ability to communicate and working as a team). The ability to be equal to the task at crucial moments of customer relations (the chain that goes from making contact to disbursement of the home loan) or in leading internal projects requiring trust, general knowledge or creativity (not to mention basic courtesy), which cannot be digitalised.

### **#3.6 CONCLUSION: RESTORING THE LONG-TERM INVESTMENT PROSPECT, CREATING THE HUMAN REVOLUTION IN THE DIGITAL TRANSFORMATION**

Digital activism and the acceleration of projects, as well as in spending in the Western financial sector were undoubtedly prerequisites for mobilising employees and for having an in-depth understanding of the challenge. However, the financial importance of investments must only be the tool to serve a strategic purpose: the path towards a final business model identified by stakeholders. The strategic offensives of the giants of the financial sector towards service extension have the merit of appearing to be a response in line with the ideals of the digital strategy (maintaining a strong relationship with customers, data collection and relying on brand power), while offering development prospects for network distributions and mobility for employees. However, it is about a more complex investment in human capital than putting into place a cost reduction plan. But, in service organisations, which have little protection through patents, the ability of their staff to be creative and motivated makes as much difference as the weight of investment in physical capital.

## #4 DIGITALISATION AND AUTOMATION: WHAT IMPACT ON JOBS IN THE COMMERCE SECTOR?

Spurred by new technologies, which are revolutionising consumer habits, the retail trade has been undergoing rapid and far-reaching changes for a number of years. Players now face the challenges of omnichannel and international commerce in all their different facets.

With the use of new technologies, brands and retail workers alike must cope with a new organisational problem: do new technologies destroy jobs? What is the right balance between sustainable working conditions and improved economic performance? Do opportunities exist with respect to the evolutions in job in the commerce sector? Must workers always be increasingly adaptable and obey computer programmes? These challenges require the involvement of staff representatives as well as employers, which have a direct responsibility for their employees' health.

### #4.1 AN OVERALL VIEW OF THE EVOLUTION AND IMPACT OF E-COMMERCE ON RETAIL COMMERCE IN EUROPE

#### E-COMMERCE: A FAST-GROWING MARKET

The growth of e-commerce has been buoyed by widespread access to the Internet, the normalisation of buying online and increased confidence with respect to digital payments.

- ▶ The sector is booming: +14.6% in France, +15% in Poland and +27% in Romania (2016). At the global level, among the 50 largest e-commerce players, only 12 are not among the 250 largest distributors worldwide.
- ▶ The main transactions include electrical appliances, consumer electronics and fashion ac-

cessories. Food distribution is also experiencing strong growth.

- ▶ The trend is increased globalisation. One of the first motivations of purchasing online is the unavailability of a product in the geographical environment close to the consumer. According to a PayPal-IPSOS study, 25% of transactions are cross border.

The size of the different national markets still varies significantly from one country to the other, reflecting the differences in purchasing power.

- ▶ The main markets are the United Kingdom, Germany, France and Spain. Distance selling represents 6% of retail commerce in France (€29 bn), compared with 3% in Spain (€16.3 bn) and in Poland (€7 bn).
- ▶ In France, each online buyer spends on average €2,000 per year, compared with €876 in Spain. In Romania, the average value of a transaction is €40 for online Romanian shops and €58 for shops based abroad.

Consumption patterns also vary but the trend is towards harmonisation

- ▶ In Romania, 90% of purchases are still paid when products are received, while in Spain 60% of purchases are done by card.
- ▶ Payments using mobile phone are developing spectacularly everywhere. In France, they represented €6.4 bn in 2015.
- ▶ The respective share of home delivery, collection in pick-up points or in stores also vary.

#### THERE ARE 3 MAJOR ONLINE RETAILER PROFILES

Traditional distance-selling companies: They are progressively becoming full web companies, but have been late in shifting to the Internet and they have a rather ageing clientele. In fact, their revenues have been falling since 2005 and the major players of the sector have been undergoing almost constant restructuring for a number of years.





The pure players: They dominate the e-commerce for private individuals and rely on lighter infrastructure than that of shops, which allows them to practice a more aggressive pricing policy.

They may be grouped into four categories: The generalist online retailers (Cdiscount) or multi-specialists, the specialist online retailers (LDLC, Oscaro, Allopage), pioneering marketplaces (eBay, Price-minister), which play the role of trusted third party between the buyer and seller, and the organisers of sales events (Vente-privée, Showroomprive).

The clicks and mortar: these are traditional businesses, with a physical location. Their online sales represent a small fraction of their total activity, but today, almost all of them have online stores. Through the strong awareness of their physical shops, they are able to reduce the cost of acquiring customers on the Internet.

A pure player in Europe, Amazon has become a click and mortar in the USA with the purchase of Whole Foods in 2017.

It is a more profitable economic model than that of the pure players as it redirects online customers towards their stores, where the conversion rate far exceeds that of the Internet.

This web-to-store plan rests on in-store pickup, online reservation services, etc., without counting the

traditional presence of sellers, after sales service, physical access to the product, etc., which allow them to earn the loyalty of customers. Furthermore, they have powerful purchasing cooperatives, which encourages attractive prices.

The development strategies on the Internet for these physical stores are varied: centralisation of stocks, buyout of pure players to have turnkey performance, as well as market presence.

## **#4.2 NEW TECHNOLOGIES AND THE CHALLENGES OF OMNICHANNEL COMMERCE**

Managing the supply chain and customer experience are at the heart of the trade of commerce players that have now become international and operate across omnichannels. For this reason, brands use new technologies to streamline the buying process and avoid all sticking points (out of stock, in-store waiting time, delivery time, product traceability, customer service quality, etc.).

In fact, digitalisation is becoming widespread within the distribution networks through the implementation of automatic pay stations, digital terminals, application for tracking the location of articles in stores, etc. Other services are being tested: reserving checkout time, automatic shopping trolleys and connected aisles. These practices are progressively revolutionising how work is organised in shops; they



also modify the activity of operators with respect to checkout and shelving, as well as tasks done prior to placing an order.

Furthermore, managing stocks and references conditions how smoothly the omnichannel buying process flows. The crossing of sales channels allows brands to increase their visibility and broaden purchasing options and delivery for its customers. Market leaders are, therefore, increasingly adopting the click-and-mortar strategy. Since 2015 there have been many mergers between physical commerce players and pure players: Carrefour and Rue du Commerce, Walmart and Jet.com, Amazon and Whole Foods, etc.

At the same time, the development of big data, artificial intelligence and connected objects is in keeping with adapting the supply chain to new forms of trade. These technologies meet the challenge of being responsive, by anticipating volumes, managing flows, product traceability, etc., as well as that of optimising the use of labour in the face of the activity's needs.

Warehouse work is also changing in the face of last-mile delivery challenges, as well as those of automation. In fact, robotization is becoming widespread in many countries: France (Décathlon), Germany (Otto), the United States (Amazon), China (Alibaba), etc. the degree of automation varies according to company strategy and location. The impact on employment may also vary.

In most cases, economic profitability in the face of market changes explains the use of new technologies. However, other organisational and social elements are to be considered. Dialogue between management and EWC is, therefore, desirable to ensure the balance between economic performance and working conditions because applying new technologies in business is not without effect on the health of employees in the commerce sector.

### #4.3 DOMINO EFFECT OF DIGITALISATION AND AUTOMATION ON WAREHOUSES, LOGISTICS AND SHOPS

#### AUTOMATION DIFFERS FROM ONE STORE TO ANOTHER

The use of automation/mechanisation in warehouses varies from one company to another depending on many factors: volumes, flow linearity, types and forms of products.

The level of equipment differs depending on the stores... but the trend is still the same: increasing use of automation.

Recent studies conducted by the OECD demonstrate that 9% of jobs in Europe are at a high risk of being fully automated, in particularly in commerce and

#### WAREHOUSE AUTOMATION OF A BELGIAN DISTRIBUTOR: EXAMPLES OF THE IMPACT ON WORKING CONDITIONS

- ▶ In some warehouses parcels are assembled by robots. Management failed to follow the recommendations of the builder by placing very heavy pallets high up on the shelves. Vegetables have fallen on workers, injuring some of them.
- ▶ Voice Picking, an automated voice that gives instructions to workers regarding the products to collect, causes headaches and generates a feeling of danger because the ambient noise drowns out the automated voice.
- ▶ Tests are being conducted on GPS-guided automated trolleys, but workers observe that they are not fully able to detect a body on the ground and that these trolleys sometimes encroach on the walkways reserved for pedestrians

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

warehouse, areas characterised by a high number of professions with repetitive tasks.

In broad outline, there are two approaches to automation:

- ▶ "Impressionist" mechanisation: the process of gradually substituting manual tasks with robots.
- ▶ It corresponds to progressively substituting manual tasks with mechanised tasks without necessarily significantly revising how the flow of goods is managed. Furthermore, it is difficult to mechanise the management of some types of products (e.g. unusual formats).
- ▶ "Radical" automation: a massive, global and radical change in how the flow of goods is managed in warehouses. Managing goods is considered entirely around automated processes.

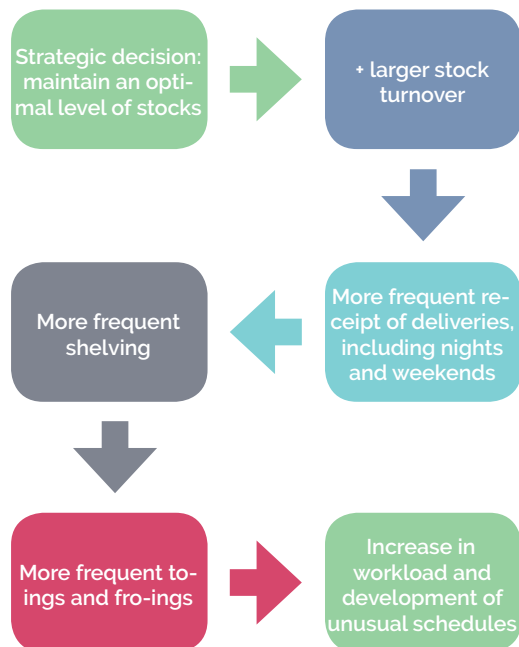
The «radical automation» solutions seem to be deployed mainly in the construction of new warehouses. Will these new warehouses replace other obsolete ones or will they complement the current capacity? Is there a transfer of jobs? What are the new working conditions? These are important questions that EWC and works councils must raise with management.

### NEW TECHNOLOGIES AND WORKLOAD: THE EXAMPLE OF RFID AND STOCK MANAGEMENT

RFID (radio frequency identification) technology automates the follow-up of goods throughout the supply chain, from the warehouse to the shop, by replacing the process by employees of manually digitising the products. It is also used on labels (especially for clothing and food) to reduce traffic at checkout. Retailers are betting on RFID to make stock management as precise as possible, which is crucial for a solvent retail selling operation, to take it to new heights <sup>1</sup>.

<sup>1</sup> <https://www.forbes.com/sites/barbarathau/2017/05/15/is-the-rfid-retail-revolution-finally-here-a-macys-case-study/#1fd510de3294>

Although it is difficult to calculate the number of jobs negatively affected by RFID, it is, however, possible to analyse its impact on workload:



A level of stock as low as possible (to avoid being out of stock) for a given revenue means greater stock turnover. Beyond putting pressure on supplies, this translates into more frequent shelving, more frequent to-ing and fro-ing with storage sites, into a more significant workload for many categories of workers and potentially, into increasing pressure to sell certain products (with the objective of rotating the stock of all products on the shelves).

### #4.4 CONCLUSION: NEW TECHNOLOGIES HAVE AN IMPACT ON WORKING CONDITIONS, EMPLOYMENT AND PROFESSIONS

#### EMPLOYMENT

Automation may be accompanied by a reduction in employment, notably with respect to warehouse work. To a certain extent, the use of automation in some cases improves working conditions and lessens some drudgery-related factors such as musculoskeletal disorders.

## WORKING CONDITIONS

The reverse is also possible because new health and safety risks at work appear. There could be a marked increase in workers' lack or loss of control of their job (in favour of robots) and their work becoming increasingly dense <sup>1</sup>. These elements could trigger psychosocial risks and therefore, absenteeism.

## CHANGES IN JOB ENTAILMENT

Commerce jobs have changed with respect to what they entail and are now more taking on a social interaction and problem-solving dimension - tasks that are difficult to automate. Within this context, it seems necessary to analyse the impact of digitalisation on employability and wages.

