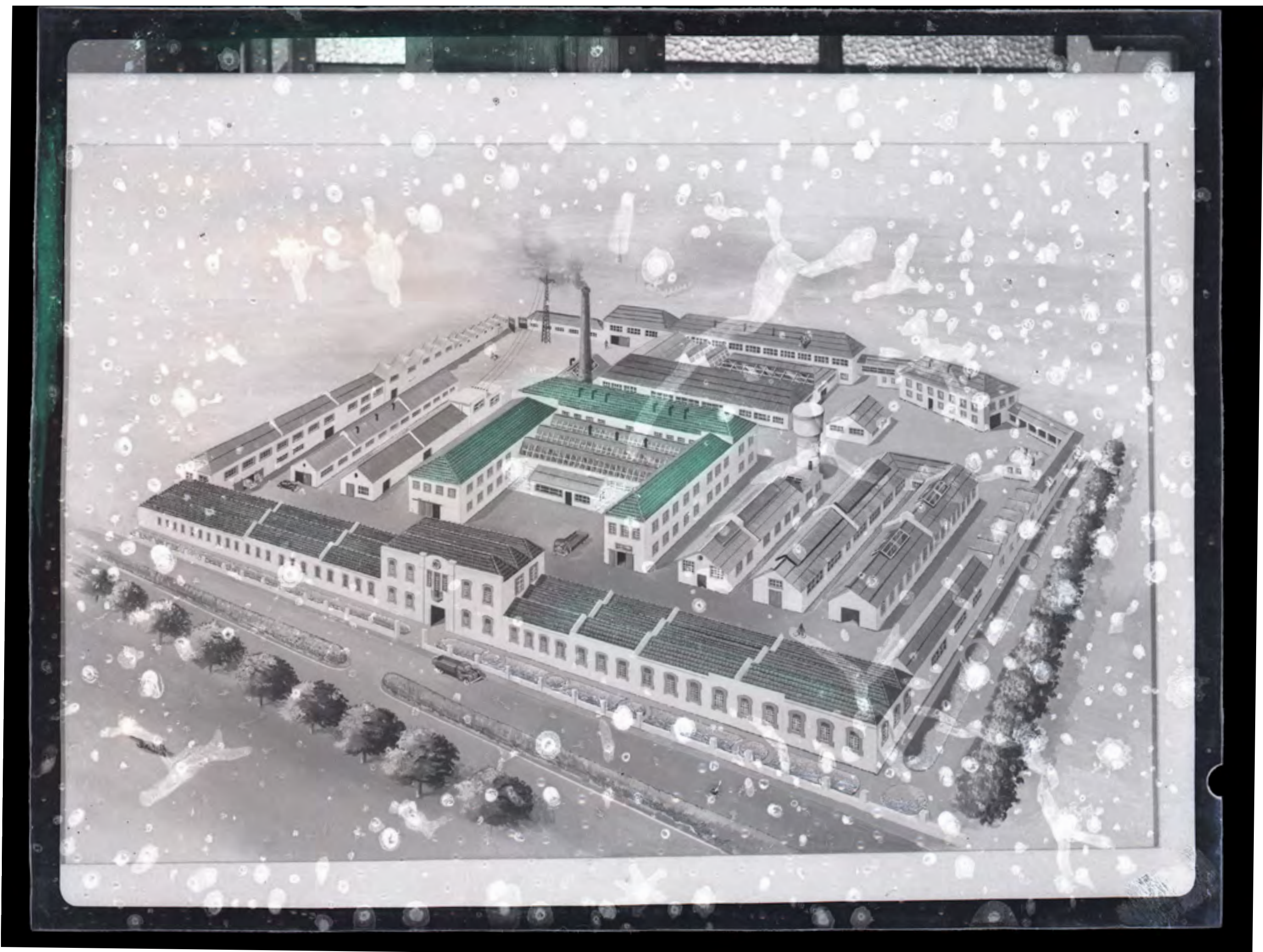


PRESS HERE A LIVING ARCHIVE ON
EUROPEAN INDUSTRY

RESEARCH GUIDE



Title

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NOTE

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INTRODUCTION

WHAT IT IS

The Research Guide is the first outcome of the European project *PressHere: a living archive on European Industry*. It trails an innovative path of transforming museum archives into **living archives**, thus becoming digital and educational resources with a relevant place within schools and their syllabuses. In this Guide, the images from the past belonging to the archive of the Interactive Museum of Industry in Gabrovo and to the “Foto-Comercial Teófilo Rego” archive from the Casa da Imagem – Manuel Leão Foundation, touch upon the issues of the present and the **future of industry**, work, gender, and fundamental human rights. The Research Guide derives from the interdisciplinary collaboration of researchers from the fields of history, visual culture, architecture and urbanism, education, and human rights.

FOR WHOM

The Research Guide is designed to be used by educators, teachers or researchers, children and young people, whether in schools, museums or other non-formal or informal teaching and learning environments. It is intended to be a useful document, a catalyst for **new and meaningful learning**.

WHAT IT'S ABOUT

The **contents** of the Research Guide cover the diverse historical, cultural, and political contexts of late 19th and 20th century Europe. They reveal different perceptions about the industry's past and present and form an important basis for historical, visual and civic **literacy**, with an emphasis on labour rights and gender issues. The texts in the Research Guide break the silence imposed on forgotten images from the archives of the past and make us listen to old and new voices, claiming that it is time to reflect on the present and the future of work and industry, so that new stories can be written. In this sense, by valuing the history and memory of industry, it is intended to present the reality of the industrial sector, encouraging work in the area while raising awareness of the inherent fundamental rights, including gender equality.





STRUCTURE

The Research Guide is based on a **visual lexicon** where text and image come together in a reciprocal dialogue in the form of a hypertext, which is stretched and inter-related throughout the guide.

The Research Guide begins with a set of ten general concepts of the **World of Labour, Industry, and Modernity**, in which ideas and definitions considered transversal to the whole document are listed. The remaining concepts of the Guide, which are more specific, are built upon three themes related to the structure of a working day, a legacy of the traditional organisation of industrial work divided into three shifts of 8 hours each. The first shift corresponds to the theme of employment and contract; the second shift corresponds to the theme of rest and privacy; the third shift corresponds to the theme of leisure and action. Associated with each theme/shift are a total of thirty-two concepts that explore the themes more specifically.

Each photographic image presents two subtitles. The first one, having the text and the image as references, introduces questions that challenge us to think about our present time. The second caption presents the institutional and historical description of the archives to which it belongs.

EXPLORE

The Research Guide is intended to be used and explored in teaching and learning contexts. To this end, ten artistic and performative based activities have been created in association with this Guide. The topics of this Research Guide were thus associated with contents of the school curriculum, from pre-school to secondary school, building a bridge between the concepts of the Guide, the school programmes and a set of activities.

The activities, called Artistic Workshops, aim to provide the development of critical thinking and concrete action on the themes and concepts of the Research Guide by relating them to the daily experiences of children and young people. In this way, it is intended to generate a parallel, new and living image archive. The Workshops follow an artistic-based working method, promoting creativity, and divergent and associative thinking, as well as exploratory capacity, attention and sensitivity. The activities involve **digital and multimedia resources**.

1. WORLD, WORK, INDUSTRY & CONTEMPORANEITY

INDUSTRY

Industry is a socio-economic activity that has been changing the planet and the human societies in the last two centuries. Therefore, industry is a systemic activity well known to European societies and to the, so called, “developed countries”. Industrialization has extensive impacts on the globe, and they keep growing – remember, to some extent the definition of “non-developed countries” coincides with the non-industrialized ones.

To provide the “Press Here” definition of industry invites a wide spectrum reading of its influences on the planet and the global economy, from the transformation of natural sites into industrial landscapes, from the massive extraction of natural resources to be used as raw materials for production, to the necessary transport and distribution of goods, materials, and sources of energy.

Industry shapes our society and built environment, from industrial buildings to housing and industrial settlements: did you know that the industrial wooden euro-pallet is the internal module of a sea-container, which is the size of a truck, the width of a road, the module of a sea cargo ship? This network system is homogenised to help the global circulation of industrial products, those which brought comfort to life in capitalist societies.

Throughout the 20th century the awareness of the right to work and central role of workers and their fights, have led to the fundamental principles and rights at work. From paid work, education of workers and young professionals, lifelong learning to family protection, childcare, annual leave and health & safety measures, workers have been organising through affirmative action, collective bargaining and campaigns.

Industry is therefore a cultural and social construction which overcomes its economic and financial factors and outcomes. The influence of industry ranges from corporate identity to family identity, collective memory and, therefore, results in industrial heritage.

More and more, the question of sustainability of this mode of human economic development is questioned and the climate and ecological crisis influences of extraction, transformation, and distribution. In addition, the waste generated by industry and then going to landfill became a global human problem.



Industry may be understood as the building of its main production factory and, historically, companies would represent its economic and technological power through advertising.

If today most industries are operating as networks connecting factories in several countries, how could we represent them?

1. Poster for one of the oldest wool textile factories in Gabrovo. "First royal court factory for pure woolen fabrics" (excerpt from the text). His owner also constructed the first privately owned water power plant. Interactive Museum of Industry, Gabrovo, Bulgaria.



A standing chimney affirms the power of industry over the landscape and can be read as a modern monument punctuating European territories, like other sculptures and artistic elements did in the past. How do you read the smoke coming out of the chimney, how is the European industry dealing with sustainability nowadays?

2. Monument near the entrance of the first factory for metal working tools, Period of State Socialism, ca. 1970. Interactive Museum of Industry, Gabrovo, Bulgaria.

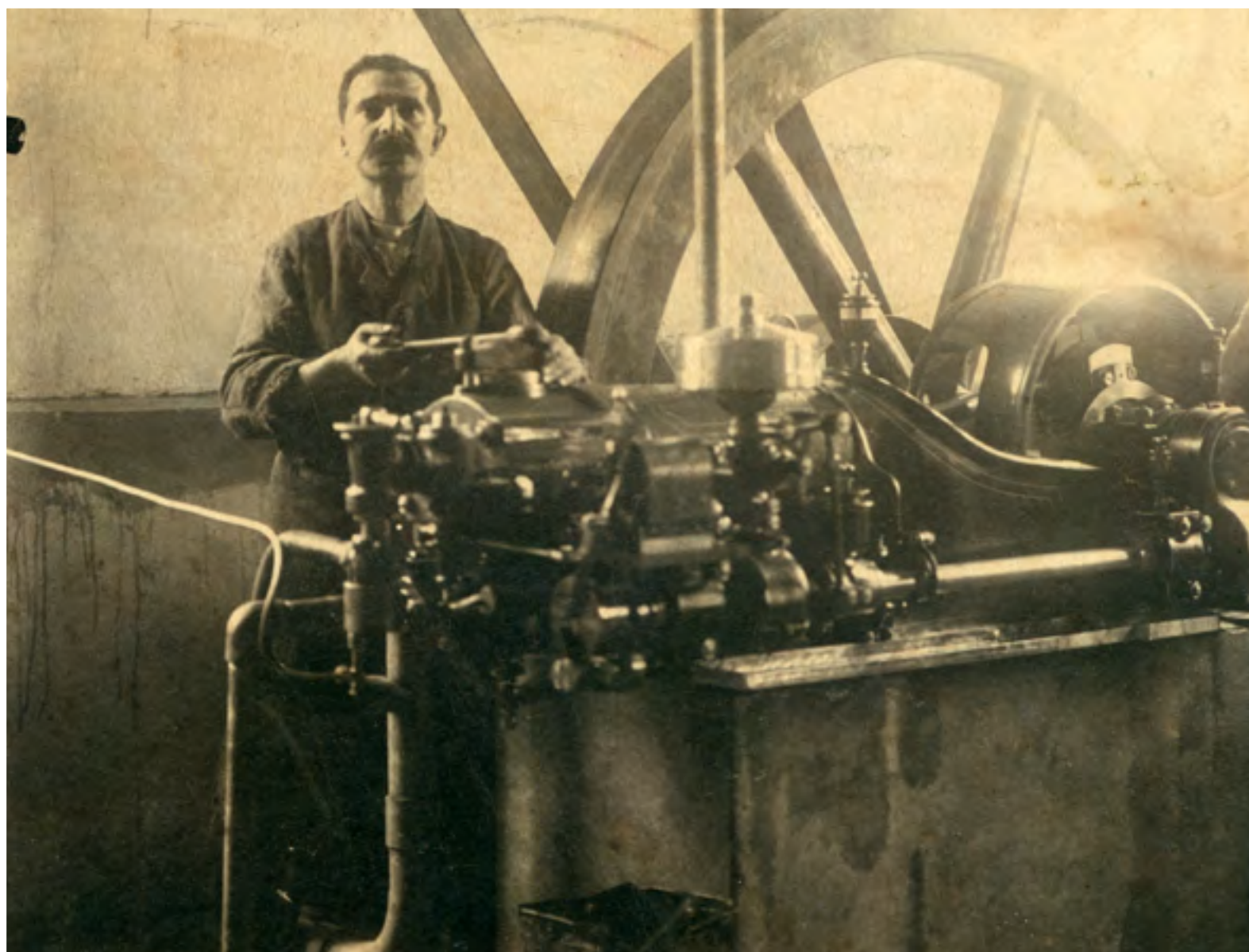
BUTTONS

Buttons are objects of different shapes, sizes and materials which, when pressed by a human hand, transform a mechanical movement into an action. The action can be triggered by different impulses, among them the electrical impulse, as is the case of computer keyboards, or the mechanical one, if we consider the case of levers. In particular, the choice of materials for the production of mechanical buttons for industrial tasks can be related to issues related to manufacturing costs, the desired functionality or with the health and safety of workers.