## NEW EMPLOYMENT MANAGEMENT MODEL

These changes imply visible modifications to the skills map, which underline the need for an in-depth reflection with social partners on implementing forward-looking jobs and skills management that is in keeping with the strategic orientations of the company.

To answer to these fundamental questions for workers in the commerce sector, EWC members can question management about the changes with respect to production and employment. Syndex recommends that in-depth impact assessments be conducted to anticipate the changes and guarantee that employees of the company are employable.

Within the context of the widespread use of new technologies within the commerce sector, the action and risk prevention plans of social partners should tackle many questions:

- ▶ What impact do digitalisation and robotization have on employment and job entailment within your company?
- ▶ How do you support employees in a career path of the future? What training for what guarantee?
- ▶ How do you simultaneously improve economic performance and working conditions?
- ▶ How is the company's organisation changing in the face of new technologies?
- ▶ How do you adjust organisation and working conditions internationally while avoiding the disparities between countries?

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<sup>1</sup> The increase in work density corresponds to a situation in which the employee's pace of work does not change, but they spend more time at their workstation. In many restructuring, the so-called lean manufacturing is at work, that is, a work organisation that "tracks" movements or time considered unproductive. In other words, it is about increasing the number of "productive operations" in a single work sequence.



**POINTS TO BE MONITORED**

- ① Employability and career path
- ② Working conditions
- ③ Evolution of wages
- ④ Vocational training
- ⑤ Evolution in agreements
- ⑥ Employee representation

**Management challenges and strategies : what impact on workers?**

| Challenges for the employer   | Strategies adopted   | Potential risks for employees  |
|---|--|--|
| Agility and responsiveness in the face of competitors and the constraints of economic profitability | Adopting new work organisation modes                                       | Change in the workload ②   |
|   | Using new technologies   | Insufficient vocational training ④                                   |
|   | Search for productivity gains  | Cost optimisation and repercussions on wage changes ③                |
|   | Automation   | Work becoming more intense and dense ②                               |
|   | Outsourcing  | Reclassification difficulty within or outside of the company ①       |
|   | Increased use of precarious contracts (temporary and fixed-term contracts) | Increased job precariousness ①                                       |
| Acquisition of new skills   | Hiring or training   | Change of career path, or remain employable ①                        |
|   |  | Accentuation of income inequalities (new skills over valued) ③       |
|   | Acquisition / Concentration  | Changes in the scope of employee representation ⑥                    |
|   |  | Levelling through agreements and benefits ⑤                          |
|   |  | Cutting «duplicate» posts and the risk of being understaffed ① and ② |

## #5 DIGITAL DEVELOPMENT AND CALL CENTRES

Historically, contact centres were internal company departments whose main purpose was to handle customer relations via telephone. In addition to outsourcing, globalisation and technological innovations have led to a shift in this industry:

- ▶ Relocation of centres (offshoring or nearshoring) to countries where labour is less expensive
- ▶ New means of communication: move from call centres to contact centres using chat solutions, webcalls or interactions via social media
- ▶ Finer management of performance and interactions through 'big data'.

Many 'key performance indicators' (KPIs) are used such as pick-up rates, wait times, average handling times, resolution rates on first call, customer satisfaction level, etc. Employee performance is closely scrutinised through the measurement of communication times or latency, as well as through post-call satisfaction surveys and the above indicators allow employers to intensify work and reduce downtime.

Increasingly, criteria other than speed of handling and customer satisfaction are assessed, for example, the ability to transfer the contact to self service tools or 'self care' (client area, FAQs, online communities, etc.), encouraging the customer to find an answer themselves on the Internet. Other key criteria today include the cross-channel promotion rate, which aims to encourage customers to make greater use of digital channels, or the conversion or bounce rate which target selling.

The purpose of processing this mass of information is to transform the nature of contact centres, which were formerly only considered as cost centres. Employees are now in the front line in terms of managing customer behaviour and have a more marketing-focused role, which means more work, more complex tasks and closer monitoring of their actions.

### #5.1 FROM CALL CENTRES TO MULTI-CHANNEL CONTACT CENTRES

In a study entitled 'The Digital Evolution Journey of the Contact Centre', BearingPoint highlights six technologies that are enabling the shift from traditional call centres to the enhanced contact centres or 'interactive engagement centres' that are transforming the industry:

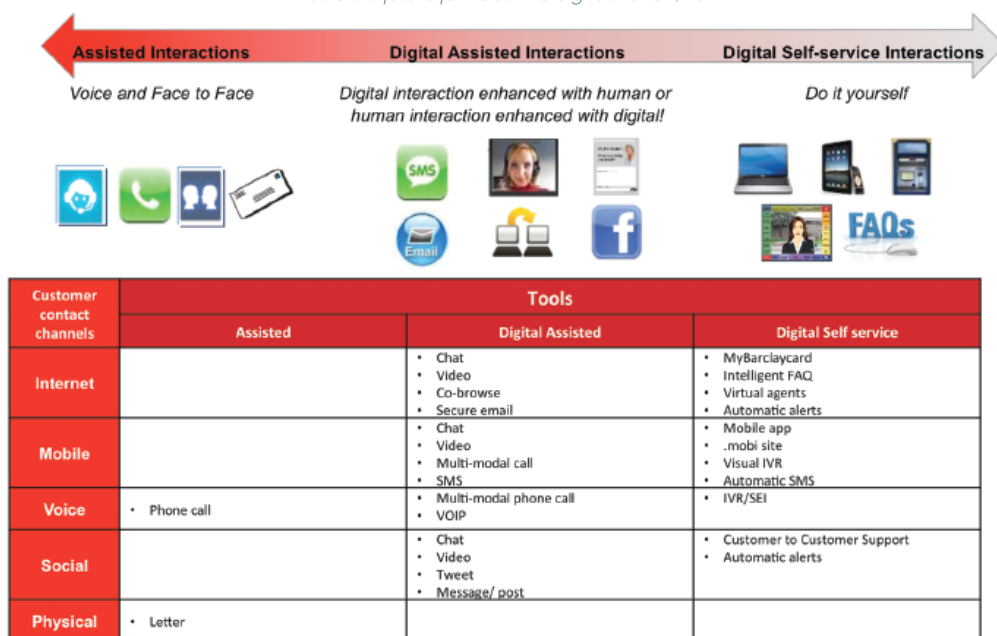
- ▶ Intelligent FAQ: The customer searches for the information himself on an FAQ (Frequently Asked Questions) page and may be helped by a virtual assistant, or 'bot'. This approach reduces customer calls on less complex issues.
- ▶ Intelligent live chat: This type of chat system differs from traditional chat in that it has access to detailed information about the client (background, history, etc.). This approach reduces customer calls for less complex issues, increases the number of queries that can be handled simultaneously by an agent, and is compatible with other systems such as video or voice exchange.
- ▶ Video chat: The use of video applications, such as Skype or Facetime is improving customer satisfaction by allowing customers to have a real face-to-face interaction. This innovation is sometimes costly but can lead to better results for the resolution of complex matters.
- ▶ Co-browsing: Internet browsing is assisted by the agent who can take control of the customer's machine if necessary. This practice may give rise to security concerns, but it is a way to assist and educate users who are unfamiliar with digital technology.
- ▶ Social CRM: Companies interact with the customer in an environment with which they are already familiar. Interaction is live via social media.
- ▶ Mobile: App, visual interactive voice server, chat (text, voice, video), etc. Mobile technology offers many solutions enabling self resolution with assistance.



## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

### The digital evolution of call centres

Source: BearingPoint, "The Digital Evolution Journey of the Contact Centre. What is the future for voice in a digital world?", 2012.



These six technologies are grouped below according to the level of human and/or digital assistance that they provide:

- ▶ Assisted interactions
- ▶ Digital assisted interactions
- ▶ Digital self-service interactions.

The level of assistance must be astutely chosen and the transition to digital self-service interactions is not possible for all customer contacts:

- ▶ Human contact must be maintained for missing products, complaints or account closing for example;
- ▶ Product repairs or returns can be handled through digital assisted interactions;
- ▶ Finally, invoice payments, reservations or changes to subscriptions can be self service.

Teleperformance, the world leader in call centres, considers that artificial intelligence is helping to develop at least three types of tools that are useful to its business:

- ▶ Deep learning which is now very effective in certain fields such as image recognition, connected cars and voice recognition. The volume of data available has led to major progress in this area.

- ▶ Natural Language Processing has evolved from rule-based models to statistical models. Companies such as Microsoft, Apple and Google began focusing strongly on this aspect in 2016. Facebook considers that this technology should be the next step in terms of interface.
- ▶ Robotic process automation refers to the use of software that automates processes without constantly requiring human supervision. Repetitive tasks can be automated in this way.

Teleperformance is, however, aware that artificial intelligence is not the answer to everything and that, in some cases, its effectiveness remains low (see opposite page).

This has not prevented Teleperformance from adopting a multi-channel offering based on the use of artificial intelligence wherever possible.

## #5.2 A GOAL OF COST REDUCTION...

Cost reduction is highlighted in all studies addressing the rise of digital technology. Indeed, while an operator can only devote his time to one client at a

Bot effectiveness in various situations

Already digital?

| Query Type          | Description and Example  | Bot Effectiveness   |   |
|---------------------|--|---|---|
| Factoid             | The customer types a generic question about a product or service. (Ex: What is the interest rate of the checking account?) | High. Bot can point to a proper FAQ. QA technology works best here.   | Y |
| Relationship Fact   | Question about some fact that is specific to the customer. (Ex: What is the balance of my credit card?)                    | High. Bot can support the navigation in the site or app. We can consider these questions, navigation questions.   | Y |
| Claim               | The customer wants to file a claim. (Ex: I want to submit a claim because you charged me for an unsolicited card)          | Medium. Bot needs to collect the text of the claim and provide the customer with a claim ID.  | Y |
| Transaction Request | Customer requires a transaction. (Ex: I want to cancel my debit card).   | Medium to low. Requires the bot to enter into a scripted dialog, <u>which is less effective than a form</u> . In some situations companies prefer that commercial staff run these interactions. | Y |
| Diagnose            | There is something the customer does not understand. (Ex: I canceled the direct debit but still I was charged. How come?)  | Low to none. Requires to understand the customer issue and to diagnose it. Sometimes it is also difficult to realize why the customer does not understand.                                      | N |

Source: Teleperformance. Investor Day. 19 January 2017

time during a call, he or she can potentially handle requests from several clients at once during a chat session. Better yet, if the company develops a sufficiently comprehensive intelligent FAQ, all non-complex requests can be handled without an agent.

McKinsey assessed the cost of various modes of communication by comparing them to a traditional call centre: the cost of a chat service was 56% that of a call centre, forums and FAQs 12%, and creating a collaborative customer-community chat room only 9%.

These elements must be seen in the context of the gradually increasing share that these modes of communication represent in the activities of contact centres. It was probably using an analysis based on figures of this order that the leaders of Bouygues implemented the low-cost B & You telecoms offer – the personnel costs generated by managing a community of customers are obviously lower than those of a conventional call platform.

This is what prompts contact centres to favour these modes of communication, even though their effectiveness may be questioned. Indeed, without establishing a direct correlation between the two trends, it can be seen from the Dimension Data study that, in

parallel with the drop in telephony as a communication channel, customer satisfaction has been steadily declining for several years (82% in 2011 against 78% in 2014).

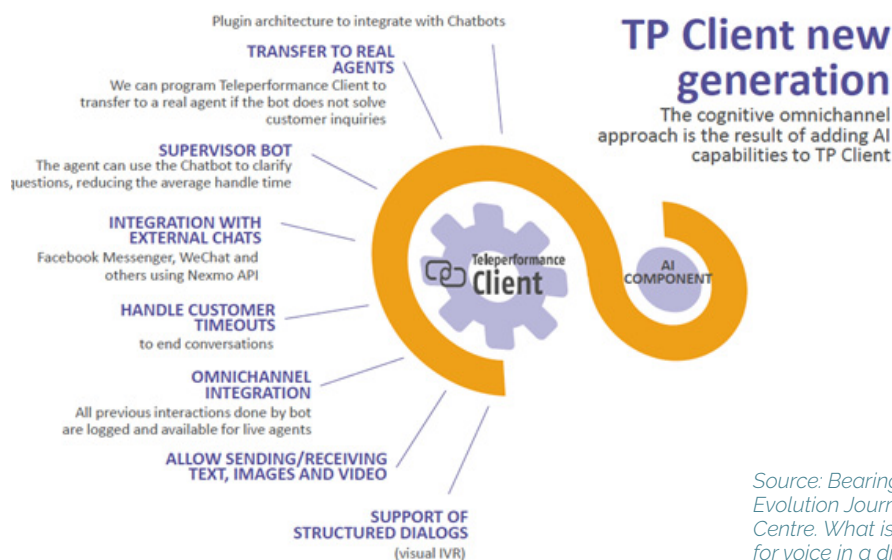
### #5.3 REMOTENESS BETWEEN CLIENT AND AGENT

One of the cost reduction strategies suggested by McKinsey focuses on the customer's journey through the various channels: he would start by looking for the solution himself via a FAQ (no human contact with either an operator or with the community); in failing to find a solution, he would then turn to a discussion forum (human contact with the community, possibly with an operator), and if a solution has still not been found, he would then contact an agent via a more traditional method, such as chat or by calling.

According to Dimension Data, such a strategy represents a major shift. It expects digital channels, that is, non-voice channels, to account for a major share by 2017.

The aim of the strategy is to delay the customer's contact with an operator as long as possible: the customer is the sole person involved in solving his problem in the early stages and turns to a contact

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY



centre only as a last resort, possibly after requesting assistance from clients in the community.

This phenomenon of customers working for free exists in many sectors of business. In creative environments, crowdsourcing is widely used, particularly via a number of extremely controversial platforms such as Wilogo, which invites its users to pit its 37,000 graphic designers against one another for logo design, web design and so on. The issue of compensation for work is worrying – while thousands of graphic designers sometimes submit projects, only the ‘winner’ is compensated with a derisory reward.

With contact centres, a similar reasoning is being applied, since they make use of communities of customers – who are often attached to the community owner’s brand – through low-cost platforms, to solve the problems of other clients. This thus raises doubt over the interest that these companies may have in maintaining their employment levels in the future.

### #5.4 THE IDEAL DIGITAL STRATEGY: NO WALLS AND NO EMPLOYEES?

More and more companies are proposing to integrate all customer services within a single digital platform.

This type of technology is being used, for example, in the collaboration between HP and Avaya. The CCaaS (Contact Center as a Service) solution that they offer ensures the digital delivery of their services and the unified management of all the desired modes of communication.

HP and Avaya are even proposing to push the digital transition even further, by making this solution Cloud-based. There is therefore the opportunity for contact centres to be fully housed in the non-physical, digital space that we call the Cloud.

Companies would no longer even need to own or lease a building for their employees, who would have access to the company’s services from any workstation with an internet connection.

The concomitance between businesses operating outside the confines of the organisation, potentially in an indefinite digital space, and the ability to automate increasingly complex tasks, therefore raise serious concerns about the future for employees in the digitised contact centre industry.

## #6 DEVELOPMENT OF THE DIGITAL SECTOR AND THE EXPRESS MAIL AND PARCEL DELIVERY SECTOR

### #6.1 A FRAGMENTED SECTOR AT THE EUROPEAN LEVEL, BUT ALSO A SECTOR THAT IS PARTIALLY CONCENTRATED OR AT THE CONSOLIDATION PHASE DEPENDING ON MARKET SEGMENT

#### A SECTOR THAT HAS ITS ROOTS IN HISTORY

The express mail and parcel (under 30 kg) transportation sector is a very capital-intensive sector. Its current structure developed over time, but picked up speed as from the second half of the twentieth century. There are five categories of players:

- ▶ The powerful incumbent national postal operators – La Poste, Deutsche Post, Royal Mail, Post NL and all the national postal services in Europe, who cater to the postal market as well as the express or deferred parcel delivery market;
- ▶ Major international integrators: UPS, FEDEX/TNT, DHL (Deutsche Post group), specialised in the shipping of transcontinental parcels;
- ▶ National or European «challengers» with an integrated or collaborative network: GLS; Hermes/Mondial Relais; Eurodis (including Ciblex, SDA Express, Transoflex and UK mail), specialised in European national and intracontinental shipping;
- ▶ National or local players: Bartolini (IT), TIPSA (ES), Inpost (POL) exclusively present on their domestic markets, except when they create partnerships;
- ▶ Newcomers: Amazon, disruptive new start-ups, the insourcing of a share of transportation by loaders.

One of the consequences of the large number of players involved is the search for a strategy of mas-

sification of volumes that will bring down prices for some, while other players are seeking to specialise in high-profit niche markets (B-to-B of SMEs: transportation of specialised products -health, food, etc.).

#### POSSIBLE EMERGENCE OF PHENOMENA OF DISTORTION AMONG PLAYERS

- ▶ Either through the search for quick increases in market share for disruptive new entrants financed by risk capital with little short-term profitability prospects;
- ▶ Or by a phenomenon of downward pressure on prices by national postal operators who benefit from economic rent on complementary markets: for example, the high price of stamps in Germany enables Deutsche Post to be very competitive on the parcel and Express market with DHL.

Express operators are also subject to the phenomena of web comparators with respect to C2X services: the development of these comparators, sites selecting carriers based on personal characteristics, delivery times and destination are forcing carriers to integrate these new specifiers into the multichannel sales strategy (web, professional salesforce, post offices for national postal operators, etc.).

### #6.2 CURRENT TRENDS ON THE EXPRESS PARCEL DELIVERY MARKET

#### FUNDAMENTAL SHIFTS: DROP IN POSTAL CONSIGNMENTS AND INCREASE IN E-COMMERCE

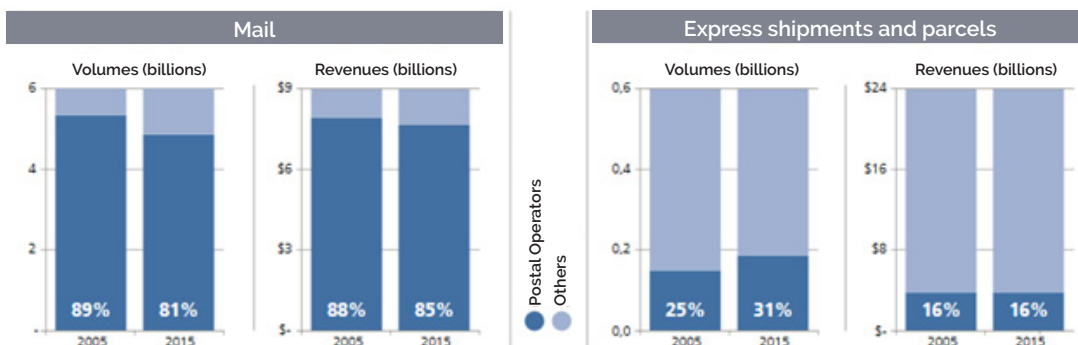
Decline of the traditional direct and indirect postal consignments as a result of increasing digitalisation (electronic billing and contracts, development of customer relation management applications, mass mailing, etc.).

- ▶ Drop in the growth rate of the B to B express parcel business as a result of sluggish economic growth.



**Evolution of letter and parcel shipments in Europe**

Sources: UPU/Adrenale et divers dans UPU – Research on postal markets – July 2016



- ▶ Fast development of B-to-C transactions as a result of e-commerce and cross-border trade within the European Union. E-commerce and B-to-C are driving the market: 12% of the trade in international goods come follow an online purchase.
- ▶ Sharp increase in the parcel market estimated at \$260 billion in 2015 (UPU – Research on postal markets – July 2016).

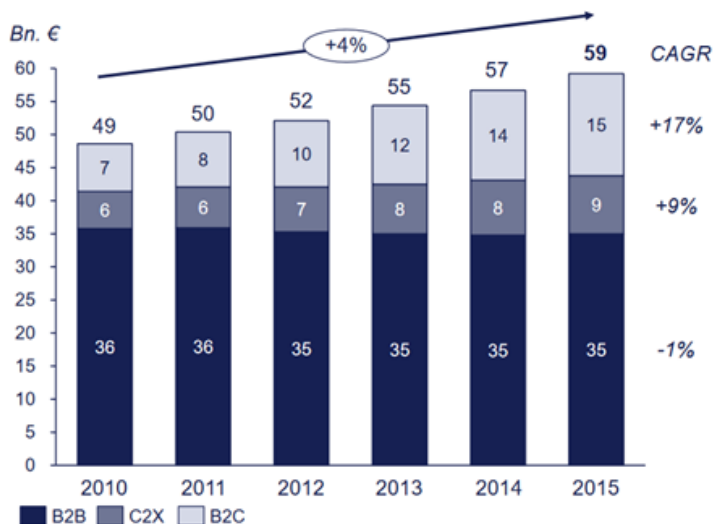
- ▶ that continues to provide two-day delivery as the standard time for deferred delivery. However, Coliposte, the main player of the B-to-C sector, is preparing its conversion to next-day delivery.
- ▶ Tightening of delivery deadlines under the impetus of new entrants and major e-commerce players: Same-day delivery or two-hour delivery, new offerings on the food delivery market.
- ▶ Development of cross-border commerce, in particular in small countries that do not have storage warehouses and platforms. 73% of vendors prefer to sell directly from their country of origin rather than through a local branch (source: E-commerce Europe study «Barriers to Growth»).

**THESE GENERAL CHANGES TO THE MARKET HAVE LED TO CHANGES IN THE BUSINESS AND THE EXPRESS PARCEL DELIVERY MARKET**

- ▶ Spread of next day delivery in Europe, under pressure from clients. France is the only country
- ▶ Increased complexity of last-mile management and search for the reduction of undelivered

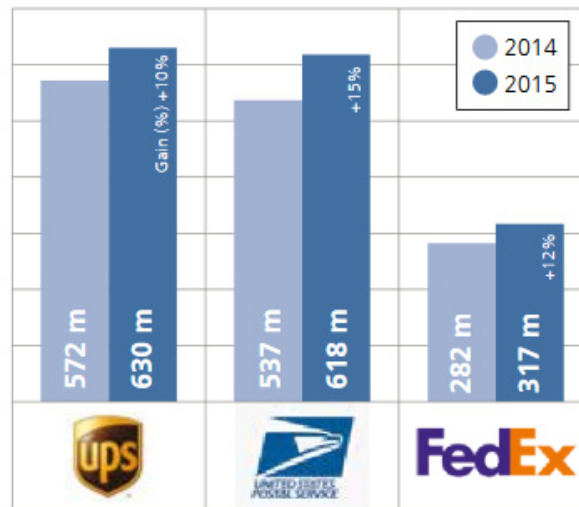
**Changes in the European Express parcel market (billions of euros)**

Sources: GLS – Company Overview – June 2016



## Express shipments and parcels distributed at the end of the year

Source: UPU - The Wall Street Journal



letters held at the post office: development of pick-up point delivery or lockers, optimisation of delivery rounds, delivery appointment management application.

- ▶ New product returns offering, in particular for clothing and accessory items. The possibility of returning products is a way of removing barriers to e-commerce and an accelerator of online purchasing.
- ▶ Delivery during non-working hours, especially on Sundays, under pressure by retailers: delivery mode that first started in the United Kingdom and has spread to Europe.
- ▶ High seasonality and daily peaks of activity: Increase in the amplitude of volumes processed during high-production periods (end-of-year holidays, day after public holidays, etc.).
- ▶ Tensions in the relations between carriers with the development of e-commerce and the weight of e-merchants.

### #6.3 THE TRENDS OBSERVED ON THE MARKET OBLIGE COMPANIES TO ADAPT THEIR OFFERINGS TO THE NEW DEMANDS

Trade contributes to digitalisation and globalisation movements since some 360 million people carried

out at least one on-line purchase from an e-merchant outside their country of residence in 2015.

### EXPECTATIONS OF END USERS

The requirements of B-to-C buyers, which are much more than B-to-B and C-to-X requirements, have increased with the apparent ease of online purchasing. These requirements also concern warranties and the quality of delivery, after the choice of products (breadth and depth of ranges of websites and marketplaces) and payment security.