Plenty of industrial mechanisms depend on this interface between human and machine – hence the “Press Here” title – and, therefore, button action programming is essential to numerous functions involving everything from small to large industrial structures. In many cases, the operation safety in machines, industrial buildings, production chains and assembly lines

depends on the human decision on a specific button. For example, a person can trigger the fire detection system in a factory through a button and, in that case, the safety of the workers and the raw materials inside this factory may depend on this mechanical push movement.

The end of the buttons may be coming soon, since one of the premises of the current Digital Revolution is to replace the presence of the human being with autonomous processes. Automatization may imply that by removing human presence from part of industrial production, the presence of mechanical buttons will no longer be necessary. On the other hand, digital interfaces such as touch screens have adopted the push movement of fingers, so as to interact with smooth surfaces which don't have buttons. Press here seems to be an instruction that shifts from mechanical buttons to digital surfaces.



The industrial worker operated devices, pushed cranks, controlling the operation of machines. The machines, once in motion, require the action and full attention of the worker, who is now also controlled by the machine. Nowadays, the automation introduced by digital technologies replaces many of the worker's previous actions. What is the nature of the current relationship between the worker and the machine in industry? What is the trend in its evolution?

3. *Mechanic working the stationary steam machine of one of the old factories. Interactive Museum of Industry, Gabrovo, Bulgaria.*



Buttons are often associated with symbols. For example, in the 1960s, to set the tape of a music cassette tape in motion, we pressed a button with a triangle symbol indicating the direction of the tape. The use of the triangle as a "play" symbol became widespread and we now press it to interact with devices whenever we want to watch a video, listen to a song or start a game. What are the symbols we press the most nowadays? Could one of them be the "like" on social networks?

4. *Visit to factory premises. CUF (Manufacturing Union Company). 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*

MACHINE

A machine is a mechanical structure that performs a task. Physicists call this work a force. So, we can consider a machine as a device that transfers a force from one point to another by increasing the distance or speed or intensity or direction in which it is transmitted. Any machine is created and used to facilitate both the product chain and the assembly line.

There are 2 types of machines: simple ones, such as a wheel and an axle, and complex ones, such as scissors. Renaissance scientists considered 5 simple machines – lever, screw, inclined plane, pulley and wheel and axle. These types of machines, despite having few moving parts, need energy to function. A complex machine results from the union of 2 or more simple machines in order to create a single mechanism. For example, a bicycle is a complex machine because it is composed of a pulley and a system of pedals.

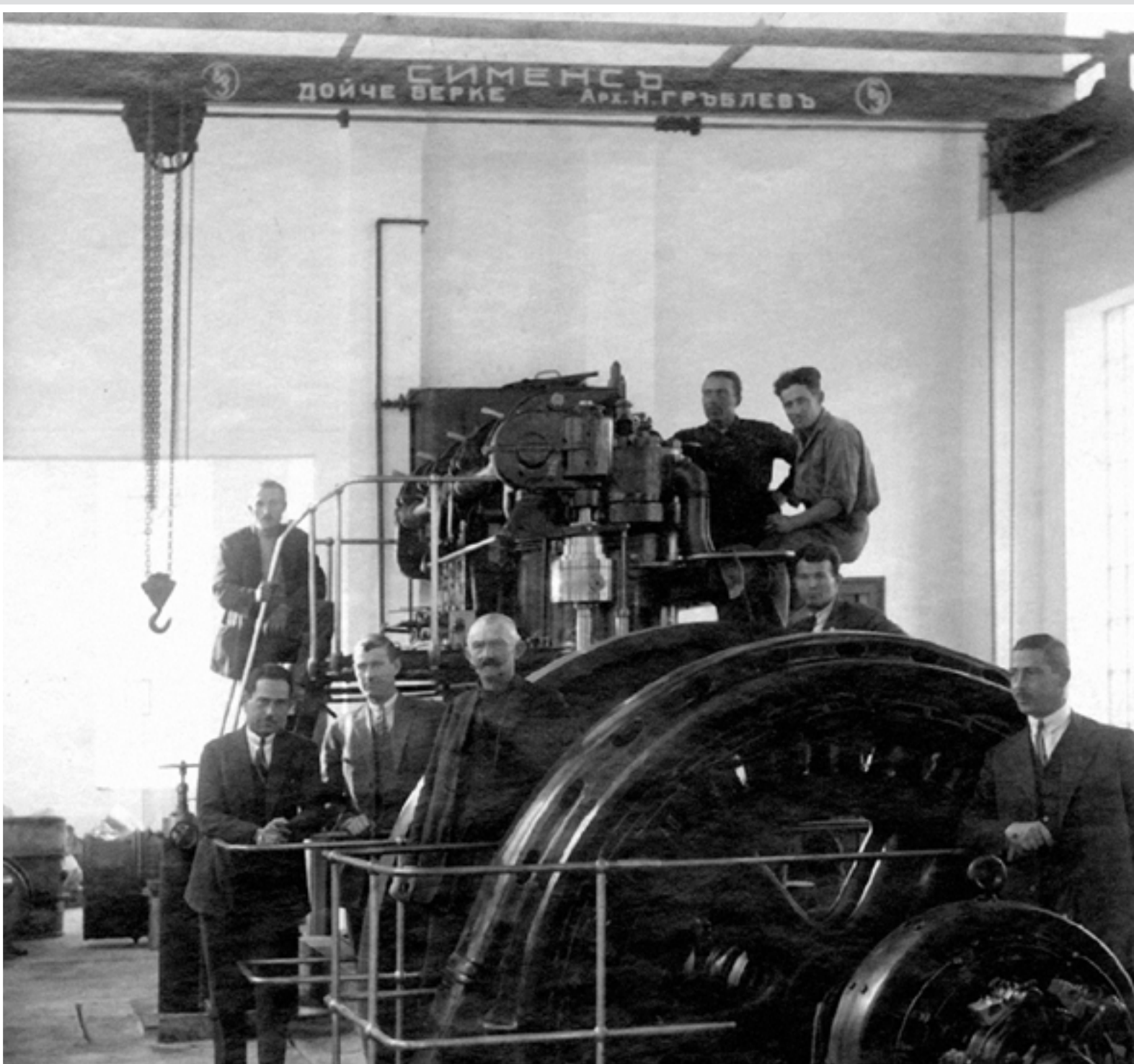
All types of machines need energy to function. If in the past, human and animal strength were the main sources of energy, with the Industrial Revolution man started to exploit natural resources in order to improve the performance of machines. In parallel, the operation of a machine may involve the transformation of chemical, thermal, electrical or nuclear energy into mechanical energy, or vice versa, such as the diesel engine or steam engine.

Nowadays, some machines are associated with electronic systems in order to improve efficiency on the production line. Electronics, when compared to mechanics, have a higher degree of reliability. Therefore, many companies adopt robots – a complex machine made up of several simple machines and a set of electronic systems in order to perform a task – with the long-term aim of increasing profit.



For many years some machines were operated almost exclusively by women. After a short training course, often tutored by men, women took over particular tasks. Nowadays, does the world of labour still have specific “machines for women”? Are they adapted in any way?

5. Older worker passing his knowledge to the young workers, 1948. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



The use of complex machines allows a company to increase profit, as it also requires specialised workers' knowledge. In the age of robotization could mechanical knowledge be fully replaced by electronic knowledge?

6. The generators of the first diesel power plant in Gabrovo, 1927. Interactive Museum of Industry, Gabrovo, Bulgaria.

LEARNING

Education concerns activities developed inside or outside the industrial facilities with the goal of acquiring skills enabling the workers to perform a task or a set of tasks. These activities, paid or free, may be developed before or after the worker enters the industrial infrastructure, on a voluntary or compulsory basis. Throughout history, the worker, individually or in groups, has participated in different types of training activities with the aim of improving his/her performance at the site where he/she were or aimed to be at. This transfer of know-how takes place as a means for living, economic, political, religious, and/or affirmation of corporate identity.

In the pre-industrial era, learning took place mostly between generations of craftsmen belonging to the same family. Often the mastery of a trade, or a craft, was part of family identity. Later on, with the Industrial Revolution, the training to work in any industrial sector changed. In its origins, the individual was admitted to the factory as an apprentice and through daily observation and training would learn a trade. The worker understood that when his knowledge increased, the company would allow him to progress up the hierarchy of the factory. Many workers had no access to prior, or off-the-job, instruction. To that extent, the education at the factory meant individual progress and the identity of the worker would become embodied with the corporate identity.

With the displacement of men to the front during World War II, many jobs were occupied by women. These jobs had been held up till then mostly by men. Despite the [unequal pay](#) and the lack of specialisation, the integration of women was a fundamental milestone for the affirmation of women in the world of labour. The Universal Declaration of Human Rights (1948) declares the human right to education (regardless of gender) and is itself the proof that a development paradigm based on control and subjugation of workers had to be overcome. Education is therefore relevant to perform professional tasks and to question the equality within the industrial system and labour world.

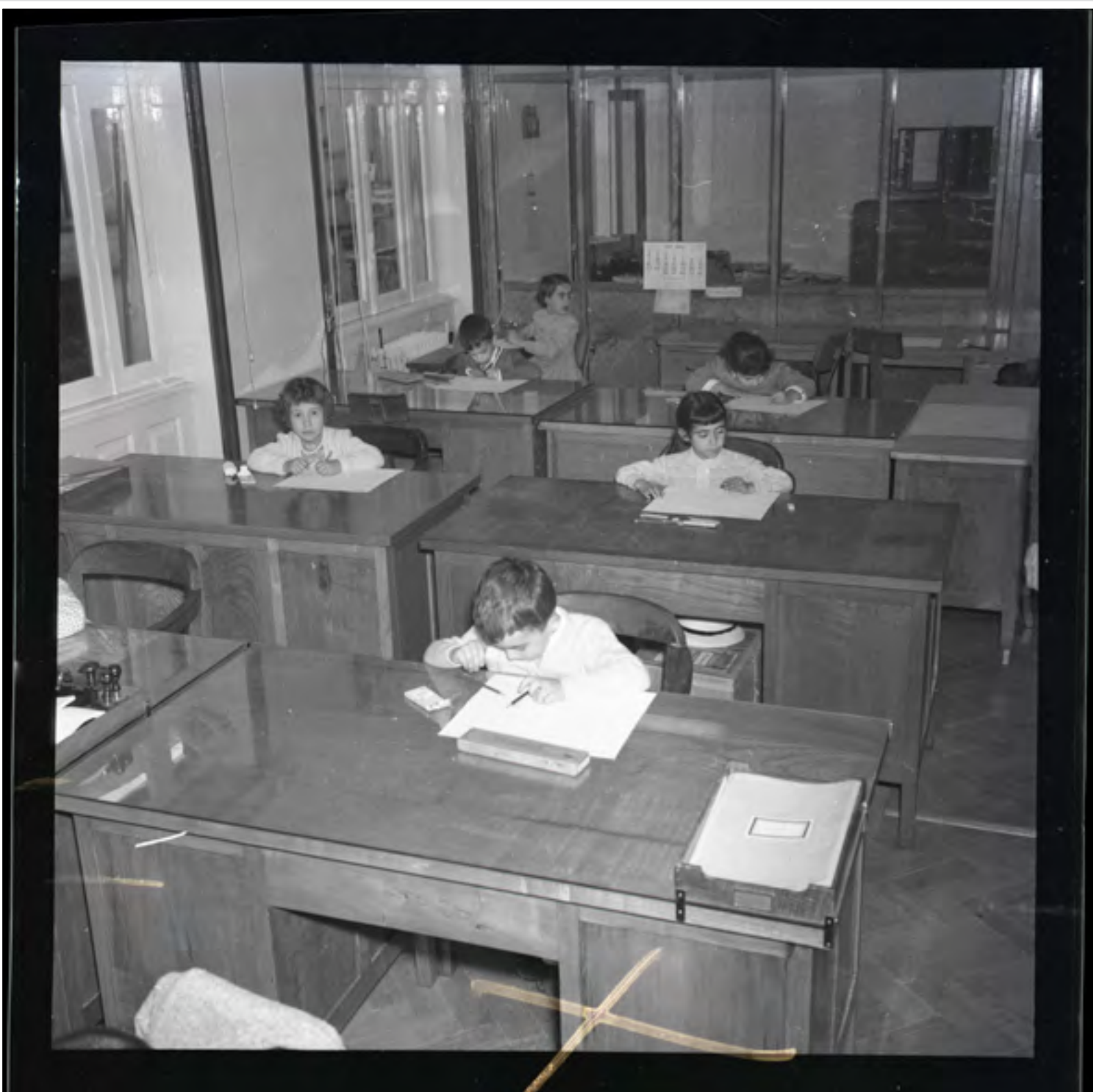
Nowadays the EU, a society based on knowledge and cooperation, is concerned with improving the training and participation of its citizens. Training policies go beyond the Hawthorne experiment (1927) – for example work specialisation is not synonymous with efficiency and workers change jobs so as to avoid monotony. Through exchange programmes for pupils from compulsory schools and universities, an attempt is being made to develop a European identity fostered by a common egalitarian education.