Thus, when it comes to delivery, end buyers expect the same simplicity as that offered for choosing and paying on the e-merchant's web site. For express parcel delivery carriers, this consists in:

- ▶ Proposing the smallest delivery slots possible, or even by appointment (Predict by the DPD group, MyChoice by UPS, FlexDelivery Service by GLS, etc.) and the possibility of changing the time and point of delivery;
- ▶ Proposing a pick-up option (Mondial Relais, Relais PickUp La Poste, etc.);
- ▶ Proposing precise and regular tracking of the parcel delivery stages - track and trace- through smartphone apps, websites web, text messaging, or even social networks, direct after-sales support.

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

The express delivery business is a challenge that is being reinforced with the development of online commerce and distance selling. The user experience depends a lot on the delivery service.

Although transportation is a key link in the online commerce value chains, customers see the service as a whole and are reluctant to pay the transport service specifically. This leads to tense negotiations, prices pushed downwards in B-to-C and a requirement of quality of service (deadlines, prices) and increased control of the quality of the transportation chain.



Source: UPS – Pulse of the online Shopper – Digital Evolution

### DEMANDS OF B TO B-C SHIPPER CLIENTS

Carriers must demonstrate their added value with respect to e-merchants:

- ▶ By inciting e-merchants to entrust them with volumes, all the while maintaining their quality of service, in particular during delivery peaks. The processing of e-commerce volumes over a short period has become a specific requirement that all express delivery operators cannot meet without capping volumes;
- ▶ For the larger shippers with logistics capability, offer solutions of direct injection into the network of express delivery operators to reduce collection costs;
- ▶ Offer cross-border transportation solutions by road in Europe or by air for transcontinental deliveries, in particular by setting up flexible but reliable management systems that are interoperable among carriers (for the non-integrated ones);
- ▶ Guarantee the smoothness and end-to-end traceability of data, in particular for non-integrated operators and in cross-border transportation,

where there are still some deficiencies. This involves the standardisation of communication modes along the parcel processing chain, which can be complex.

## #6.4 DIGITALISATION AS A MEANS OF IMPROVING THE OFFERING AND MORE PRODUCTIVE INDUSTRIAL PROCESSES

The new digital technologies and their penetration into the parcel and express delivery sector can be summed up in the table on the next page.

## #6.5 EVOLUTION OF JOBS AND WORKING CONDITIONS

### TOWARDS GREATER FLEXIBILITY

Express delivery operators have a high fixed cost structure related to the maintenance and development of their network (agencies, sorting hubs, etc.) that has to be dimensioned to ensure the processing of volumes with large variations. They make up for this cost structure by increasing their use of subcontractors and temporary personnel. This enables them to adjust their variable costs to the volumes distributed in a context where the development of e-commerce and B-to-C lead to high peaks in activity.

These operators are therefore only the tip and visible part of the sector. In most European countries, the sector is also made up of many subcontractors with few employees or sole proprietor businesses or with one employee.

The main drivers of this flexibility (subcontracting and temporary personnel) are:

- ▶ The desire to outsource part of the management of resources and equipment to adapt to fluctuations of the activity and to «delegate» the treatment of flexibility or employment insecurity;
- ▶ Economies of scale linked to the stability of costs up to a certain threshold of volumes

## Industrial process

| Technologies   | Applications   | Deadline  |
|--|--|---|
| Social networks  | Multi-channel customer experience<br>Management of stakeholder communities (customers, subcontractors, occasional service providers) | Exists, in progress<br>Deployment in progress   |
| Robotics   | Automation of sorting<br>Processing of non-standard parcels<br>First-level after-sales service in call centre                        | Exists, under development<br>Exists<br>Exists   |
| Geolocation  | Round optimisation<br>Inter-site tracking (between sender, warehouse, agency, sorting centre, agency, final destination)             | Exists, in deployment<br>Exists, in deployment  |
| Big data/Cloud computing   | Analysis of consumption habits, management and anticipation of needs and demand peaks<br>Adaptation of rounds in real time           | Short-term deployment<br>Deployment in progress   |
| OTA (Over the Air Data transmission)/IP                                    | Real-time data transfer  | Exists  |
| Internet of things   | Management of flows and stocks, smooth tracking, increased automation of sorting chain   | Forthcoming   |
| Autonomous vehicles  | Collection, shipping and distribution<br>Automated delivery (in particular, by drone)  | In the long term, if deployment.<br>Infrastructures not adapted<br>Tests in progressed but faced with regulatory barriers |
| Digital traceability/Chips (2nd-generation RFID) with sensing capabilities | Diversification of parcels transported: controlled temperature (health, food), humidity and pressure control, etc.                   | Exists or deployment in progress  |
| 3D printing  | Test before online purchase<br>Elimination of transportation (!?)  | No implementation in the short or long term. Applied research or prototype phase  |
| 3D printing<br>Virtual reality   | Testing of products online (apparel), reduction of product returns   | Deployment in progress on e-merchant websites   |

Source: Syndex

through the pricing mode: distribution sub-contractors are paid per point distributed and not per parcel;

- ▶ According to employers, there are difficulties in hiring personnel for very restrictive jobs under stable conditions (open-ended contracts), with atypical working hours and partly at night, in particular in sorting centres and agencies.

These trends are often coupled with the social difficulties linked to the subcontractors' working conditions. Complaints are often made against the main contractors, including in the media.

The last stage of flexibility is the increased use of forms of non-salaried work with the development of start-ups and Smartphone apps for bringing together producers and consumers without intermediaries. These contracts are like zero-hour contracts, in particular in the field of the run as opposed to the round in their diversification strategy.

**A DUAL PHENOMENON:  
DIGITISATION DESTROYS SOME  
JOBS AND MAKES OTHERS MORE  
COMPLEX, FORCING THEM TO  
CHANGE**

In a study conducted under the PROGRESS programme between 2007 and 2013, the European Commission identified new technologies as having substantial effects on the sector, and in particular:

- ▶ On the volume of employment;
- ▶ On new skills required;

- ▶ On the fact that the effects concern the short, medium and long term: the changes are already under way.

The express parcel delivery sector uses up a lot of after-sales services and call centres. The changes observed in this sector - multichannel contact (voice, text message, web chat), chat bot for first-level support, etc. (see the memo «Digital Technology and Call Centre» for more details - also concern employees of the sector since a part of customer relation management and parcel tracking by the online operator are insourced.

The special case of national postal operators in charge of the universal delivery obligation is particularly revealing of the destruction or transformation of jobs as a result of the ongoing digitalisation: the drop in direct mail has led to the transfer of the activities of postal carriers and postal workers to new personal services, heightened by the demographical phenomenon of ageing (the silver economy) and the isolation of the population: delivery of drugs, food shopping, installation of small equipment in the home and more generally the development of all personal services.

Professions with a high potential of automation such as receipt and sorting in warehouses, branches and hubs, web channel sales and first-level assistance managed by chat-bots in call centres are generally expected to drop, even if the development of flows and e-commerce should lead to the installation of e-merchant platforms and warehouses as close as

**Rate of subcontracting observed  
with an express parcel transportation player**

| <b>Business</b> | <b>Subcontracting rate</b> |
|-----------------|----------------------------|
| Collection      | > 80 %                     |
| Processing      | < 20 %                     |
| Shipping        | > 90 %                     |
| Handling        | > 50 %                     |
| Distribution    | > 80 %                     |

Source: Syndex



possible to metropolitan areas, initially creating an increase in overall employment.

Some of the jobs with the highest growth potential are those relating to information and communication technologies: application development, physical or virtual network management, community management, process control and management, diagnostic, maintenance and servicing.

The increase in qualification levels of all function categories is an established phenomenon: technical skills could be replaced by the ability to change and acquire new skills and knowledge based on the fast pace of transformation of technologies. Skills related to the analysis and solving of more complex problems, communication capacities, anticipation and interaction.

Some examples of changes in skills required by function:

- ▶ Directors, executive managers: ability to explore new markets and channels, seize changes in environment and the strategy of new entrants and adapt the company to the changes;
- ▶ Engineers, technicians: advanced IT skills (cloud, applications, network, telecommunications, embedded software, database processing, Big Data, etc.); Management and optimisation of logistics processing through the anticipation of flows, automated customs procedures and Intra-European trade taxation. Cross-disciplinary skills: IT specialist, logistician, hub manager, quality field;
- ▶ Drivers: interpersonal skills, proficiency in the use of technologies and computer applications (geolocation, embedded software, environmentally friendly driving), adaptation and capacity to manage stress during peak periods.

## REINFORCED AND SYSTEMATIC QUALITY CONTROL

With the search to control and improve quality of service, companies are developing increasingly ad-

vanced quality measurement indicators. Although the meeting of deadlines remains essential, with the demands of senders and the end client, as well as productivity constraints, they are obliged to monitor and optimise other indicators and to process them in an automated manner.

- ▶ The net promoter score (the difference between promoters and detractors of the delivery service) of recipients and shippers and by client category;
- ▶ The rate of distribution at first presentation, the holding rate;
- ▶ The rate of compliance with narrower delivery windows;
- ▶ The number and duration of rounds;
- ▶ Compliance with delivery constraints (in particular, the cold chain).

Digitisation and parcel tracking methods at the beginning and end of each stage of the process (shipper, sending branch, sorting hub, receiving branch, recipients) and the transmission of data in real time or on desk at the end of the round gives a more precise analysis of the various quality parameters. This also results in a more systematic control of the company's own employees and subcontractors, which could lead to a deterioration of working conditions as a result of the significant loss of autonomy.

## DIGITALISATION, ROBOTICS, AUTOMATION: TOWARDS THE BEST OF POSSIBLE WORLDS?

In its report entitled «Robotics in Logistics – a DPD-HL perspective on implications and use cases for the logistics industry» (March 2016) DHL presents a vision of the future of the parcel and express mail delivery sector where active employees would completely disappear and be replaced only with process controllers and pilots in the sensitive areas of the transportation chain: the collection and distribution agency, the sorting centre and the last mile».

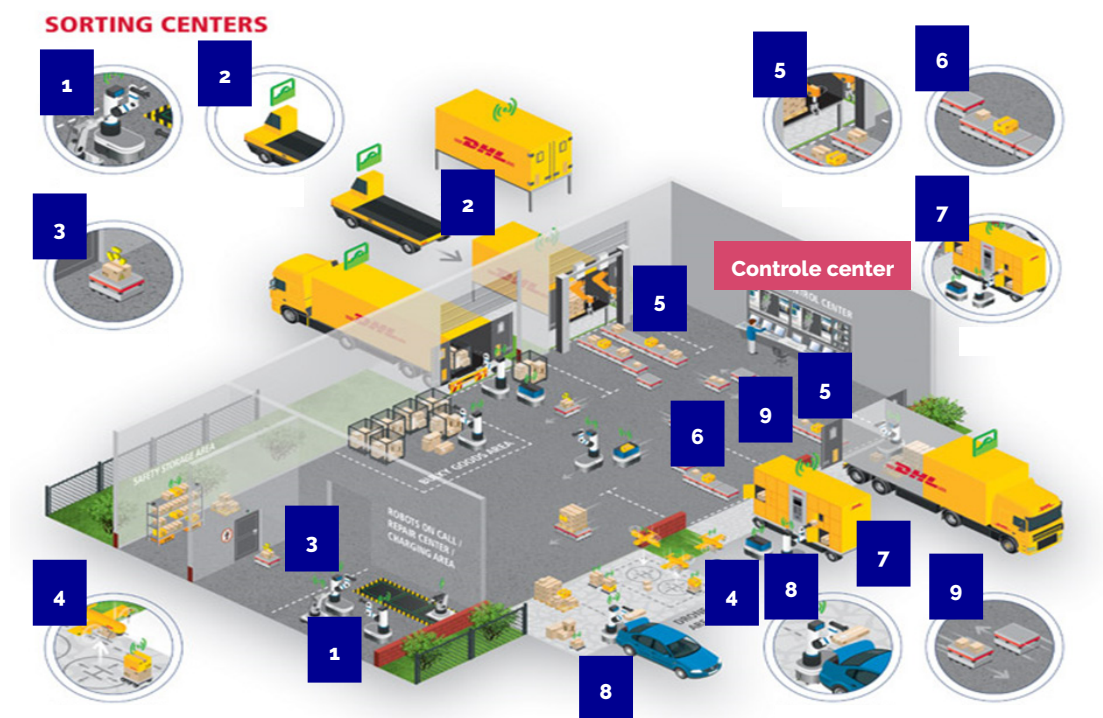
Robotics has come late to the transportation industry compared with other industries, because of the

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

complexity of the process, the diverse nature of the objects to process with respect to shape, weight and size and the density of sorting centres. Express delivery operators consider that this gap can be bridged. For example, DHL considers that 80 % of tasks are currently carried out manually. According to the company, all sorting centre task and nearly all agency and last-mile tasks can be automated thanks to robotics.

We show DHL's vision of a sorting centre of the future below. Even if, it is anticipatory, it marks the possible use and possible transformations of technologies in the sector, in the medium or long term.

Is this going to be the final stage of parcel and express mail transportation, before the advent of 3D printing and the disappearance of small weight and small-sized mail? Is this scenario a likely one? What is the possible time frame?



Source: DHL

- |          |  |          |   |
|----------|--|----------|---|
| <b>1</b> | Automated maintenance                          | <b>6</b> | Shuttles/parcel conveyer belts                              |
| <b>2</b> | Autonomous manoeuvring                         | <b>7</b> | Autonomous replenishment of lockers                         |
| <b>3</b> | Dangerous goods handling                       | <b>8</b> | Autonomous loading of the connected vehicle (end recipient) |
| <b>4</b> | Autonomous delivery fleet (drones)             | <b>9</b> | Sorting shuttles  |
| <b>5</b> | Autonomous loading and unloading of containers |          |   |

## #7 DIGITALISATION IN THE IN-HOME CARE SECTOR: HOW? BUT ABOVE ALL, WHY?

### #7.1 EMPLOYMENT: A MAJOR CHALLENGE

The in-home care sector is a key sector in Europe because of its huge employment potential (around 7.5 million in Europe), as well as needs that continue to grow.

- ▶ With close to 15,000 new jobs created between 2011 and 2013, home care service is the second sector in terms of job growth in the European Union (EU), behind the Information and Communications Technology (ITC) sector.

In this respect, this sector is logically concerned by the digitalisation wave in the modern world from the viewpoint of remote processing (managing users, carers, schedules, etc.), as well as that of new digital tools that encourage dependent people to become independent (smart buildings, motion and vibration sensors, etc.). In 2015, there was much optimism regarding the economic recovery based on the opportunity presented by the ageing population and the creation of a new market known as the silver economy. Many companies such as Apple, Bosch, Legrand and Philips embarked on offering new services and applications for both dependent and independent elderly persons.

The Employment Package «Towards a job-rich recovery» (18 April 2012) identified key drivers for future job creation opportunities in Europe over the next decades.

Demand in the EU health and social care sectors is growing twice as fast as the overall employment growth. The size and growth rate of these sectors suggests they will remain a key driver in providing new jobs in the years to come. 7 million additional job openings are expected due to replacement

needs and a further 1 million new jobs between 2010 and 2020. To benefit from this job creation potential, specific challenges have to be met: recruitment and retention of health and care professionals; emergence of new delivery patterns (e.g. for health and long-term care) and the growing use of technologies (requiring skills upgrading and new types of jobs).

Key concepts :

- ▶ eHealth: There is no single definition according to a brief Policy note of the European Parliament, but essentially it refers to information and communications technology (ICT) tools and services for health used by healthcare institutions, health professionals and patients.
- ▶ This concept covers 'Telehealth' which relates to the remote monitoring of physiological data; mHealth (mobile health) where medical and public health practice is supported by mobile devices; Telemedicine or the provision of healthcare services e.g. teleconsultation, teleradiology, telesurgery, etc. at a distance; and Telecare, which concerns remote care provision through the use of ICT, e.g. the use of care alarms in the home for the elderly to enable more independent living.
- ▶ Smart homes: Central solutions for controlling, monitoring and automating functions in the home, often via the web or mobile apps. This can include healthcare and assisted living systems.

Telecare and telehealth remotely delivering health monitoring and care can help people to live independently for longer, as well as moderating the extra costs brought by ageing populations. Mobile healthcare (mhealth) 'could save €99 billion in healthcare costs in the EU and add €93 billion to EU GDP in 2017 if its adoption is encouraged'. According to a report, traditional telecare solutions (wearable emergency alarms) have the most users, with 4.55 million EU citizens currently using these. But the market for more sophisticated devices capable of automatically triggering alarms and monitoring health (telehealth) in cases such as chronic heart failure, diabetes or asth-

ma, is already developing. According to the Commission, the global telecare and telehealth market is forecast to grow from €7.6 billion to €17.6 billion by 2017.

## **#7.2 FINANCING HURDLES FACING THIS SECTOR**

### **NEEDS CONTINUE TO INCREASE WHILE MEANS KEEP DECREASING**

In view of population change, care needs for dependent persons are huge and on the rise; they also correspond to a huge social demand.

This increase in needs, which results in rising costs, is occurring in a context of a tightening of public purses.

Euromonitor forecasts that the global spending power of those aged 60+ will reach US\$15 trillion by 2020. Annual age related government expenditure on older people (currently between 20% and 25% of GDP in the EU according different sources) is forecast to rise by 1.8 percentage points by 2060.

- ▶ The global telemedicine tools market will likely reach \$43.4 billion within five years, according to a new report published by Wellesley, Massachusetts-based BCC Research.
- ▶ The market for telehome technologies, or tools that enable outpatients to receive telehealth services, is predicted by BCC to grow from \$6.5 billion in 2013 to \$24 billion by 2019.
- ▶ PWC forecasts that the global mobile health market will reach a value of €17.5 billion in 2017, with Europe being the largest market segment (€5.2 billion).
- ▶ Berg Insight forecasts that the installed base of smart home systems in the EU will grow at a rate above 50% in the next five years to reach 17.4 million smart homes installed in by 2017.

McKinsey Global Institute estimates the potential economic impact of the Internet of Things to be \$2.7

trillion to \$6.2 trillion per year by 2025. Across the health-care applications, Internet of Things technology could have an economic impact of \$1.1 trillion to \$2.5 trillion per year by 2025.

## **#7.3 DOING MORE WITH FEWER RESOURCES: A SEARCH FOR EFFICIENCY?**

### **IN-HOME CARE STRUCTURES ARE THEREFORE TRYING TO ADAPT**

In the face of this tightening of public funding, in-home care structures must cope with many challenges:

- ▶ Firstly, they must provide quality services and ensure the continuity of care in line with cost reduction, which can be achieved through:
  - Managing schedules: by shortening operations and/or optimising working time, which have an impact on the payment policy regarding carers;
  - Forging close relationships with other operators to take advantage of synergy effects on purchasing costly management tools, for example.
- ▶ To create indicators, they roll out software tools composed of management modules and remote processing or remote transmission interfaces capable of creating these indicators:
  - The Web Apologic-type of software used in the profession to cut the costs of treatment and to transfer data activities required for invoicing, managing travel costs and salaries; the Korrigan-type software for salaries, annual declaration of social data (DADS) with a link to cost accounting; the Lancelot-type software for managing customer invoicing, etc.
  - Implementing remote processing solutions such as DOMATEL for sending schedules, work sheets and leave requests.

If these tools optimise processing and reduce wait times, their use require that users be trained regularly.

## #7.4 WHAT IMPACT FOR THOSE CONCERNED?

### THE DIFFICULTIES OF MASTERING THESE TOOLS AND THE ENSUING CONSEQUENCES

Introducing these new tools modernises the sector. At the same time, it projects a more favourable view of these professions, making them more attractive to a young population as well as encourage generational renewal.

However, it is necessary to first train those who were already employed. But, employment in the sector is generally part-time, in most cases, not by choice, is almost exclusively female dominated with an average age higher than the average employee, and the level of education is often lower:

- ▶ In France, for example, employees over 45 years account for half of all jobs within the sector, while they make up only 39% across all sectors of the economy.
- ▶ Employees within the sector have a relatively low level of education
- ▶ Mastery of these tools is not that simple for people who have not grown up with or studied how to use such communication tools. Making staff aware of the new tools and providing training before they are introduced to them are, therefore, essential.

This imperative to train is also shared by employers, who in addition to seeing the introduction new technologies as saving time and generating gains in savings, view it as a possibility of strengthening exchange between all players.

Even so, if the implementation of digital technologies avoids travel for purely administrative purposes, for example, retrieving one's schedule, this task also entailed a social connection in the form of a meeting between the carer and their manager, which is most often at the company's head office, as well as the

possibility of discussing with other employees of the company, which breaks the carer's feeling of isolation from working at home.

More generally, the few studies on the subject highlight other problems.

Research by Pierre-Yves Gomez and Romain Chevallier highlight the impact of ITC on health at work and reveal two trends: although ITC rationalises production (better management of travel, faster search for information, work rationalisation, etc.), it also increases demands on staff (increase in tasks to be done in record time, development of controls, etc.). Consequently, employees feel their working conditions are become increasingly difficult as they encounter an increase in their workload and less flexibility in their independence on the job.

Therefore, if the development of ITC allows new channels of connecting beneficiaries of in-care services with their professional and private entourage, it can also reduce direct social contact and increase workload.

### CONSEQUENCES FOR BENEFICIARIES

Implementing new digital tools can encourage dependent people to become independent:

- ▶ Technological innovations implemented such as equipping a patient's home with warning devices such as sleep surveillance or motion sensors;
- ▶ Giraff-type video conference tool: a sort of small robot equipped with a screen and managed remotely, the Giraffe allows you to visually enter a patient's home and interact with them.

However, this also creates an additional problem for patients who did not grow up with connector technology, are not accustomed to such tools, and who, in addition to their loss of independence, must manage learning how to use these new technologies.

Moreover, although these tools allow you to stay in touch, they do not replace human contact.



## **THE NEED FOR SOCIAL CONNECTION**

Although in-home care is known to assist patients in carrying out essential daily tasks (getting up, going to bed, washing and getting dressed, housekeeping and ironing, preparing meals, etc.), little is known about another aspect of in-home care, which is equally essential: maintaining the social connection.

Obviously, this part is less measurable than providing assistance in carrying out essential daily tasks; however, this support is a vital aspect of the care.

- ▶ Social with strolls, discussions and providing a listening ear,
- ▶ Intellectual by stimulating patients' interest through reading, singing and board games.

This social link is also essential for carers, who work in isolation.

Within the context of reducing care time linked to a reduction in funding, it is these times of exchange that are the first to suffer.

For patients, this social connection is so important that a lack or even an absence of it requires that it be recreated. Aware that communication tools do not replace this social connection, companies are positioning themselves in this new social connection niche, for example, La Poste and its VSMP (Veiller Sur mes Parents [Watch Over My Parents]) service.

- ▶ According to the presentation of this service, the postman or postwoman spends 5 to 10 minutes with beneficiaries of the service discussing topics that interest them and «these regular meetings provide a familiar and reassuring presence.»

Without even addressing the limitations of this behaviour, where a person who has received a brief training must assess the state of the person whom they have visited, and without qualifying the commodification approach of the discussion that was done naturally in the old days, the fact that such a practice is being implemented by a company indicates that there is a need.

## **#7.5 CONCLUSION**

The paradigm of the issue of digitalisation in the in-home care sector seems not to be "how to implement digitalisation", but rather "for what purpose(s)?"

In fact, if there is a huge number of people who require in-home care and this number will increase, this increase in needs is within a context of a tightening of public purses, which stifles the entire sector and its development. The advantage of implementing ICT is therefore envisaged from the viewpoint of the savings that it may generate, and its limitations from the viewpoint of the problems that it may cause.

But, the issue of introducing ICT should not be addressed in terms of acceptance because ICT undeniably has a role to play in the sector; rather, it should be raised in terms of the purpose.

In a sector where human relationship is essential for carers as well as for patients, implementing digitalisation tools and the time that it saves should also be fully dedicated to the social connection and not to cost rationalisation to be in line with a reducing financial envelope.

- ▶ This sector cannot be considered from a sole economic point of view but must be considered as a service of general interest.
- ▶ This sector cannot be reduced to a trivial service that is provided in the services market, general interest must be restated around themes: the universality of in-home care, fair treatment, continuity and accessibility.
- ▶ Why implement new technologies in this sector? Not to rationalise, control, or reduce costs, but, to free up time that could be usefully dedicated to the first goal of this sector: to take care of patients.

More generally, these principles could be applied in all fields in which people are central, not because they need a service (such as in call centres, for example), but because this service is vital.