[Lifelong learning](#) is today one of the most important competitiveness policies in the EU.



Education in the industrial age in the 20th century was loaded with a sense of instruction. It was important for students to learn to follow a set of rules, just as, when operating a machine, one needs to comply with its handling instructions for the machine to work. Beyond the instruction of rules, what can education teach to contribute to the improvement of the living conditions of workers?

7. Children working as apprentices in the leather industry in the late 19th century. Interactive Museum of Industry, Gabrovo, Bulgaria.



Today, the concept of lifelong learning that Europe wants to promote no longer conceives the worker as an operator of instructions, but as a creative subject that develops its own learning and participates as a citizen in the construction of a more inclusive society. Is today's school, during compulsory education, also guiding students in the construction of their own learning?

8. Children studying. HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

SYSTEMIC INDUSTRIALIZATION

Systemic industrialization is the aggregate of immovable assets with or without industrial networks and/or systems which allow the functioning of a given industrial activity to be understood. There are several elements that make up the industrial infrastructure: from the [industrial building](#) to [private housing](#), [industrial settlements](#) and energy sources. There are three interconnected phases which characterise man's relationship with technology, according to sociology studies. The successive interconnected phases are characterised by the resources and raw materials used, means of energy use, forms of production, type of workers and ways of life.

First, the eotechnical phase (10th-17th century), then the paleotechnical phase (17th-20th century), and lastly the neotechnical phase (which started at the beginning of the 20th century). Studies have found the relationship between technology and progress. If on the one hand society has developed different technologies to solve human problems, on the other hand the mass use of these technologies leads to dehumanisation: "however

so far they have fallen short of their intrinsic possibilities, modern science and technology have bequeathed humanity at least one teaching: "nothing is impossible".

Some theoreticians may help us concretize other notions which are vague and immaterial. For Lewis Mumford ([Civilization and Technique, 1963](#)) the introduction of the clock in the factory completely changed the notion of time and served as a model for all subsequent mechanisms: "The clock, not the steam engine, is the key machine of the modern industrial age". The new notion of time management, turned to a new "industrial order" in which the worker and the job came to be marked by the hands of a clock. Firstly, space commands the infrastructure and the work occurs inside the industrial infrastructure where production becomes more systematised. And time became central, [workers](#) report to work at a certain hour, comply with a certain working day and working hours... Then, outside the factory, the worker started to control the time he dedicated to recreational activities and rest.



Energy and electricity are fundamental elements of systemic industrialization, therefore, when a new dam is created it offers many opportunities for the economic development of regions and countries. Beyond the heavy metal scene, can you sense the subtle poetics of old cables and towers as it ages in an old photo?

9. HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The oil industry was a relevant source of energy in European countries, whether connecting its pipelines via land or via sea ships and ports. What shall be done with oil structures if we are entering the decarbonization of European countries?

10. Pipes, SACOR, portuguese oil company. 1947-1974. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

WORKER

A worker is any person who works in exchange for a wage or salary and who performs services or tasks for an employer. His/her employment is regulated by a written or verbal contract of service rather than a contract for services (i.e. "independent contractor").

In broad terms EU law defines a "contract for services" or the provision of services as any self-employed economic activity which is normally provided for remuneration.

The traditional understanding of an industrial worker relied on the performance of services related to manufacturing, altering, cleaning, repairing, ornamenting, finishing, adapting for sale, breaking up or demolishing, transforming materials.

Other examples of industrial work appointed were the inclusion of electronic data processing telecommunication, electricity generation and/or distribution. While this definition is still applicable to many industries, especially in the least developed countries, the landscape of work relations is more complex and fragmented today and the nature of industrial tasks and jobs widened exponentially to include, among others, digital/creative services. An industrial worker can do, and usually does, more than manual work.

In the current labour market relations within the different industry sectors, and in particular in the EU, service providers and workers coexist and different realities are possible: workers with part time/ full time contracts, workers working remotely or in situ, service providers filling in for seasonal, creative, or intellectual property related tasks/assignments that also work with different companies, enterprises/ factories.



The notion of worker, particularly, in industrial settings is often associated with men. With the change of work dynamics and labour relations, did the identification of industrial work with labour performed mainly by men?

11. Worker. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Industrial work and manual work can often be seen as antagonistic or complimentary depending on the specific industrial sector. What role do hands, i.e, manual work, play in the Fourth industrial revolution and what shape will it take in the Fifth?.

12. Master craftsman of the largest knife and cutlery factory in Gabrovo. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

FUNDAMENTAL PRINCIPLES AND RIGHTS

The fundamental principles and rights of employers and workers are part of the [ILO Constitution and the Declaration of Philadelphia](#). These principles and rights centre on the freedom of association and the effective recognition of the right to collective bargaining, the elimination of forced or compulsory labour, the abolition of child labour, and the elimination of [discrimination](#) with respect to employment and occupation. These principles are translated in [eight International Labour Organisation \(ILO\) Conventions](#) which have had wide acceptance at the international level.

In 1998, the importance of these basic protections and guarantees was reinforced by the [Declaration on Fundamental Principles and Rights at Work](#), adopted by the International Labour Conference.

All of these fundamental principles and rights are also of core importance and interest in the industry sector overall, and vital for women workers, in particular those concerning non-discrimination, as they promote the [equality between male and female](#) workers, including in terms of access to employment, [equal remuneration](#) for work of equal value, and equal opportunity and treatment.

The ILO has a programme which specifically focuses on the promotion of the Declaration Fundamental Principles and Rights at Work, which offers technical cooperation support, providing technical advice to member states, to advance and implement them at the national level.

All the ILO Principles have been mirrored in EU labour legislation and incorporated to different extents in the national legislation of Member States.



To identify key fundamental rights and principles at work might not always be an easy exercise. While health and safety as a right of all workers might be obvious, since some time now, its translation in the past depended, in some cases, on the hierarchy in the factory. Are there any fundamental rights and principles that need to be considered concerning the change of the industrial landscape to incorporate digitalisation and artificial intelligence?

13. Pre-industrial period. Interactive Museum of Industry, Gabrovo, Bulgaria.

GENDER

Gender relates to the learned perceptions of social differences and relations between women and men, and other gender identities and expressions, changeable over time, varying considerably from society to society and from culture to culture.

The way these differences and relations are understood is deeply rooted in the socialisation process, therefore, they are socially constructed and bound. The way in which they are translated is through a core set of *rules* that guide what is appropriate and acceptable for women and men. Although they are context-specific and can be modified, the process of change is usually slow.

Gender is diverse from sex since it does not only consider the different physical features and characteristics of women and men, but also their socially constructed roles, and their relations. It furthermore includes the mutable sets of behaviours, practices and perceptions about what is to be a woman or a man, as well as those regarding other genders, that nurture self-identity. These are also of vital importance in terms of systems, frameworks, and social institutions.

The way in which [gender perceptions, dynamics, and relations](#) work explains how it is very difficult for women to be included in traditionally male dominated sectors, including some industry sectors.

As mentioned, the understanding of gender is contextually bound and the way it has been understood and lived differs considering specific historical times, but, even within those, it is also affected by specific social-political realities (e.g, southern European countries versus USSR in the 1950s).

Additionally, gender perceptions might alter and change sharply for a specific – relatively short period of time – as per disruptive or catalyst events.

During World War II, for example, women were called to perform male-oriented tasks, namely in some of the industry sectors. This was a temporary shift to be resumed when the war ended, with the replacement of the status quo and the traditional understanding of the division of labour, in which men should re-occupy the role of key breadwinner



Gender representations are considered to be extremely important as they help shape/re-shape reality. Does the representation in the photograph still resonate with what the industrial landscape looks like today?

14. *Workers, Frigido factory. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



The notion of gender can historically be seen as a stamp on what a woman and man shall do socially, personally and professionally. Can this be one of the reasons why women still are underrepresented in many industrial sectors?

15. *Showing work clothes, ca. 1980. Interactive Museum of Industry, Gabrovo, Bulgaria.*

WORK HOURS

Although the concept of work hours – as the period of time a worker spends at paid labour – is nowadays commonly accepted, it only emerged with the Industrial Revolution – when labour ceased to be seasonal and dependent on daylight.

In the early days of the Industrial Revolution, the working day had 14-16 hours, and labourers used to work every day, except Sundays and holidays. The reluctance of the factory owners to stop the production led to the adoption of an employment practice called shift work. This practice consists in dividing the day into sets of periods during which different groups of workers labour and demands the adoption of measures to mitigate its negative effects (for example, sleep disorders).

The realisation that there would be a need for rest and refreshment for workers in order to be able to cope and ensure productivity by employers, led to Robert Owen's proposed division as coined in the slogan: Eight hours labour, Eight hours recreation, Eight hours in the 19th century. This research guide is structured and shaped around the understanding of the different dimensions of each of these shifts.

During the 20th century, and with the contributions of trade unions and [collective bargaining](#), the work hours were cut down by almost half.

Currently, within the [EU legal framework](#), the weekly working hours are limited to forty-eight hours every seven days. Among other rights, all workers are granted a minimum of eleven consecutive hours of rest per day, a minimum of twenty-four hours of uninterrupted rest per week, and special protection in case of night work.

Specifically in the case of [pregnant workers, workers who have recently given birth, or workers who are breastfeeding](#), they are not obliged to perform night work.

However, the concept of “work hours” excludes all the time spent in unpaid work, such as care and housework, and these tasks continue to fall back more on women than men. As this inequality persists, even though women's participation in the labour market has increased, [work-life balance](#) policies remain a priority at the EU level and are essential to change gender [gender stereotypes](#) and [gender gaps](#).



Work hours and schedule demands impact differently depending on the industrial sector on workers. Industry sectors which require night or temporary shifts might be more prohibitive for women. What can be the solution to make night and temporary shifts accessible to women?

16. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



The factory and work shifts dictated life rhythms in the past. Is this still true today?

17. Workers leaving the Spinning and Textile Factory William & John Graham & Co., also known as Factory of the Englishmen, Porto. Ca. 1950. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

LIFELONG LEARNING

Lifelong learning is the development of the concept *adult education* put forward by UNESCO in the 1940s.

The European Parliament defines lifelong learning as all general education, vocational education and training, non-formal education and informal learning undertaken throughout life, resulting in an improvement in knowledge, skills, and competences within a personal, civic, social and/or employment-related perspective.

The idea behind lifelong learning is the continuous development of the set of knowledge and skills – after undergoing formal education and through the course of life, resulting from a multitude of experiences, and not only educational and training experiences. Accordingly, there is a sense of agency and autonomy attached to lifelong learning and an idea of a continuum – what might be needed now might not be needed, or might need to be adapted, in the future.

This resonates significantly with the industry sector, which from its birth has been ever evolving, demanding workers to constantly adapt, learn and acquire new skills.

In current times, with the so-called 5th and 6th Industrial Revolution, the importance of lifelong learning has been occupying a central stage, as the change brought by new digital technologies and artificial intelligence is constantly reshaping the industry sectors. This will naturally have an impact on workers' duties during the different transitions, showing the significance that education and training plans will have in protecting them against the needs and challenges posed by the new overly competitive environment, as well as in engaging them to respond to the changes already occurring.

[Gender gaps](#) might be heightened by this landscape, and therefore the EU has been focusing on making clear that lifelong learning is particularly important for women and that it has a crucial role in reducing gender gaps in the labour market and the industry sector.

The importance and advantages of lifelong learning should not be seen only as a consequence of the challenges and needs of the new industrial environment towards which we are heading. In our current context, and with the increase of life expectancy it also shall be considered as an exercise of fruition, recreation motivation, personal fulfilment, and overall social welfare.

Life-long learning can also be referred to as permanent education or recurrent learning.



Learning is a continuous process and dynamic endeavour and a tool for professional advancement and progress. What is the role of life-long learning nowadays?

18. Technical draughtsman. CUF (Manufacturing Union Company). 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



New technologies occupy a central stage in industrial work while women and girls continue to be less engaged with ICTs. What will be the consequences of that for industrial development and reform to accommodate climate needs?

19. Digitizer produced in one of the factories in Gabrovo, ca. 1985. Interactive Museum of Industry, Gabrovo, Bulgaria.

2. WORKERS AND WORK SHIFTS

**1ST SHIFT
LABOUR/CONTRACT**

INDUSTRIAL LANDSCAPES

Industrial landscapes are all those marked by processes inherent to one or more industrial activities. It is a privileged setting for observing the transformations brought about by mankind. There is ample evidence of [natural resources](#) exploitation in Europe, ranging from the pre-industrial period to the digital revolution. By analysing this territory, it is possible to understand how the different cycles of industrialisation occurred in different countries. In case these industries are still active, the observations of landscape changes allow us to understand, for example, how these industries adapted their [assembly line](#) to the plan to reach the Climate Goal in 2030 defined by the EU. In case these industries are no longer active, the landscape study allows us to understand the readaptation politics of a sustainable post-industrial space.

[The Alpine Industrial Landscapes \(AIlS\)](#) project aims to generate significant knowledge about AIlS and to develop and test sustainable transformation strategies applicable and replicable in the whole Alpine space. A multidisciplinary, and transnational team collects first-hand accounts of the Alpine identity of the villages, the history and memory of the industrial past, the cultural traumas brought about by the disappearance of the golden age of industry and the transitions taking place, and the imaginaries and aspirations for the future.



Some industries grew around cities where workers and transport were based, others grew in remote places closer to raw materials and energy and leading to new villages. Which industries are building new cities today, can you name one in Europe?

20. View of the houses and support infrastructures for HICA workers. HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



A mountain, a road, some landslides show how the site of industrial extraction of raw materials may seem rural and bucolic. Is this a natural or a man-made landscape?

21. View of the roads through the mountain. HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

NATURAL RESOURCES

Natural resources are all the elements made available by nature that can be used in different human activities. For example, geological resources – rocks, ores and mineral deposits, natural or mineral-industrial mineral waters; or hydro resources – water in its different states and reservoirs. Natural resources have been classified according to their availability: renewable and non-renewable/finite or exhaustible. The first are all those considered inexhaustible, such as sunlight and wind. The finite or exhaustible resources are those that are not renewed or that the regeneration period is very slow, as is the case of oil, iron, copper, among others. The exploitation of some natural resources for industrial purposes in recent decades has compromised the natural regeneration of these same resources. For this reason, the protection and promotion of natural resources have been the target of

numerous international actions promoted by the [United Nations Environment Programme \(UNEP\)](#), as they are considered essential to the survival of humanity. The work developed by UNEP has also focused on the recognition and appreciation of the role of women in natural resource management.

It is also important to note that the strategic importance given to natural resources is associated with time and space. In other words, the value assigned to natural resources varies according to the era - Pre-Industrial, Industrial Revolution, Digital Revolution - the political power and the territorial dimension – local, regional, national or international scale – in which these resources are located. Their exploitation also varies according to the available education, i.e. technical culture – technology and know how.



A vast natural land with dense forestation, plenty of wood availability, waterfalls and high slopes would be parcels of great interest for industrial implementation and exploration. Would this land be seen today as a natural resource or as a natural reserve?

22. Aerial view from the second factory related to the chemical production in Gabrovo. The factory produced mainly for gunpowder and mining explosives. Ca. 1906. Interactive Museum of Industry, Gabrovo.



Industrialisation brought substantial impact to river systems and landscapes with the implementation of artificially impounded water storages to comply with the demands of cooling, irrigation and hydroelectric generation for its production.

If we could imagine this landscape in the future, how could we describe its natural systems and urban imprint impacts?

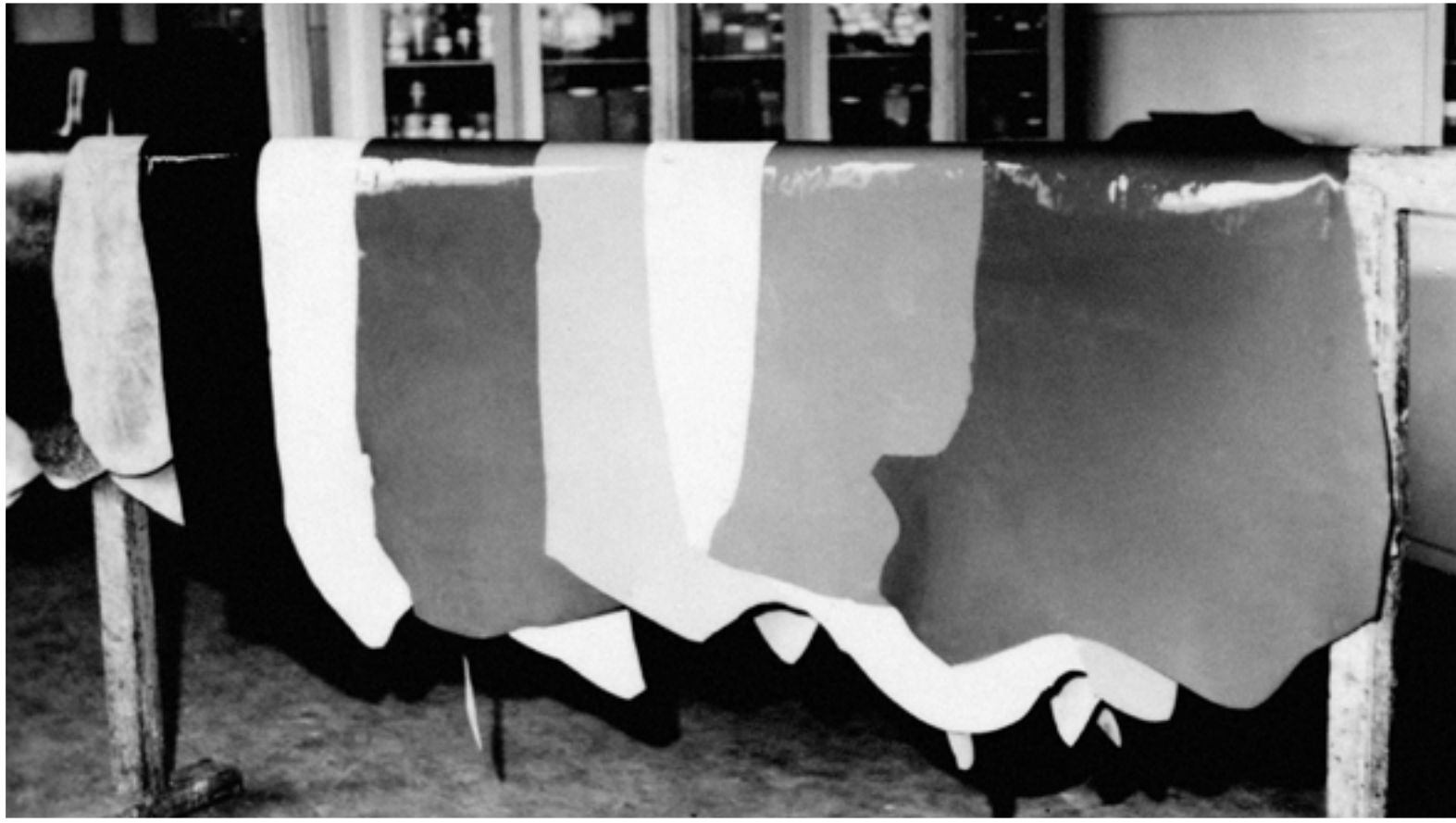
23. View of the construction of a HICA dam (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

RAW MATERIAL

A raw material is a natural or transformed product which is used in the [production chain](#) to obtain a finished product. The typology of natural raw materials is determined by their origin: vegetable (extracted from plants) such as latex to produce rubber; animal (taken from animals) such as cattle skin to produce leather; or mineral (extracted from the soil) such as oil to produce petrol. Processed raw materials result from some kind of human action. Cotton fibre is the processed raw material used for clothing production. Cotton is a natural raw material that can be found in nature.

Basic industries change the raw material into processed raw material to be used by other industries. For example: agricultural fertiliser industry. Consumer goods industries transform raw materials produced by the basic industry into a product for the end consumer. For example: the automobile or household appliance industry.

The importance that certain raw materials have in an [assembly line](#) has justified some transnational conflicts and motivated numerous military actions. An example of this is the control over oil deposits all over the world. On the other hand, global phenomena such as pandemics, climate change or associative actions may be responsible for the scarcity of raw materials and, consequently, for the increase in price of final products.



Raw materials, energy and labour are fundamental to the development of industry. The materials in its raw form and shape are in-between conditions, as is the case of leather. Can you clearly differentiate agriculture, cattle raising and industry?

24. Leather. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



The transformation of raw materials into final productions implies different phases and processes. Are these pallets transporting the final materials to a final destination, or are they arriving in a factory to be transformed into a product?

25. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

SUSTAINABILITY

The Industrial Revolution and its global growth has shaken the delicate global balance of our planet and the cohabitation of human life with all other life-forms. Sustainability is, therefore, a preoccupation that encompasses all human activities and which should be considered in policies and practices at all levels. We are, therefore, avoiding the notion of sustainability in industry which focuses on the economic growth of a company, a sector, or a country, so as to focus on a different and more overarching one: the sustainability of the planet and its legal protection, which shall influence the future of industrial activity.

Sustainability is impacted by the systemic industrialization of the planet, regardless of national borders and policies. In fact, production chains exemplify that nowadays industry goes beyond specific factories and companies, they are networked systems (which can be international): a product may be designed, produced, assembled and distributed in different countries, relying on transport and distribution. If extraction industries, such as mining, have a clear impact on industrial landscapes by transforming natural resources into industrial raw materials, they add to the impacts of transformation and distribution, and, as well, to the contemporary human settlements, whether industrial or post-industrial. The relocation of European and American industries to other countries and regions, such as southern Asian ones, is much due to low-paid labour and less strict national environmental laws, passing the global problem from one regional location, to another one, and not eliminating its impacts on the planet.

Sustainability is also broader than climate impacts and the climate emergency as it

also encompasses social dimensions and phenomena. The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a collective call to action to end poverty, protect the planet, and ensure that by 2030 all people can live in peace and prosperity, i.e. sustainably.

The key importance of the SDGs is the recognition that any action in one area will have impact on others and that sustainability includes not only environmental sustainability but also social and economic balance. In this sense, while the international legal instruments such as the Kyoto Protocol (requiring industrialised countries and economies in transition to restrict and lessen greenhouse gases (GHG) emissions in agreement with established individual benchmarks) and the Paris Agreement (a legally binding international treaty on climate change that enshrining the limitations of global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels), and the increased consideration of climate protection legislation at the EU level and the different national legal orders are of paramount importance in addressing core elements of sustainability they do not subsume it.

Sustainability requires a collective effort and involves many other dimensions that in one way or another have contact with industry: decent work, reducing inequalities, social and community impact, and responsible consumption and production among others. Accordingly, the development of a sustainable industry paradigm might be faced with many challenges, but it is necessary to consider the current and future landscape of the different industry sector.



Unpleasant odours, contaminated air and harmful sanitary conditions are characteristic of an environmentally unfriendly industry. Today, how does industrial architecture reflect concerns for the sustainability of natural resources?

26. *The first factory for metal working instruments in Bulgaria during the socialist period. Ca. 1950-5. Interactive Museum of Industry, Gabrovo, Bulgaria.*



Industrial settlements, by its pattern of concentrated land occupation, established high density zones of environmental pollution in the city.

How will the territory be organised in the industrial cities of the future?

27. *Recycling station in a textile factory. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*

TRANSPORT AND DISTRIBUTION

Transport and distribution are structures or infrastructures endowed with internal coherence inscribed in the territory with the purpose of transporting people, goods or materials. Due to their complex articulation and their [heritage](#) value, they may or may not be associated with [industrial infrastructure](#). For example, the water distribution network or the electricity supply system.

Distribution is linked to the movement of the product and therefore includes transport and delivery operations after leaving the [production chain](#). There are several distribution channels and their selection is related to the maximum customer satisfaction and the lowest associated cost. The technology associated with new management systems (Digital Revolution) has allowed issues related to the delivery of goods, stock management, [raw material](#) or final products, allowing real-time monitoring.

The choice of location of an industrial infrastructure has [systemic preoccupations](#) and is conditioned by the presence and proper functioning of transport and distribution networks. [Workers](#) are a relevant actor in [transport and distribution](#) operations. [The European Transport Workers' Federation](#) (ETF) promotes practical international cooperation and joint action to ensure that European integration results in progress for workers, based on the establishment and implementation of high social standards. In particular, the ETF Dockers Section represents dockers, white-collar employees in terminals and port authorities, maintenance workers, and other categories of workers in port operations and port logistics. They act at various levels to steer these changes for the benefit of port workers and their communities.