## #8 THE CHALLENGES OF DIGITISATION IN THE CLEANING SECTOR

At first sight, the cleaning sector seems not very favourable to the introduction of digital technologies. In this sector, which is essentially manual, one would not envisage that databases could be used to process information or that it would make use of connected objects.

And yet, the development of certain technical innovations has brought about changes that could be very significant in the strategy, organisation of its players and, ultimately, in employees working conditions.

We have chosen to link digital technology and job automation in this document, considering that the development of robotics technologies is supported by the development of digital technologies in particular.

### #8.1 THE DYNAMISM OF THE SECTOR

#### A GLIMPSE INTO THE OCCUPATION OF A CLEANER IN EUROPE

The industrial cleaning sector in Europe represents one of the largest and most dynamic branches of services to companies.

According to the European Federation of Cleaning Industries (EFCI), which groups together the representative national professional organisations of the sector in 18 EU countries in addition to Norway and Switzerland, there were over 180,000 cleaning firms in 2014, employing almost 3.3 million employees in Europe and with revenues of 65 billion euros.

About 50% of employees working in the sector are attached to maintenance and the work environment (notably offices, schools, etc.), but also in the field of maintaining hygiene in some sectors such as the

food processing industries, hospitals or cutting-edge industries.

Over the last 20 years, the industry has been experiencing robust growth in annual revenues, in excess of 9%.

The main explanation behind this constant and sustained growth is linked to the change in the market penetration rate of cleaning firms because of the continued outsourcing of services.

Germany, France, Italy, the United Kingdom and Spain are the five largest national markets. They represent three-quarters of total revenues in Europe.

Offices account for half of the revenues of cleaning firms in Europe, behind the industrial (about 10%) and hospital (75%) sectors and schools (75%).

Depending on the country, cleaners are public sector employees or are employed by small or very small companies: over 90% of them have fewer than 50 employees, often in small service companies subcontracted for other businesses or administrations.

Over the last 20 years, employment has grown by over 4% per year.

The cleaning sector is characterised as being highly labour-intensive, where around 80% of all employer costs are labour costs. Consequently, the sector is very sensitive to any potential change in social legislation that has a direct impact on the economic means of cleaning firms.

Within the EU on average, 67% of employees in the sector are employed on a part-time basis. The other characteristic of the cleaning sector with respect to employment is that it is largely female dominated: in Europe, the sector employs of 73% of women on average.

Females account for most of the cleaning jobs (almost 70%), and work on a part-time basis (between 65 and 70%).

The employees are fairly old and the population is ageing: almost 40% of employees are aged 50 years and over.

These jobs remain largely open to individuals with very little education, even though the level of training is a higher than it was 30 years ago.

Depending on the country, cleaners face job insecurity and are often hired on government-subsidised or fixed-term contracts.

### **A SECTOR IN WHICH SERVICES ARE BECOMING MORE COMPLEX, LEADING TO DIVERGING BUSINESS MODELS**

IN RECENT YEARS, FIRMS IN  
THE SECTOR HAVE SOUGHT TO  
ENHANCE THEIR OFFERS

Firstly, they have broadened their scope of action: in addition to traditional places, that is, offices and administrative premises, cleaners also work in the industrial, health and distribution sectors, etc.

Today, cleaning firms have expanded this offer (complex offer). The offer is no longer limited the mere cleaning; it now includes more diverse tasks (cleaning computer equipment, preparing meeting rooms, removals, stock management, etc.).

Two business models now coexist:

- ▶ the neo-Taylorism model, which concerns mainly SMEs, where emphasis is placed on cutting staff costs through flexibility. This model is characterised by imposed schedules and a high turnover;

- ▶ the organisational adaptability model, which concerns firms seeking to expand their service offer. Being more innovative, these firms must seek to develop the skills of their employees by first earning their loyalty and reducing turnover.

### **FIRMS IN THE SECTOR HAVE MOBILISED THREE MAIN TYPES OF OPERATIONS**

- ▶ Material logistics operations: firms mobilise different techniques. Some rely on traditional techniques (brooms and mops), while others use innovative techniques relating to the development of automation and robotics. This includes in particular designing new machines: trolleys adapted for this purpose, specific platforms for buildings and automatic cleaning machines.
- ▶ Information processing operations that may be used internally and externally (that is, for the client and for the firm itself). They use the available means that are connected to digital technology (databases, GPS tool, automation of tasks, traceability, etc.).
- ▶ Providing services: to better meet the needs of clients, by offering complementary services beyond the traditional cleaning service (reception service in the hotel sector, substituting for hospital staff to clean operating theatres or distributing meal trays).

The analysis of the risks and opportunities connected to the development of digital technology will be made through these three types of operations.



## #8.2 WHAT CONSEQUENCES WILL THE DEVELOPMENT OF DIGITAL TECHNOLOGY IN THE SECTOR HAVE ON EMPLOYEES AND THEIR WORKING CONDITION?

**Material logistics operations:**  
a very high risk for employment with respect to the development of automation

| Negative effects  | Positive effects  |
|---|---|
| <p>According to a study by the COE* in France, cleaners represent the job family most at risk from task automation: 21% of all jobs across France present a high automation index.</p> <p>The characteristics of jobs at the risk are defined according to 4 criteria:</p> <ul style="list-style-type: none"> <li>▶ lack of flexibility;</li> <li>▶ Inability to adapt;</li> <li>▶ low problem-solving capacity;</li> <li>▶ rare social interaction.</li> </ul> | <p>Robotisation may facilitate work: easy access, through GPS, to more high-performance and less restrictive equipment: lighter trolleys, lifts, etc.</p> |

\* Conseil d'Orientation pour l'Emploi report: «Automation, digital technology and employment» January 2017.

**Data processing: high risk of work intensification for employees**

| Negative effects   | Positive effects |
|--|------------------|
| <p>Prescribed work being developed and becoming more rigid through digital tools (software, GPS, etc.), which allow agents to be tracked in predefined execution schemes.</p> <p>Risks of increased pressure on planning agents, who are themselves under growing pressure from clients, which may supervise more easily how tasks are progressing and are being executed.</p> <p>Consequences: hunt for «idle time» for cleaners.</p> <p>Risk of increasing MSDs.</p> | ?                |

**Service diversification: increasing versatility and client contact**

| Negative effects  | Positive effects   |
|---|--|
| <p>Several (too many?) diversified tasks (going from a medical site to an industrial site).</p> <p>Increasing rigid versatility: appearance of atypical tasks that are not limited to the mere cleaning service.</p> <p>Need to deal with the demands of different clients: greater pressure and responsibility, risk of direct conflict with the client.</p> | <p>More diversification: fewer monotonous tasks.</p> <p>More contact with the client, less isolating job.</p> <p>Appearance of new skills (preparing a cleaning estimate, managing conflict with leaseholders).</p> <p>A professionalisation rationale (new jobs: cleaning manager, QES manager and branch manager).</p> <p>Improve the job status thanks to investment in training (vocational high school diploma to master's level).</p> <p>Career development prospects possible because middle managers are from the bottom of the pyramid.</p> |





## #9 AGENCY WORK AND DIGITALISATION - TOP TRENDS AND CHALLENGES

### SUMMARY

Steadily gaining ground in Europe, temporary agency work was the subject of a European directive adopted in 2008. Since then, the services offered by agencies have diversified, and are being impacted by the growing number of web-based employment platforms. These developments differ dependent on the national labour market and the national legislation in place. In the face of these challenges to the fundamental rights of workers, trade unions have started digitalizing their own processes.

"Pay workers only when you are satisfied with the results. There is no notice period, no severance pay. Get started!" The example of mechanical turk workers is setting the tone. Does digitalisation mark the end of labour law?

"You might think we are crazy, but no, there is no cost to join, to post a project or be connected with a suitable freelancer. What the freelancer quotes you is what you pay. Simple! We take a 10% + VAT service fee of the project value from the freelancer to cover our service, provide them with additional 'employee style benefits' and to provide support throughout. If you hire one of our freelancers as an employee on a permanent basis there will be a 17% charge on their earnings in their first 52 weeks. There is no notice period, no severance pay".

### #9.1 COMPETITION AND SOLUTIONS ARE CONSTANTLY EVOLVING

Since the adoption of the European directive on temporary agency work in 2008<sup>1</sup>, temporary agency work (TAW) has been evolving constantly on the basis of national legal and economic changes.

In 2015, the McKinsey Global Institute defined these sector services as explained in the chart on the following page.

"Traditional" temporary work agencies have upgraded the role of online applications in their recruitment processes, setting up their own online recruitment solutions to combat online platforms. This in turn has helped them reduce the need to process information provided by workers/applicants who now enter their personal data themselves via TAW agency websites.

However, in many cases, face-to-face interviews remain the final and decisive step for usual recruitment processes. This is not the case with a number of new web-based players consisting simply of digital interfaces based on algorithms.

The presence or absence of an employment relationship is key to understanding the differences in

## Get Results from Mechanical Turk Workers

Ask workers to complete HITs - *Human Intelligence Tasks* - and get results using Mechanical Turk. [Get Started.](#)

**As a Mechanical Turk Requester you:**

- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you're satisfied with the results



Source: Amazon Mechanical Turk

<sup>1</sup> Directive 2008/104/EC of 14/11/2008.

**THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY**

|   | <b>Digital tools that enable users to...</b>   | <b>Example platforms, 2015</b>   |
|---|--|--|
| <b>Matching individuals with traditional jobs</b> | <ul style="list-style-type: none"> <li>Post full-time or part-time jobs</li> <li>Create online resumes of individuals</li> <li>Search for talent or work opportunities based on extended matching attributes</li> <li>Provide transparency into company or worker reputations, skills, and other traits</li> </ul> | Careerbuilder<br>Glassdoor<br>Indeed<br>LinkedIn<br>Monster<br>Vault<br>Viadeo<br>Xing |
| <b>Online marketplaces for contingent work</b>    | <ul style="list-style-type: none"> <li>Connect individuals with contingent or freelance projects or tasks</li> <li>Facilitate transactions by providing transparency on reputation and ratings</li> </ul>  | Amazon Home Services<br>Angie's List<br>TaskRabbit<br>Uber<br>Upwork                   |
| <b>Talent management</b>                          | <ul style="list-style-type: none"> <li>Assess candidates' attributes, skills, or fit</li> <li>Personalize onboarding, training, and talent management</li> <li>Optimize team formation and internal matching</li> <li>Determine the best options for training and skill development</li> </ul>                     | Good.co<br>PayScale<br>Pymetrics beta<br>ReviewSnap                                    |

Source: The McKinsey Global Institute analysis, 2015.

the services offered by market players. The selection process is linked to the (lack of) legal and financial obligations of the recruiter towards the worker.

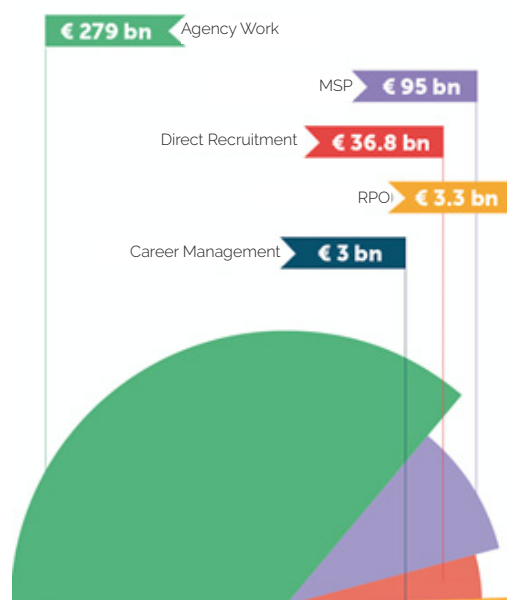
On-demand platforms provide marketplaces for people to perform tasks that are more limited in scope, as opposed to longer-term employment, for which the hiring process is longer.

The market shares are still very different today. The breakdown of revenues in the non-permanent employment market rules out any similarities between the different kinds of services (see opposite).

What jobs are impacted by the digitalization of recruitment? According to the Online Labour Index <sup>1</sup>, the main services provided are in the fields of software development and technology, creative and multimedia, clerical and translation, sales and marketing support.