With the emergence of industrialisation in small urban centres and rural areas, beyond trains, the use of small-scale transport kept pace with the rhythm and reach of industry production.

28. Truck, loaded with products, from the first Bulgaria glass wool and insulation factory. 1961-2, Period of State Socialism. Interactive Museum of Industry, Gabrovo, Bulgaria.



Transport infrastructures (i.e railways and roadways) have always been central to the logistics costs and distribution efficiency of factories. They also delineated the location of industrial settlements in the urban landscape.

In today's globalised context with growing outsourcing of services, are industries still responsible for managing all the processes of transportation and distribution?

29. Building, Triunfo feed factory in Coimbra. 1956-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

INDUSTRIAL BUILDINGS

Industrial buildings are immovable property endowed with internal coherence that bears witness to the industrial activity to which it relates, whether they keep integrated or not in the context for which they were created. The development of construction technology and the appearance of new construction materials (such as bricks, metal or reinforced concrete) have progressively improved the construction of industrial buildings. The presence of chimneys in landscapes and cities are the new icons of the industrial revolution and therefore the new “monuments” in our landscapes.

Nowadays, many economic groups choose to build their industrial buildings with more sustainable and “environmentally friendly” materials. As a result, a new [industrial landscape](#) has emerged that contrasts with the old industrial architectural model, of extensive depredation and sprawl. These new architectural buildings contribute greatly to territorial cohesion and local development. Industry had to adapt to the new basic needs of human communities and planetarian welfare.

Paradoxically, the technological evolution that brings sustainability leads to shrinking industrial buildings and to make workers redundant. The new challenges of Industry 4.0 relate to the automation of processes, making part of the workers, machines and buildings redundant, it has an impact on industrial buildings and industrial workers. The automation process demands the digitalisation of work and production, thus creating automated process management. As an example, when a factory has technology prior to the Digital Revolution, operating a valve associated with a boiler demands interpretation of a worker and space for different machines and components. Nowadays, computers and machines are progressively substituting manpower, nonetheless a [worker](#) guarantees this process.

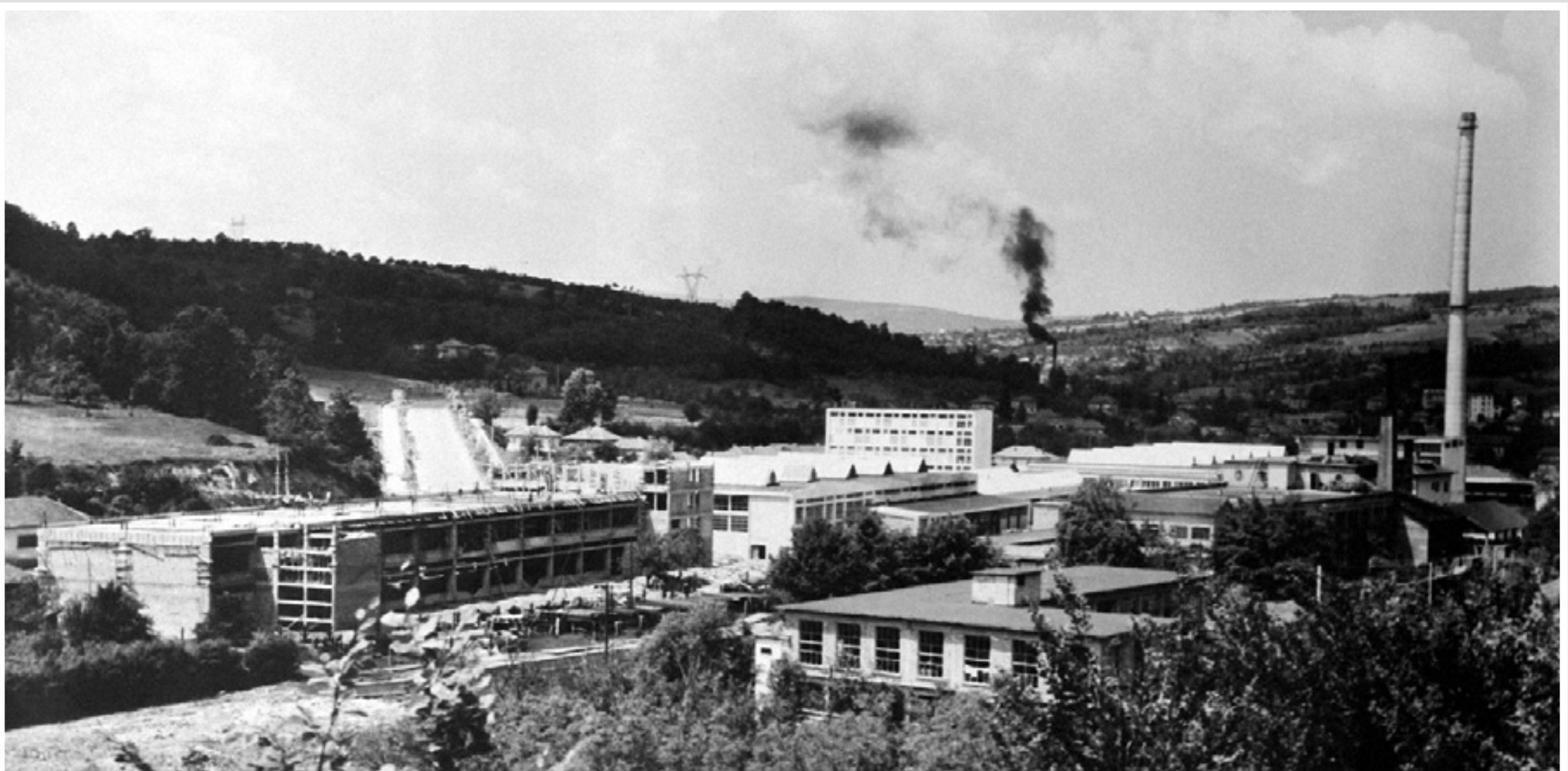
Two of the wider impacts of the automation processes are the shrinking need for architectural space and the collective redundancies of low trained workers. By reducing the presence of the worker as a standardising agent of the various industrial settlements, and the need for complex machines, companies have another challenge: to ensure the articulation of the machines and other elements involved in the automation process. As we see, by becoming more efficient, industry has the need for smaller and more compact industrial buildings and for fewer low trained workers.



Industrial buildings defined the European riverside landscapes to explore water canals as a way to outflow goods or raw materials and also as an energy force for industrial production.

What would be the responsibility of a company over the river nowadays?

30. Factory building of Harmonia Milling Company, Porto. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Industrial buildings left large footprints in natural landscapes through its extensive perimeter of occupation, use of heavy materials and monumental smoking chimneys.

With a growing concern with sustainability and architecture's impact on the natural environment, how could we describe the structural materials and designs of an industrial building today?

31. The first factory for metal working instruments in Bulgaria during the socialist period. Ca 1950-5. Interactive Museum of Industry, Gabrovo, Bulgaria.

NETWORKS

Networks are composed of intersections and links. Intersections are responsible for the union of different information channels. Links establish the communication between intersections. These links can transport information or energy and their use arises from the need to connect a source to a destination – as an example:

raw materials to factories, or products to distributors. Connecting the distances and establishing articulations between different points and elements are the great challenges of networks.

Networks are invisible when they operate but are prone to entropy. To ensure the reliability of a transmission (energy, information, etc.) it is necessary to overcome external interference and errors. For example: when a factory creates a network to transport steam to feed its machines, it is necessary to ensure that the thermal exchanges between the pipes and the atmosphere are reduced: insulating material keeps the network isolated and fully operating its internal logics.

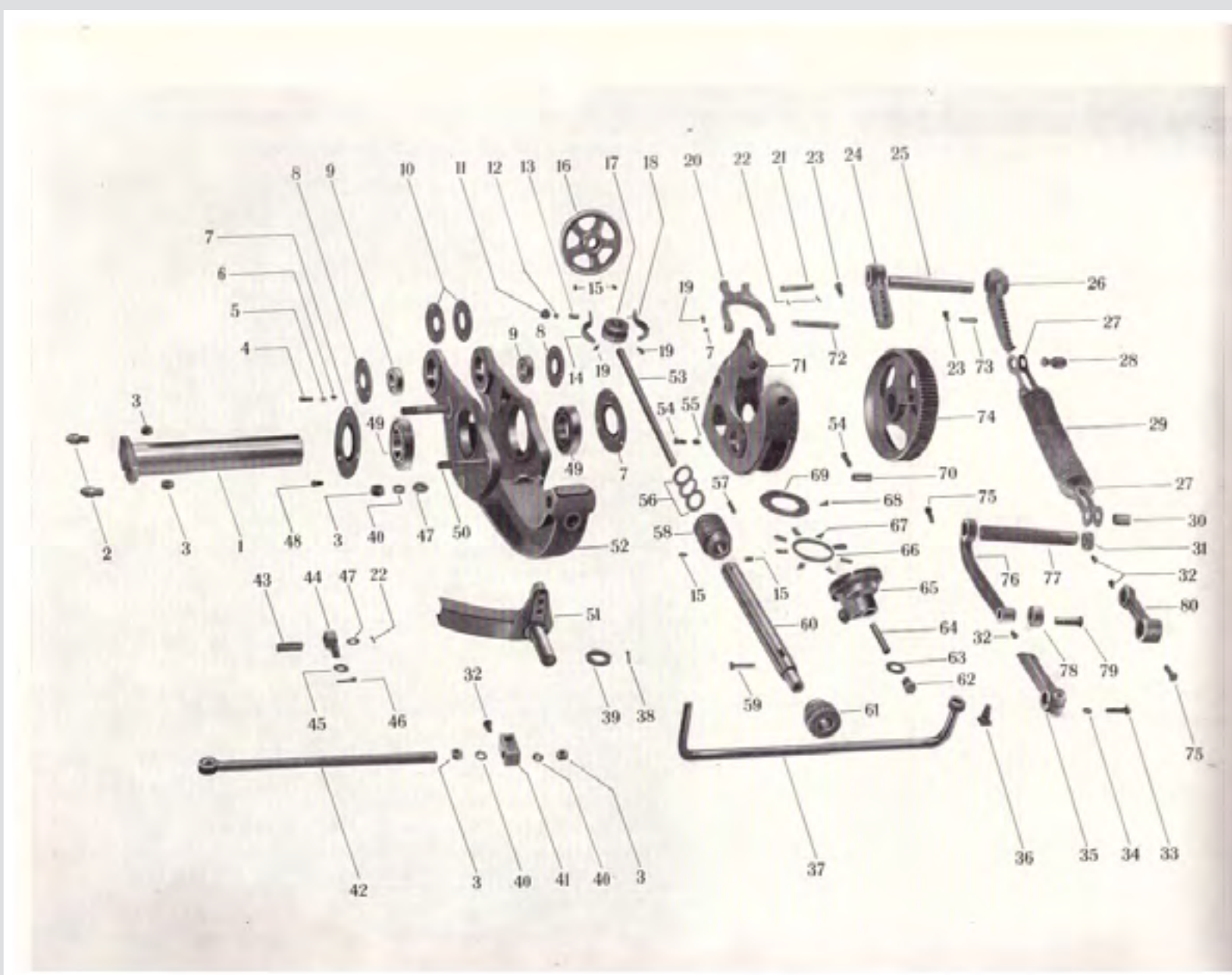
Networks are composed of different elements, cables, satellites, power plants, press buttons, etc. The connections are established by different media, such as guided media – optical or electrical signals – and/or non-guided media – radio waves or wi-fi communications – and the combination of both. Guided media are wires, such as electrical, phone, or water pipes. Unguided means non-tangible: satellites, antennas. Networks are therefore hybrid agglomerations of information, technology and physical infrastructure.

A network's capacity is physical and can be enhanced, or augmented. In the case of a power network, for a factory to get more power to run its electrical equipment, it needs copper conductors with a larger cross section. In the case of an information transport network, the capacity can enhance quality or generate entropy. For example, when a company sends images between 2 computers in 2 different factories in different continents, it is possible to compress repeated information (e.g. white spaces), improving the efficiency of communication in one connection.



The control rooms are a workplace inside a factory where operators and supervisors can manage industry internal units to guarantee communication efficiency and a customized work environment. Has globalization, meccanization and dematerialization changed the control rooms?

32. Worker operating. *Electro-Cerâmica Company* was dedicated to the manufacture of *electrotechnical ceramics*. 1947-1997. *Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



Exploded views are visual strategies to represent the interconnection between technical entities that compose a machine or product, revealing its details, fittings and composition principles to constitute a functioning whole.

Which new technologies, media and software emerged to represent and understand the different parts of an assembly. How did they change our perception of products?

Instruction manuals are essential to the functioning of the world of labour. Each piece has its function in the “industrial puzzle”. If the instructions were followed backwards: can you imagine what would happen?

33. *Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*

PRODUCTION CHAIN

Production chain is a sequence of interconnected activities aimed at transforming [raw material](#) into a good or service. The link between these various activities is made through a set of transactions relying on [networks](#). The nature of production is characterised by the organisation and location of the activities in [industrial buildings](#), [industrial landscapes](#) and as a wider systemic dimension of industrialization.

Production chains are often also called “value added” or “value chains” as each stage adds a certain amount of value. If the sequence of activities requires the use of state-of-the-art technology or intensive knowledge, the end product is high value-added- as an example, the production chain of a special medicine, a haute couture luxury garment. If the sequence of activities requires standard technology or low knowledge, the final product is considered low value-added – for example: a factory of shoe production with low-cost raw materials. This means that the cost of the production chain influences the cost of the final product and, consequently, the sale to the consumer.

Nowadays, within 4.0 Revolution, the production value differs from the physical examples before as the last step, distribution, occurs immaterial through individual gadgets and fingers. Press buttons on the internet and other digital interfaces (such as home cinema) are highly lucrative and the production chain of industrial entertainment has become more dematerialized.

More and more, each activity within a production chain is carried out by independent and geographically distant companies – as in car industries – and its distribution occurs in immaterial platforms – such as Spotify, Netflix, or Amazon. Many developed countries tend to displace the production of low value-added products to less developed countries with low cost labour, less social and environmental safety, which is ethically questionable. Western companies tend to focus on the production of products with higher added value and in the advertisement of different immaterial distribution platforms.



Many companies have demonstration rooms to attract customers, investors and visitors by representing the international spectrum and by branding their sales coverage.

How would a company communicate its global production chain today?

34. Exhibition hall of the first factory for metal working tools. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Some of the processes of a production chain were divided in individual workstations controlled by one worker.

What kind of production chain work could be done in the industrial settlement?

35. Workers in the factory Grundig. 1965-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

ASSEMBLY LINE

The assembly line is a mass production process central to [production chain](#) and is composed of tools, machines, [workers](#) and robots. One of the major changes introduced by the Industrial Revolution was the creation of the assembly line instead of individual worker's workstations or craftsman's workshops. Before industrialization, the worker moved around the workshop in order to create and move the semi-finished products. With the Industrial Revolution, objects are created in several elements and in a logic of assembling. Therefore, the work adapted to assembling specific pieces, moved mechanically along a "line" where the worker always occupies the same position. The mechanisation, and in many cases robotisation, of the assembly line allowed labour costs to be reduced and consequently optimised factory profits.

The automobile industry pioneered the use of the assembly line model after the name of a factory owner. Henry Ford, in the early 20th century, revolutionised the production process at [Ford Motor Company](#) by specialising tasks and breaking down work into simple workers tasks and gestures leading to increased outputs. The production of the famous Model T is an icon for Fordism and for an assembly line, it uniquely marked Detroit's landscape for both the influence of its industrial invention, the assembly line, and its industrial products, the car. Assembly lines are nowadays common methods of assembling complex items such as household appliances, electronic goods or automobiles.

The scientific organisation of work allowed the work's specialisation, the division of tasks (repetitive and small) and thus determining the time devoted by each worker to each task. Charlie Chaplin's film, [Modern Times \(1936\)](#) allows us to understand the standardisation's consequences of production processes.



A series of women developing clean and precise tasks along the lines of a chemical industry show us how manual work is relevant to control production. After the covid-19 pandemic, can we imagine a laboratory where people wear no masks?

36. Workers. Bial, pharmaceutical company. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The assembly line was organised as a means of specialising workers' activity, time and gestures: each person has a specific task and the products are assembled along the line. Which creative activity can improve workers' lives while developing the individual tasks?

37. Workers assembling parts. Electro-Cerâmica Company was dedicated to the manufacture of electrotechnical ceramics. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

EXPERIMENT

An experiment is any procedure used to test/demonstrate a method, equipment or technology with a view to innovation. It must reproduce as well as foster the [production chain](#) and [assembly line](#) through which the product will pass. These experiments – conceptual, aesthetic, functional, ergonomic or mechanical – are associated with industrial research and experimental development. The first is oriented towards the acquisition of new knowledge and the capability of developing new products, processes or services or so as to introduce significant improvements in existing products, processes or services. The latter corresponds to the acquisition, combination, configuration and use of relevant scientific, technological and commercial knowledge and capacities, among others, with the aim of developing new products, processes or services. Industrial research and development corresponds to a school of technological maturity (named by EU the “TRL”) comprising 9 levels, to which the first is equivalent to observed basic principles and the last to an approved system in a serial production environment.

In many industrial sectors, these experiences are financially very valuable and lead to actual inventions. The new inventions, or products, will later on be protected with a patent, a “title” which gives its owner the economic and intellectual right in a given area, and for a limited period of time, a right preventing third parties from producing, using, putting on sale, selling or importing the product protected by the patent and/or process or product obtained directly by the patented process. In return, the owners of the patents are obliged to disclose in detail the entire technical content of the matter protected by the patent, making experiments clear and not allowed for free reproduction.

Experiments have different stages and lead to different levels of concretization. For a new product to reach the market it is necessary to pass a proof of concept / demonstration, this action is associated with the functionality of a prototype. When a client desires to demand a product with certain characteristics, they consult the market by asking the manufacturers/factories to prove/demonstrate that its product meets the desired requirements. For example, when a company wants to demand a big fashion collection, it goes to the market to ask for a demonstration/proof from the suppliers attesting that its textile production is in accordance with the company’s needs.



In the various engineering disciplines, less and less use is being made of experiment as a way of developing a concept. This is because computer simulation programmes (basically mathematical models that try to represent our reality) are highly developed and can predict physics with great reliability. A great advantage of simulation programs is that they do not dispense with the construction of real models to test concepts, which are usually expensive and have a much longer production time than a simulation. Nowadays, what type of workspaces and tools are suitable for scientific-technological development?

38. Laboratory, ELECTRO PORTUGUESA LDA. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



In order to create a computer simulation, characteristics associated with the physical phenomenon in question are required. Usually, these characteristics are obtained through experiments. For example, to find out the strength of a certain material, someone had to pull a specimen to failure, and with the values obtained introduce them in the simulation. Therefore, even for computer simulation programmes, experimentation is essential as a basis and validation. In order to continue developing products such as medicines and cosmetics, will we be able to abandon the use of live animals in experiments or not?

39. Bial, pharmaceutical company. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

MARKETING AND BRANDS

Marketing and sales are visions and strategies used in the communication and promotion of final products. The commercial strategies are defined according to the business model and are therefore essential for brand recognition by its customers and for increasing market share. Marketing and communication plans are therefore vital in an industrial society characterised by seduction and hyper-consumption (Gilles Lipovetsky, 2014). Nowadays, the global brands consider the archetypical customer as its central target even though the marketing strategies are conceived as global. Products, slogans, images, logos are managed on a global scale with few local nuances, so as to enter the global market through global digital platforms, brands and outlets. These mega- or hyper-brands

often bet on female empowerment or on the gastronomic tastes of a region, making profit from this sensitivity – as examples we can refer to female pink taxes, or the acceptance of body diversity. Thus, the marketing and sales of the commercial product is associated with corporate identity and with social experimentation.

In a wider perspective, industry itself promotes its centrality for economic growth through specialised events, industry it has its own marketing. The [official podcast](#) of the EU Industry Days gives us a glimpse into the EU's industrial strategy, revealing the latest economic and technological trends, the challenges and opportunities for European companies.



Photography invests the image of the industry with a symbolic power and an ideological dimension that characterises the expectations of each era. Who would be the main consumers of Rosalface soap, in the image? Does Rosalface soap today attract the same group of consumers as in the mid-twentieth century?

40. Soap, Ach. Brito. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The promotion of industrial products uses photography as a privileged medium. It produces an image that gives visibility and affirms the industry and its products to its partners and investors, in addition to the consumer. In a globalised economy, in which several countries and cultures are linked, is there an advantage in using images rather than words in the communication of the industry?

41. Stand CUF (Manufacturing Union Company). 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

HEALTH & SAFETY

Hygiene and safety conditions in [industrial buildings](#) are, nowadays, one of the cornerstones of the EU's labour worlds. Industrial progress – from the pre-industrial era to the present day – has meant the loss of many lives and numerous accidents. Since the Industrial Revolution, workers have found personal protection mechanisms against the inhospitable conditions of the workplace and the subjugation of the factory owners, as in traditional mines, or in contemporary sweatshops. Excessive exposure to heat, chemicals, fumes or episodes of bullying justify (as in the past) the presence of images of religious figures at the entrance of factories, mines and other dangerous production sites, protecting workers and work environments itself from human errors, systemic errors and other gaps. From the inclusion of religious icons and events, to self-organised initiatives by associative groups, different activities have played a fundamental role in the collective

worker's protection. If today EU workers have already won the rights to decent payment, food and an 8-hour working day, the truth is that health protection still has a long way to go.

The [International Labour Organisation](#) (ILO) has been promoting actions towards gender equality in the access to decent and productive work, in conditions of freedom, equity, security and dignity. On the other hand, the EU has taken measures for the social protection of its members, such as the [European Health Insurance Card](#). In particular, the EU has been concerned with mental health as a guarantor of citizens' active participation in the community and of workers' productivity in the labour world. The fight against depression and [suicide](#) has been the goal of several European projects seeking to prevent the spread of the phenomenon that occurred in the "Foxconn City" industrial park, in Shenzhen, China.



By labour risks we can identify physical health risks and death, but there are also other risks that arise from the quality of the work environment, namely, related to its ability to promote happiness and satisfaction.

What new working environments can be created? What can industries offer their workers to ensure not only physical but also mental health?

42. Bial, pharmaceutical company. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Being one of the 10 European pillars of Social Rights, health and safety at work aims to protect workers from risks. In a changing work reality, marked by the transition to a more ecological and digital environment and by the evolution of the traditional workplace, many workers are doing their activities at home. What new risks may come from there to the worker? How may EU and National legislation assist the worker's needs?

43. Electro-Cerâmica Company. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

AFFIRMATIVE ACTION

Affirmative action, regarding [Gender](#), consists of special temporary measures seeking to address and tackle the impact of past discrimination to advance women's equality.

The central idea is to ultimately ensure that women can make the same choices and have the same rights and benefits as men, and that equality exists not only in law, but that it is a de facto reality in terms of equal treatment and opportunities.

Affirmative action assumes a significant role in specific areas, vis a vis, the industry sector which has been historically understood as male dominated, even if women assumed from the outset of the Industrial Revolution industry-related tasks and/or had a job in industry.

At the EU level, many of the policies and the legal frameworks now incorporate an affirmative action lens and rationale. However, in terms of further engagement of women in the labour market – and traditionally excluded fields within the industry sector – their representation (infrastructure, manufacturing, energy, etc.) continues to be significantly low.

While in all industries' sectors and (many) countries there is a clear move from intentionally excluding women, the reality is that women's participation in those professions is still negatively impacted by socio-cultural beliefs leading to conscious and unconscious biases on what is the women's role in the industry sector.

Affirmative action needs to be understood as a comprehensive approach to gender equality, and not a set of ad hoc measures.

An example could be a recruitment policy that encourages women's applications in a specific industry sector through different offers and opportunities ([equal pay](#), [health benefits](#), etc) but that would include work shifts that would clash with childcare needs. While the policy aims to encourage women's inclusion, it would not be necessarily to reverse discrimination, because the likely result is that many women would not apply to the position, as [childcare](#) is still primarily ensured by women.

Affirmative action is also often referred to as positive action, positive discrimination, or reverse [discrimination](#).



When there is inequality it might not be sufficient to simply stop discriminating to address it. As endemic discrimination might have lingered for too long, certain ideas gain roots and are difficult to address – i.e, law might say that women and men shall be in the same position to access employment and women still feel that industrial work is not for them. What can be done to change this perception?

44. The best weaver in the country for 1973, Vitana Michailova. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Creating specific quotas in certain industries for women is considered still a highly debatable idea. How to ensure that some industries sectors, in particular, are accessible to women?

45. Qualification of the finished products. Pipes from the biggest plastic producing factory on the Balkan peninsula. Ca. 1970. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

DIVISION OF LABOUR

The gender division of labour is characterised by different contexts including the social, economic, and cultural landscapes but also the specific dimension of *labour* that is at stake.

How this division can be perceived in terms of production related tasks in a specific industry is, for example, that women will take on less managerial tasks and be involved in less skilled work – i. e. in a textile manufacturing enterprise, women would perform as seamstresses, men would perform as supervisors or managers.