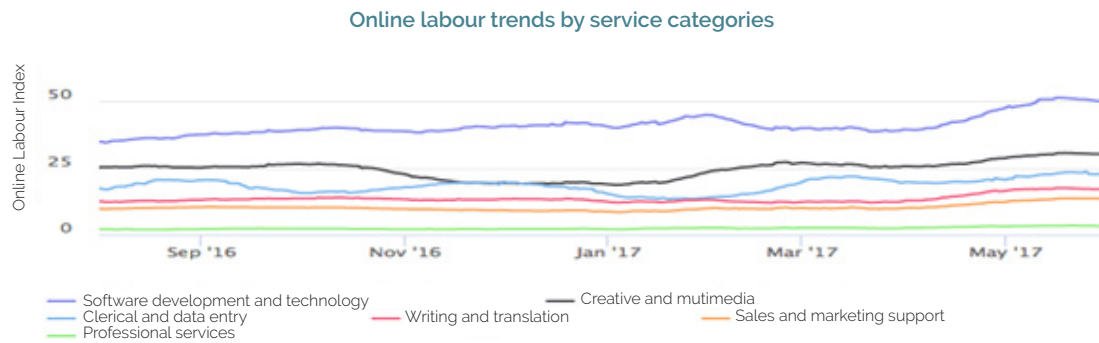
<sup>1</sup> Kässli, O. & Lehdonvirta, V. (2016) Online Labour Index: Measuring the Online Gig Economy for Policy and Research. Paper presented at Internet, Politics & Policy 2016.22-23 September, Oxford, UK. <http://ilabour.oii.ox.ac.uk/online-labour-index/>

**Employment agencies breakdown of revenues in 2015**



Source: World Employment Confederation

Total: €417 billion sales in 2015. Agency work accounts for 67% of sector activities, followed by MSP (Managed Service Provision) at 22.3%. Direct recruitment, recruitment process outsourcing (RPO) and career management have considerably lower shares in terms of sales (source: World Employment Confederation).



The Online Labour Index (OLI) is the “first economic indicator that provides an online gig economy equivalent of conventional labour market statistics”. It measures the utilization of online labour across countries and occupations by tracking the number of projects and tasks posted on platforms in real time. It is available online as an interactive visualization and automatically updating data set.

## #9.2 EMPLOYMENT PLATFORMS: A WEB-BASED BLACK HOLE

A significant number of publications and official statements by prominent trade unionists, employers, academics and journalists show that the so-called gig economy top owners are not playing by the same rules: wage cuts, no respect of minimum wages and collective agreements, no transparency on commercial contracts, bogus self-employment, tax avoidance, social security contribution avoidance, breaches of redundancy rules ...

Some examples of national trends in Europe:

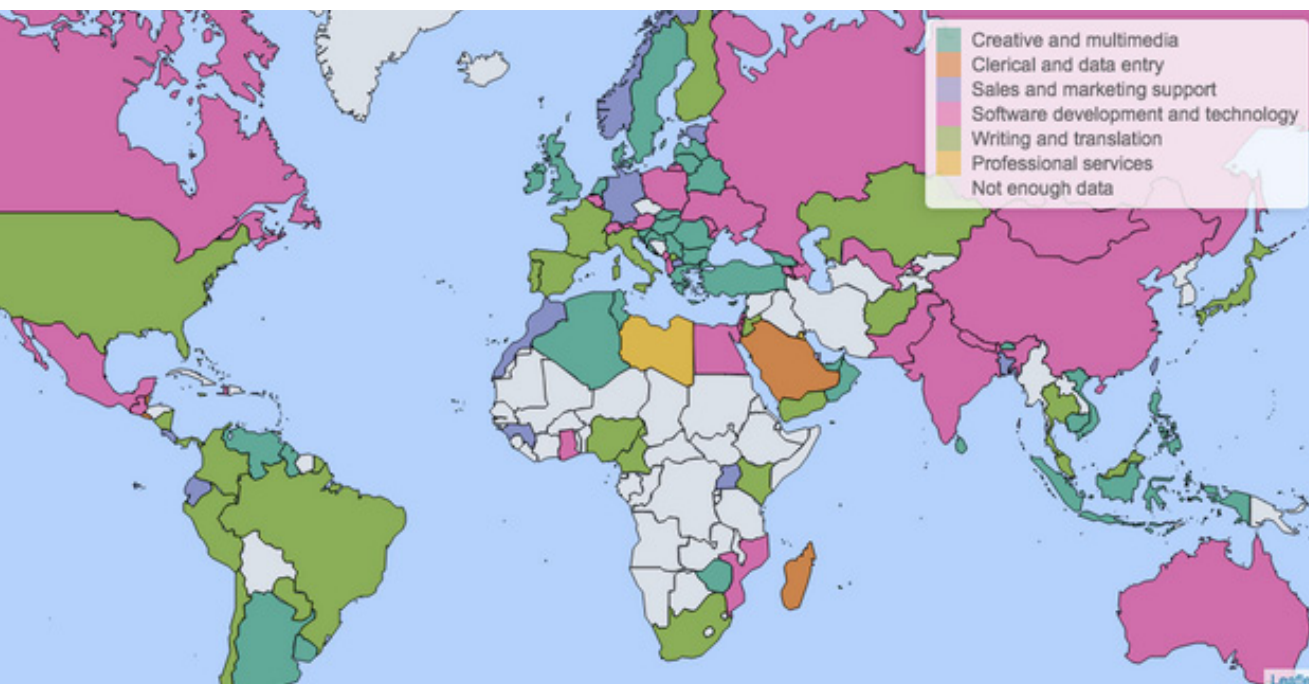
- ▶ Spain: The No. 1 platform (Uber) is developing its business by enlarging its scope (initially taxi services), entering the food delivery market at the beginning of 2017; Uber was initially forbidden in Spain, as the Spanish courts considered its activity as unfair competition; this led to Uber changing its way of recruiting.
- ▶ Belgium: While several aspects related to work in the platform economy are subject to further specification, the Belgian state has already

adapted its tax system to fit new work realities, with a flat tax rate of 10% applying to services between individuals for incomes up to €5000. Registered platforms are required to withhold taxes at source and send information to the tax authorities to keep the administrative burden low for individuals. While this system supposedly encourages the growth of the platform economy in Belgium, important issues related to the work status (and to social security aspects) of individuals working with the platforms remain unspecified, posing difficulties in regulating newly evolving forms of (digital) work.

- ▶ The Netherlands: The gig economy is already highly developed in the Netherlands – according to a recent study of the University of Hertfordshire, about 1.4 million Dutch people have already earned money with the help of digital platforms<sup>1</sup>. Apart from such international platforms as Amazon Mechanical Turk, Dutch crowdworkers also use national platforms like Werkspot or Marktplaats to look for work or offer their services. Most online freelancers use the gig economy to supplement their regular income, i.e. the majority have a further source of income. The fact that Dutch crowdworkers seem to be active on many different platforms, performing work and providing services for a variety of employers/platforms may lead to even greater work fragmentation and individualization. This poses particular challenges

<sup>1</sup> see [http://www.uni-europa.org/wp-content/uploads/2016/06/crowd\\_working\\_survey\\_Netherlands.pdf](http://www.uni-europa.org/wp-content/uploads/2016/06/crowd_working_survey_Netherlands.pdf)

Geographic breakdown of online labour by occupation



Source : *Online Labour Index*

to regulation (related to work status and social security aspects), especially with regard to self-employed workers without other regular sources of income.

- ▶ Italy: The on-demand economy related to the existence of online platforms (i.e. Uber, Upwork, etc..) is gaining growing importance in Italy where the quasi-subordinate category of workers (*lavoratori parasubordinati*) is creating uncertainty resulting in the erosion of protection <sup>1</sup>. This is because Italian law recognizes views the so-called "collaborazioni organizzate dal committente" (collaboration organized by the client) as a tool for expanding crowdworking. Looking at the impact of such online platforms on the Italian labour market, we see also that the successful platforms are tending to restructure sectors already reliant on forms of self-employment. Uber is the top example here, though there are others such as the Italian platform for interior designers, CoContest <sup>2</sup>.

<sup>1</sup> Aloisi, 2015.  
<sup>2</sup> Maselli and Fabo 2015.

- ▶ France: In France, the public authorities have "uberised" Uber by creating an official digital application, a platform for all taxi providers for the benefit of all drivers and clients.
- ▶ U.K.: The British state of play is different from other countries for several reasons. There is a) a massive number of "crowdworkers", possibly 5 million; b) a 'light' legal framework which has allowed new forms of employment (e.g. "zero-hours contracts") for several years; c) temporary agencies do not necessarily directly hire workers but simply provide recruitment services; and d) sectoral collective bargaining is non-existent. A perfect scenario for an unfettered "collaborative economy"?

The European Commission Communication entitled "A European agenda for the collaborative economy" (2016) interestingly underlines the need to clarify a number of concepts (activity with financial benefits, liability, service frequency, EU definition of a 'worker') because, beyond national legislation, there is an obvious transnational impact emanating from emerging forms of new intermediaries.

### #9.3 NEW FORMS OF EMPLOYMENT CHALLENGING THE TAW SECTOR

Freelancers, slashers <sup>1</sup>, co-workers, start-uppers, makers: more than two-thirds (68%) of European workers could envisage working in a self-employed or freelance capacity, while up to 26% say they are actively preparing to change <sup>2</sup>. At national level, distinct situations can be identified in terms of the breakdown of different forms of work (countries with varying degrees of self-employed work, fixed-term work and part-time work).

In Germany, for instance, one fast-growing instrument of highly flexible work-on-demand is onsite outsourcing <sup>3</sup>, i.e. the substitution of both companies' core employment and (highly regulated) temporary agency work by "work contract employees", i.e. self-employed industrial freelancers. Beside its effects on flexible work and cost, the use of onsite work contracts bears the risk of undermining social and collective standards <sup>4</sup> as well as co-determination and social partnership <sup>5</sup>.

While the evolution of atypical work is linked to economic cycles, the emergence of new forms of employment is also linked to new technologies and company strategies on the outsourcing of know-how.

According to a report by Idea Consult <sup>6</sup>, "it cannot be acknowledged that a strong growth of a specific form of work occurred at the expense of another form of work at EU level". Indeed, all forms of work are evolving, in absolute terms, in a direction determined by economic conditions. Moreover, in relative terms, there are discontinuous developments (e.g. a drop in TAW during the crisis, etc.) in the labour market.

1 Someone with multiple careers like blogger slash stylist, photographer slash designer, DJ slash chef.

2 references.lesoir.be - June 13, 11:59 AM.

3 Hertwig/Kirsch/Wirth 2015.

4 Brinkmann/Nachtwey 2014; Haubner 2014.

5 Klein-Schneider/Beutler 2013.

6 Idea Consult, March 2015 "How temporary agency work compares with other forms of work" Report.

The report adds that, in some countries, "systems have been developed by social partners in order to reduce the cost of TAW for the user undertakings while offering more employment security to workers", for example, derogation from the principle of equal wages in Germany in exchange for open-ended contracts. In the Netherlands, the social partners in the TAW sector have built a system where a high degree of flexibility is offered in the first phase of employment, with the more days worked leading to increased employment and income protection.

### #9.4 THE TRADE UNION DIGITAL SOLUTION IS ACTION

Unions are also going digital, dealing with workers' problems with digital means. The examples below, provided by planetlabor.org, highlight this new trend:

- ▶ "Tu respuesta sindical ya", UGT Spain: the confederation has set up a website to denounce precarious working conditions for employment platform workers. Thanks to this website, workers looking for help, information and advice can get support from UGT staff via modern technology (WhatsApp, email, phone, ...) for fighting modern forms of exploitation <sup>7</sup>. The union undertakes to answer any enquiry within 24 hours between Mondays and Fridays.
- ▶ "Fair Crowd Work", IG Metall, Germany: Launched in 2015, Fair Crowd Work collects information on crowdworking, app-based work and other «platform-based work» from the perspective of workers and unions. Uniquely, the site rates working conditions on different online labour platforms based on worker surveys. This is a joint project of IG Metall (the German Metalworkers' Union), the Austrian Chamber of Labour, the Austrian Trade Union Confederation, and the Swedish white-collar union Unionen, in association with Encountering Tech and M&L Communication Marketing as research and development partners.

<sup>7</sup> see <http://turespuestasindical.es>



## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

The website has been open to self-employed workers since 2016. IG Metall recently negotiated a code of conduct <sup>1</sup> with the newly-formed German Crowd-

sourcing Federation (Deutscher Crowdsourcing Verband). This lists recommendations on for example working conditions, privacy and fair pay.

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<sup>1</sup> <http://crowdsourcing-code.com>

## #10 THE CHALLENGES OF DIGITALISATION IN PACKAGING AND TISSUE INDUSTRIES

The tissue sector covers the production of parent reels, as well as their transformation into finished products for private individuals and professionals (companies, local communities, etc.): toilet paper, kitchen rolls, tissues, hand towels, table napkins, industrial wipes.

The paper packaging sector covers:

- ▶ The production of parent paper reels or flat cardboard.
- ▶ The manufacturing of a very wide range of processed products, the most well-known of which are: packaging in corrugated cardboard, folding boxes and paper bags.

These sectors thus cover two types of specific activities: production of «material» and the manufacturing of processed products, since the main ones are integrated.

- ▶ The «materials» production activity is a very capital-intensive. Given their density, products

must be easily transported to enable these industries to service the European or even international market. These sectors are dominated by the major multinational groups.

- ▶ Processing activities are less capital-intensive, and more labour-intensive. Although there are many major groups operating in these sectors, there are also a large number of SMEs, especially downstream of the value chain.

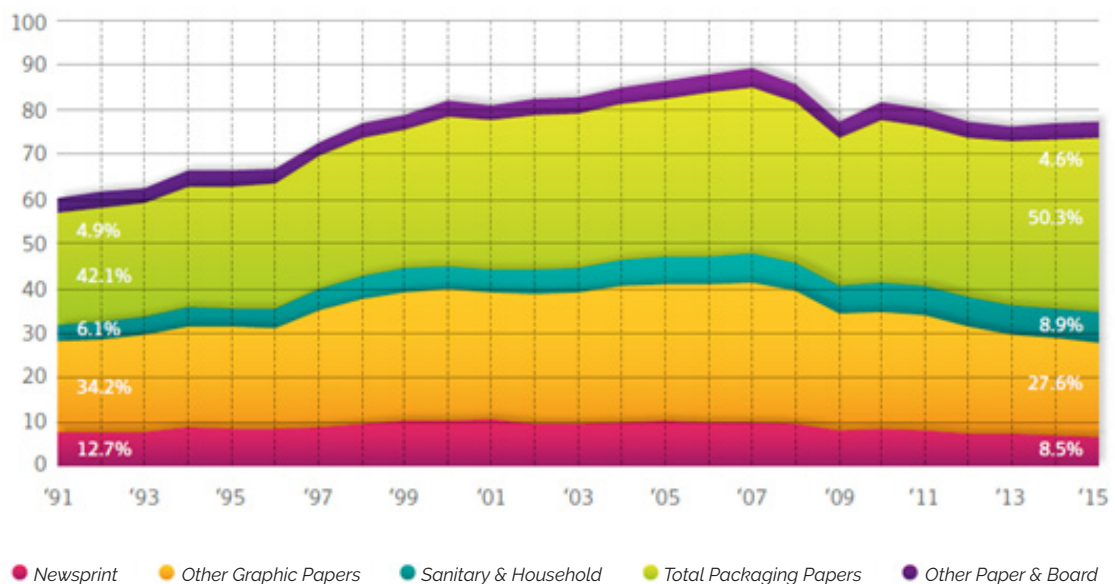
### #10.1 TISSUE AND PACKAGING: TWO ACTIVITIES EXPERIENCING STRUCTURAL GROWTH IN EUROPE

European paper consumption (all categories combined) dropped by 9% between 2005 and 2016. This drop was the result of the sharp drop (over 30%) in the consumption of «graphic paper» (paper intended for printing for the press, brochures and catalogues as well as desktop printing) over this period. This is because graphic paper demand was affected by the structural phenomenon of the digitalisation of information, as well as a cyclical - but long-lasting - slowdown of advertising investments since the beginning of the 2008 crisis.

Paper & Board Consumption by Grade

Source: CEPI, Key Statistics 2016.

Million Tonnes



## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

The European paper industry resisted thanks to two segments - tissue and packaging - since their consumption had increased by 7% during the same period.

Although the tissue sector weathered the economic crisis, the packaging sector was affected but rapidly picked up again, and has today exceeded its pre-2009 level of activity.

- ▶ Global tissue demand essentially driven by emerging economies (China in particular), as a result of population growth and the transformation of consumption modes in these countries. However, it is also driven by structural growth in the more mature economies such as Europe, given:
  - The product innovation offered by manufacturers, which pushes for the increased consumption of disposable products
  - The low capacity of substitution of tissue with other products (for example, forced air

hand dryers have not taken away enough market share from hand towels)

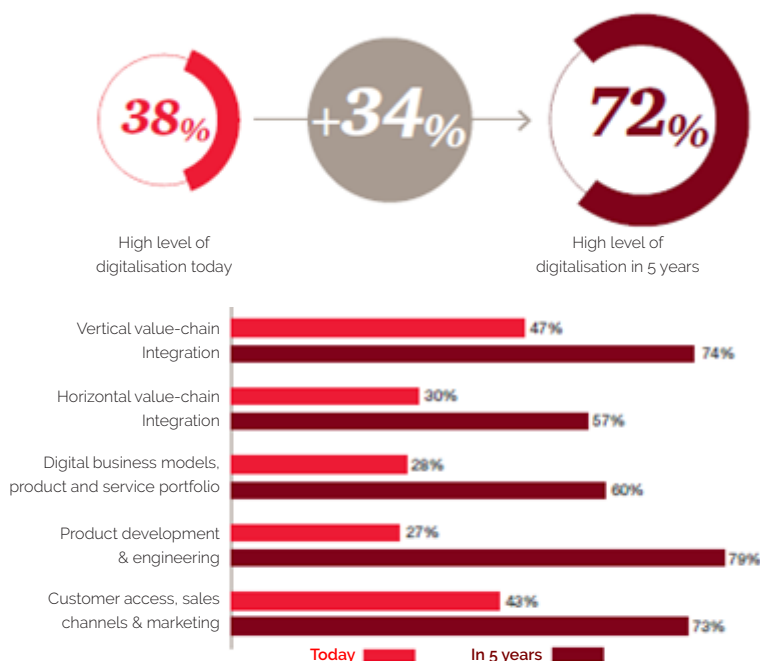
- The change in lifestyles.

There is therefore a real growth potential in Europe (Western and even more in Eastern Europe), especially since the levels of consumption per capita are clearly less than North American levels.

- ▶ Paper packaging demand is sustained in particular by consumer markets (rather than the industrial sector), and in particular by the following:
  - The development of e-commerce (+12% per year), which has particularly been a boon for corrugated cardboard packaging
  - The increasing importance of packaging as a communication medium
  - Increased demand for sustainable packaging, at the expense of plastic (even if manufacturers have retaliated with biosourced plastic).

### Industry 4.0 is beyond the hype - it has arrived at the strategic and operational core of many forest, paper and packaging companies

Source: PWC, 2016 Global Industry 4.0 Survey.



Shown: Percentage of companies reporting advanced levels of digitisation and integration

Q: How would you classify the current level of digitisation and integration in the following areas in your company? What levels of digitisation and integration are you expecting in the next five years?

## #10.2 SECTORS AT DIFFERENT STAGES OF THE DIGITAL REVOLUTION

### WHAT IS INDUSTRY 4.0?

In industry, digitalisation refers to everything that contributes to the modernisation of the industrial tool in the age of digital technology and connected objects («industry of the future» or «Industry 4.0»). This concerns all areas: the design and development of production and maintenance processes and tools, as well as relations upstream and downstream of the industrial unit.

Tomorrow's factory should use less resources, should be more intelligent, more responsive and more adapted to production runs of all kinds. It should be more interconnected with suppliers, the supply chain and clients.

It requires technologies that already exist but that still have a huge potential for growth:

- ▶ eco design and energy savings;
- ▶ digital simulation upstream of industrial processes;
- ▶ sensors and integration of RFID chips in products to facilitate quality follow-up;
- ▶ Internet, Extranet, cloud computing;
- ▶ big-data analytics;
- ▶ 3D printing or additive manufacturing;
- ▶ connected objects;
- ▶ robotics.

### PAPER INDUSTRY IS AT THE START...

According to the global survey conducted in 2016 by PWC on Industry 4.0, the paper industry (forests, paper and packaging) has already begun its digital revolution: 38% of companies consider they have already reached an advanced level of digitisation and 72% think they should reach such a level in the next five years.

They consider that they are more particularly advanced in the digitalisation of the vertical value chain (integration data that can be used in real-time, at all stages of the internal organisation) and the sales relationship. They consider themselves less advanced in the following areas:

- ▶ integration of the horizontal value chain (integration of data beyond the internal organisation, with suppliers and clients, traceability and shared schedules);
- ▶ innovation in terms of products and services;
- ▶ product design.

However, they are planning to make significant progress in all areas, aiming for a 4% reduction in costs per year and additional income of 3% per year. To do this, companies of the sector are planning to invest the equivalent of 4% of the turnover in digitalisation within the next five years.

More precisely, the priorities of the graphics industry should concern:

- ▶ optimal use of production tools: material and energy efficiency (strategic challenge given the weight of these inputs in the costs of the graphics industry), reduction of faults and sheet breaks, reduction in setting times (of increasing concern given the shortening of runs), optimisation of production schedules in coordination with clients and suppliers;
- ▶ a «customised» client offering and the development of smart products that provide services to consumers (food safety, for example).

### ...AND NOTABLY THE TISSUE AND PACKAGING SECTORS

In terms of demand, digitalisation has different impacts on the two sectors. The development of e-commerce has had a positive impact on packaging demand, in particular corrugated cardboard demand. Moreover, now that the customer relation is no longer physical, packaging plays a decisive role in the consumer experience. This has enabled packaging manufacturers to develop offerings with

## THE CHALLENGES OF THE DIGITALISATION IN THE SERVICES INDUSTRY

higher added value. For tissue, this development has led to competition among distribution channels and pushed manufacturers to adapt their sales approach. However, it has not had any quantitative impact.

The two sectors have begun the horizontal integration of the value chain (in particular given their direct and indirect relationships with retailers, who have been forerunners of computerised data) and the digital transformation of their process:

- ▶ Process automation: palletizing, infeed and outfeed of machines..
- ▶ Real-time control and adjustments of machine parameters (fibres, chemicals, speed..)
- ▶ Thanks to sensors in different locations of machines, remote monitoring enabling proactive maintenance practises
- ▶ Thanks to Big Data, predictive analytics in order to stabilize processes and improve machine efficiency

Regarding products, innovations in the tissue segment are still primarily based on paper-making technologies (to improve the absorption and softness of products, for example), while the use of digital technologies is much more developed in packaging,

which is taking on an increasingly visible role in services to customers and consumers.

For example:

- ▶ packaging fitted with RFID to ensure traceability and simplification of logistics operations;
- ▶ pharmaceutical packaging fitted with electronic systems that monitor the observance of the treatment by patients;
- ▶ food packaging that measures temperature, oxygen content, humidity, etc.

In any case, even though digital technologies are disseminating, there is considerable scope for further development in tissue and packaging industries. Consequently, at the moment being, it is difficult to assess accurately, the future magnitude of digitization and its impacts in those sectors.

## #10.3 MAJOR CHALLENGES IN THE RENEWAL OF EMPLOYEES AND SKILLS DEVELOPMENT

There is a huge potential for the transformation of product modes and work. In a company, where machines are inter-connected, where design methods use digital technologies to model everything, the

### The example of Stora Enso: its smart packaging offering

Source: Stora Enso



issue of employment and its outlook immediately emerge, once it appears that this factory of the future will generate very significant productivity gains.

In this context, there is a risk that there will be serious cuts in the number of persons to be mobilised and access to some key skills becomes decisive with the widespread transformation of professions.

However the reduction in capacities and a policy of investments focused on productivity gains has led to the destruction of jobs and the ageing of personnel in the European graphics industry. The ability to develop and capture new skills is therefore a major challenge for the industry today.

Although employees in the sector have a lot of experience and technical skills, in Europe, they generally have a lower level of initial education. In this context, continuing education is a decisive challenge.

Furthermore, the graphics industry is finding it difficult to recruit (in particular, young people) because it suffers from a negative image and also because the skills that employers are looking for are not available on the job market. This calls for actions by the industry to improve its image and also raises the issue of initial training, apprenticeship and mentoring.





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