The reasons why labour is divided in this way are, many times, rooted in: gender stereotypes and perceptions; the specific dimensions that women and men navigate in the industry sector context; corporate culture and traditions. A reshaping of how this division works, or shall work, might trigger conflict and, particularly in the case of women, abuse.

Although the term labour is often understood as referring to a professional context, the division of labour goes beyond that to encompass a multitude of life aspects.

For instance, in terms of reproductive tasks they are normally associated with “labour to be performed by women” and ranges from child-bearing, emotional labour, or [unpaid care work](#).

In this broader understanding, labour division is characterised based on the responses to the following questions: who does what, when, how, and for how long?

With the increasing participation of women in the labour market, there is a cumulation of the different types of tasks, roles, jobs

that they are called to perform, and not a redefinition of the traditional understandings of the division of labour that relegates those specific translations and partitions of *labour* to women.

For example, it might be the case that there was a change to include more women in a particular industry sector, i.e., mining extraction, for example, without that necessarily resulting in re-division of labour or a reshaping of the reproductive labour in their personal sphere.

Perceptions on characteristics of the division of labour are persistent. Because they often rely on [discrimination](#), unperceived biases, social, cultural, and religious historical patterns, they are difficult to change, and this is one of the reasons why [affirmative action](#) is so important.

The EU policies and legal framework on affirmative action (for instance through family protection and benefits) and gender equality have been contributing to a slow but still important change of patterns. [Although women still continue to perform most of the domestic and care work, men are increasing their share in both](#), particularly in the most industrialised nations.

Disrupting events often result in an uneven share of labour for women, as the COVID-19 pandemic showcases. The requirements of remote work for both women and men, while schools and childcare facilities were closed during the lockdown periods, resulted in an increased cumulation of professional and personal responsibilities for women. Data shows, for example, that women spent around 60 hours per week taking care of children when men spent around 35 hours.



“This task is for true men”;
“This is not suitable for women”;
“This requires the strength of a
real man”; “This needs the delicate
hands of woman”. These are
common expressions translating
the idea behind the division of
labour. How does this translate into
the industry sector?

46. Construction, HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Physical strength is used as one of the justifications for relinquishing some industrial work solely to men. Can this argument be accepted as grounds for women from some industrial sectors?

47. Workers from Vista Alegre carrying plates on their heads. Porcelain Factory Vista Alegre was the first industrial unit dedicated to the production of porcelain in Portugal. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

DISCRIMINATION

Discriminating against someone is denying that person the same rights and opportunities. This is, naturally, contrary to [fundamental rights principles](#) – which proclaim that all human beings are equal in dignity – and, therefore, unequal treatment is prohibited by international law.

There are different discrimination grounds that can be enlisted: race, religious beliefs, sexual orientation, sex, [gender](#) identity, gender expression among others.

In the context of labour relations and the industry sector, the dichotomy women/men occupies a central stage. Within that angle, discrimination means a differential treatment of women and men, namely in the areas of employment, education, and access to opportunities, on the sole basis of their sex. Discrimination may be direct or indirect, depending on the situations.

Direct discrimination occurs when specific laws, rules or practices clearly entail an unequal treatment (position) between women and men (e.g. a call for a job position that only addresses men or women).

Indirect discrimination is different and consists of laws and practices that would appear gender neutral but in reality, result in disadvantages primarily suffered by women/men (e.g. it is required a certain height for a specific position, not justified by any requirement). In terms of legal accountability for indirect discrimination, it is not necessary that there was the intention to discriminate.

Tackling discrimination is particularly important in the industry sector, particularly considering the [re-shaping of the industry sector brought by the 4th Industrial Revolution \(and those that follow\) with potential to change some of the traditional understandings of the division of labour](#), as the world faces disruptive change.

Tackling the gender gap which is still very prevalent in many of the industry sectors is impossible if patterns of (direct and indirect) discrimination persist, and many of the [EU policies in the areas of education and labour market](#) have been focusing on tackling it.



Men and women have assumed different roles in the industry sector throughout time. Can the fact that the role of women was considered many times secondary erase the real contribution and impact of women in the history of industry?

48. Leather Workers in the Yantra river. Cleaning the bristles of the leather with specialised tools. Interactive Museum of Industry, Gabrovo, Bulgaria.



This image portrays women learning and performing a more technical task, that used to be reserved to men. If you pay close attention, you will see that all the supervisors are men. Do you think that today we would see more women assuming the role of technical supervisors within the industrial sector?

49. Technical designers in the first metalworking tool factory. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

EQUAL PAY

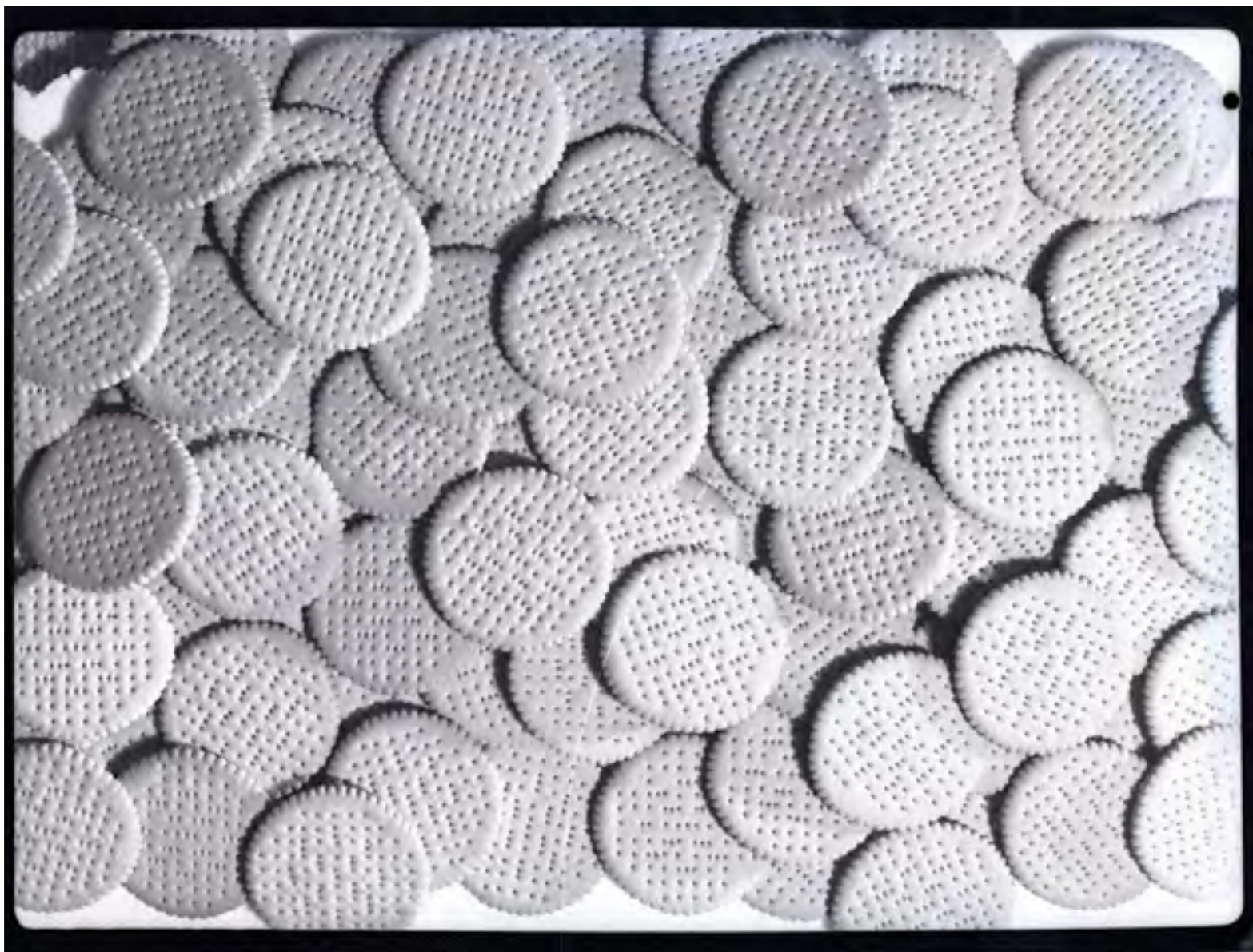
Equal pay means equal remuneration for men and women workers for work of equal value meaning that payment rates cannot be set as to entail any discrimination based on sex/gender, leading to an overall pay gap.

This right, rooted on the prohibition of [discrimination](#), has been regulated by different legal instruments at international, regional ([as in the EU](#)), and national levels and naturally includes the industry sectors. However, in practice, in many cases, [women still earn less than men for work of equal value](#).

Equal pay applies to all components of remuneration including overtime, cash value benefits, work materials, family allowances and benefits, supplements, or incentives, among others.

While equal pay is extensively and comprehensively regulated, there are many reasons that contribute to a pay gap, including in the industry sector. Women continue to mostly work in relatively low-paying sectors, namely care, education and low-skilled industrial tasks whereas men are over-represented in highly paid sectors, including qualified industrial and technological positions and tasks, engineering, and mathematics.

Additionally, women are disproportionately affected by glass ceilings as their representation in senior management positions is residual. Not surprisingly, women also tend to work less hours a week as they take on more unpaid care tasks when compared to men, despite EU efforts to promote equal sharing of [parental leave](#), policies on flexible working hours, and public childcare offer.



Equal pay is a means of curbing one of the dimensions of discrimination: making sure that same tasks have same remuneration. Why is this fundamentally important in the industry sector?

50. Triunfo biscuit factory. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The composition of leadership is very important in promoting different solutions and advancements in the different industrial sectors and shaping change. What kind of consequences can gender gaps in the leadership of different industry sectors generate as these face major challenges and need of reform brought by climate change, and digital revolutions?

51. The owner of one of the knitwear factories with other industrialists. Ca 1930. Interactive Museum of Industry, Gabrovo, Bulgaria.

GENDER GAPS

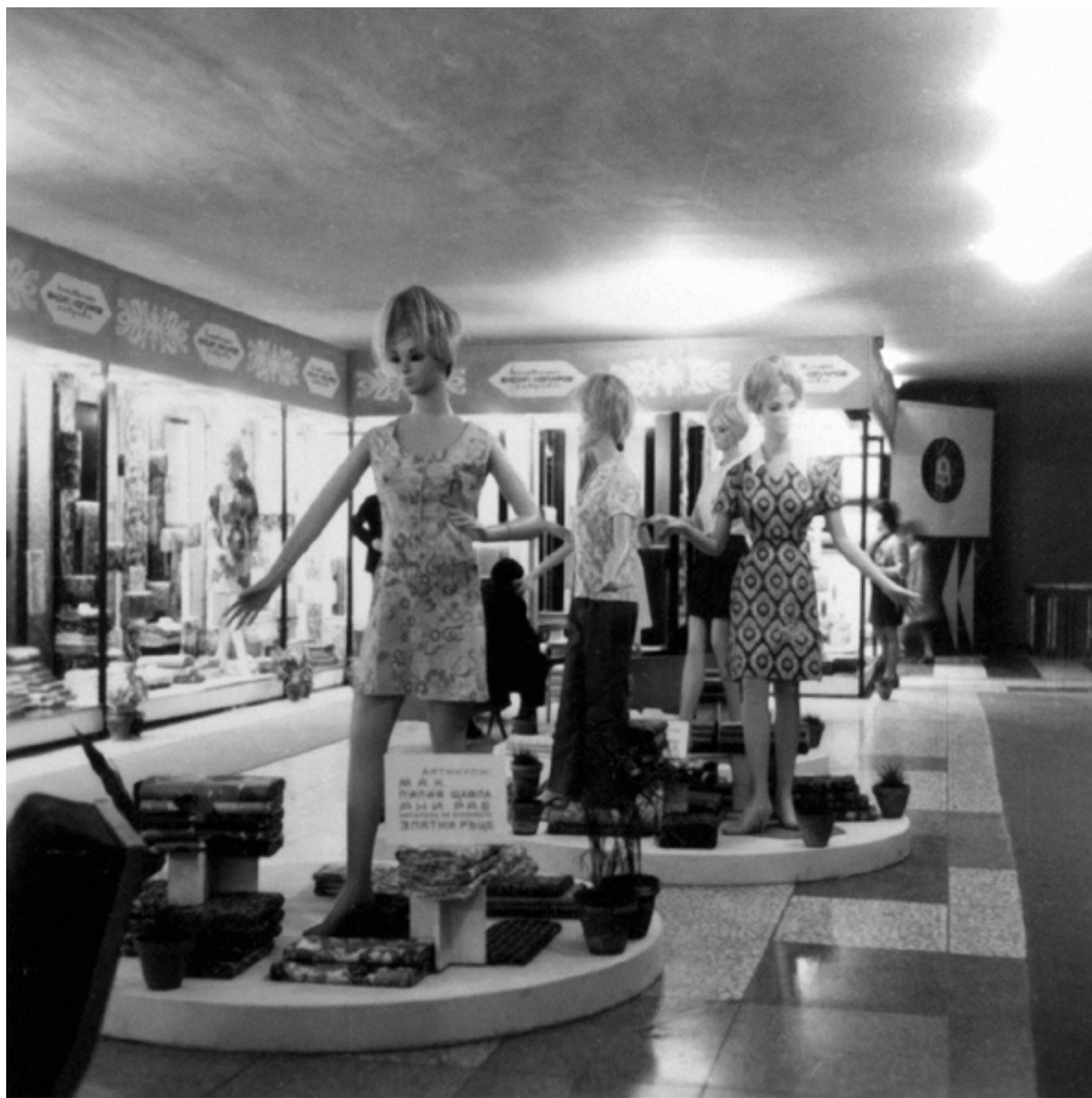
A gender gap resides in the difference regarding levels of participation, access to resources, rights, power and influence, and remuneration and benefits for women and men. In this sense, *gender gap* has different translations in practice, some examples may be a participation gap, a remuneration gap, and an advancement gap.

While in general terms, the employment rates for women have been increasing since the Industrial Revolution and have increased sharply since the post-Fordism era (from the 70s on) employment rates are still systematically lower for women than for men across the EU, resulting in a [gender employment gap, more prominent in specific sectors, including in industry-related areas.](#)

Although the gender gap of access to employment has been shrinking with the increased involvement of women in the labour market this does not result in the elimination of gender inequality or the reduction of remuneration and advancement gaps, at least not in the same measure.

Despite some level of positive change in the European context, women employed in manufacturing earn lower wages than men. In other contexts, as developing countries undergoing intensive industrialisation processes the wage disparity between men and women is even higher in many cases. Gender gaps do not always follow a linear path.

Some of the reasons that might explain why gender gaps assume different contours and speeds are occupational segregation, but also the gender care gap itself, as women still occupy the central role in providing care and [unpaid care work](#) to their families, dependents and communities, remaining to be in a disadvantageous situation in terms of overall opportunities, access, participation, and maintenance in the labour market.



Women objectification by the advertisement industry has contributed to the association of women with the idea of passiveness and kindness and men with action and agressiveness.

Several industries have tried to produce new perspectives for the way we see and expect women and men to act. Are you familiar with any of these campaigns? If you had the chance to advertise a product for use, what would be your perspective?

52. Showroom of the cotton textile factory "Vasil Kolarov". Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Gender gaps in the industry sector are sometimes justified as women having other preferences and career choices. Can a participation gap of women in certain industry sectors create a vicious circle?

53. Women working in machinery, factory EFACEC – Electrical Machinery Manufacturing Company. 1948-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

CORPORATE IDENTITY

Corporate identity is a set of characteristics that identify an industrial infrastructure and which relates to its branding and marketing. These are all the elements that make an industrial infrastructure unique and at the same time enable the company to communicate with its clients, as well as to affirm its products. Some companies hold more than one brand with a distinct identity. Corporate identity is visible in different elements: graphic image, communication elements and strategies and production environments. As an historical example, we can address that the concept was founded by Peter Behrens (1868-1940) when he assumed the artistic consultancy of AEG company (1907-1911), his approach is still today considered an icon of the interconnection of architecture, design and advertising of the corporate identity of AEG.

During the last century of great economic development in Europe, there were several theories to increase productivity in the labour world. For a certain period, the industrial entrepreneurs managed to control

every moment of its workers' lives (the three shifts) by offering them family benefits and protection, often with a low salary – in such cases, corporate identity may dominate the individual workers. So, historically, corporate identity may include the control over the body and identity of the workers themselves.

Today, corporate identity can also be translated into the values and mission of a company. These are inseparable from the [worker](#). Many companies are using occupational psychology to ensure that their industrial infrastructures are working properly. Both emotional pay and team building actions are motivational and emotional factors which help to define a corporate identity. The goals are always the same: to reinforce the feeling of belonging to a group, to increase the worker's productivity and to guarantee the sustainable growth of the company. In the name of sustainability, the number of European companies promoting social responsibility strategies in defence of the environment, the economy or society has increased ([Green Paper](#)).



In the past, companies often rewarded their employees with medals for good performance. Today, what kind of acknowledgement does a corporation give to its employees?

54. Weaver, hero of the socialist labour. Ca. 1970. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



A company's marketing products are inseparable from its values, a good image is fundamental to the success of a brand. Which new branding strategies were brought to the industries through the Digital Revolution?

55. Advertisement of some of the beach articles produced by the biggest factory for plastics on the Balkan peninsula. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

THE RIGHT TO WORK

The right to work is a social and economic right as it is regarded as a valuable activity which contributes to personal development and fulfilment.

The right to work, as defined in [Article 6 of the International Covenant on Economic, Social and Cultural Rights \(ICESCR\)](#), prescribes the opportunity to work as well as the right to freely choose and accept work. The right to work is also protected by many other international, regional ([including the EU](#)), and national legal instruments.

One of the *components* of this (human) right is to freely choose and accept one's own occupation, having a strong link with non-discrimination in terms of access to employment.

In this sense, equal opportunities for access to employment need to be safeguarded for all the workers during the hiring process.

The different translations of the right to work and the prohibition of [discrimination](#) include different grounds. The right to work cannot be denied or waived based on gender, sex, sexual orientation, family status, age, race, disability, language, ethnicity, or ancestry, among others.

For example, pregnancy or motherhood cannot constitute a reason for discriminating against women (e.g. the requirement that the worker provides a pregnancy test unless the position involves a hazardous activity with can negatively affect the foetus/ woman, for instance in certain industries.)



The right to work is recognised by many legal orders as a fundamental right. Can the right to work be interpreted as a right for women to access any industrial sector/activity?

56. *Labour collective of a big wool textile factory. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*



To be able to work and provide for a living is on the basis of the overall industrial construct. Can the right to work of some, impact on the right to work of others?

57. *Painting of electrical product, factory ELECTRO PORTUGUESA LDA. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*

**2ND SHIFT
REST/PRIVACY**

PRIVATE HOUSING AND INDUSTRIAL SETTLEMENTS

Private housing are relevant extensions of industrial settlements. The evolution of public and private space in the labour world is associated with the always unstable [work-life balance](#). In the historical evolution of industrial spaces we may identify they are strongly characterised by differences in gender, access to [education](#), hygienic-sanitary concerns, demographic issues and economic power. To mitigate these tensions, different political regimes and ideologies of entrepreneurship have defined urbanistic plans for industrial settlements. They propose to improve the quality of space in workers' lives and, therefore, improve the life of citizens. Private housing, spaces for socialising, training and education, religious enclosures and, at the centre, the factory, were organised in the name of progress – whether economic, social, or political. But, they also exert control and surveillance over the workers.

The planning of industrial sites, and later the principles of modern urbanism, proposed social and low-rent housing for workers, which led to the split of work space and private housing. Industry brought new inequalities and new modes of control and surveillance over the growing cities. The “industrial city” ([Tony Garnier, 1917](#)) would be an organised and integrated set of different spaces characterised by functional specialisation and zoning. These progressive ideals would permit controlling overpopulation and overbuilding on a given site.

Living near industrial infrastructures can be dangerous, as it became globally known in 2011 when a tsunami caused a flood at the Fukushima Daiichi I Nuclear Power Plant. Today, the contamination of the waters of the Pacific Ocean is a major concern as well as the return of the inhabitants of Okuma to their homes. Even so, despite the disaster, the emotional and collective attachment to the site endures in workers' lives, as we can see in the collaborative project Real Fukushima where workers organise tours around the Nuclear Power Plant and their former houses.



Workers villages and company towns were usually constructed as simple habitable units with low cost construction structures and prefabricated materials, following the advances in construction technology. What happens to the workers' houses after the factories close?

58. *Housing, HICA (Cávado river hydroelectric plant). 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



In order to build houses for their workers, industrialists have not always been concerned about health and safety. Today, what are the EU standards for the construction of workers' housing?

59. *Image with the title "Household during capitalism", in a socialist era photo album. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*

FAMILY IDENTITY

A family is an intergenerational group sharing the same ancestry. Within the industrial sector it is common to find family bonds and traits in the same organisation, whether the owners or the workers. In the pre-industrial era, some trades were passed down from generation to generation, within the same family nucleus, sometimes assuming a surname, as Goldsmiths, with the aim of ensuring the family's livelihood.

Later, with the Industrial Revolution, the bourgeois families of entrepreneurs, although fewer in number, own the small or large businesses and have economical control over the working-class families. In some cases, families lived inside the industrial infrastructure, as part of their labour power. In these times, social stratification prevented mobility between groups – workers married among their peers. Historically, within a social class, women were dependent on their husbands, and husbands depended on the older men of the family, and the families depended on the factory owners (as in rural societies). Thus, family identity was translated by the repetition of social patterns and of embodied traits that were common to all members of the same class.

It was the feminist movements and [technological progress in the western industrialized world that created a new family dynamic between classes](#) (Peter Willmott and Michael Young) and affirmed the individual worker as independent from its family and origin. We may add the evolution of [education](#) as emancipatory from the determinism of the social class of families. Women began to work at the factories, outside the home, obtaining a salary and economic autonomy, while children were given a set of rights, such as [education](#), [childcare](#), the [right to play](#), and the elderly were provided with retirement and social rights. In industrial societies, each person acquired a place for their rights and deeds, not depending on the family of their origin.

If in the past family identity was at the centre of industrial organisation, nowadays there is a legal separation of the rights of workers from their origins. Therefore, the actions of favouring a particular group, such as relatives, friends, or others, goes beyond the boundaries of what is accepted in professional environments and reminds us of democratic principles. What kind of measures can the state government take in defence of common welfare, assuming its role as watchdog of the social pact.



For many years, big industrialists took pride in belonging to one big family and the number of members was linked to political power and the ability to develop a business. Nowadays, what drives successful companies?

60. Industrialist family. Interactive Museum of Industry, Gabrovo, Bulgaria.



The Industrial Revolution absorbed a large workforce and many industries employed entire families. Could you still find different generations of the one same family in a company in your region?

61. Christmas Party, Neolux Factory. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

CHILDCARE

Childcare and family care are of paramount importance within the labour context and consist of public, private, individual, or collective services responding to the needs of parents and children or members of the immediate family.

As most of the child-related and overall care responsibilities are still perceived as a *woman's job*, the availability of high quality, affordable childcare facilities for young children from birth to compulsory school age plays a key role in ensuring [gender equality](#) and reducing [gender gaps](#) in the labour market. As a core priority for the EU, childcare services and facilities shall be made available ranging from day nurseries and other day-care centres, family day-care, professional certified childminders, pre-school education or similar, mandatory school education and centre or activities-based services.

The right to work is a human right but so is the right to have a [family](#). To ensure equal access to employment, it is vital that public and private actors provide facilities that will give the possibility to workers to combine paid employment and their family responsibilities.

With the increasing participation of women in the labour market – and some of the shifts in the labour structure and organisation to increasingly encompass new forms of work organisation and self-managed teams – employers, companies, and cooperatives, mostly in developed countries, are voluntarily and more proactively engaged in providing on-site or off-site childcare centres, private home day-care agencies, family benefits to employees, among other initiatives.

In sectors like industry, these initiatives, policies, and measures will contribute to a higher proportion of women taking on these tasks, and jobs, eventually leading to the redefinition of the traditional understanding of the [division of labour](#), which might positively impact in the reconfiguration of the sector, in line with the European priorities to encompass wider [gender](#) representation in industry related jobs.



Childcare obligations have been considered one of the obstacles to women entering or remaining in the job market, while in the past women were able to accommodate childcare responsibilities by bringing children into the factory and exercising the role of caretakers and industrial workers simultaneously. Could a more equal share of childcare responsibilities contribute to a more diverse industrial labour landscape?

62. *Leather workers. Late XIX or early XX. Interactive Museum of Industry, Gabrovo, Bulgaria.*



The emergence of childcare facilities helped women to detach from their traditional role of carers and dedicate time to their careers. Additionally, it helped the development of children outside of their family environment from an earlier age. How do you think this impacted children's education?

63. *Child care in a textile factory. 1982. Interactive Museum of Industry, Gabrovo, Bulgaria.*

FAMILY PROTECTION

Nowadays, there are different family benefits available for workers. These instruments protect them from being dismissed or impoverished if, for any reason, they need to take care of their children or any of their dependents. The idea behind all these instruments is primarily to allow workers to [balance their family and professional lives](#).

Additionally, within the agenda of the EU, the implementation of family benefits is also guided by [gender equality](#) policies. It is important to keep in mind that work life balance and gender equality are fundamental rights within the EU legal framework.

If we look at the historical evolution of family protection, the first instrument adopted was the so-called [maternity pay leave](#), and it was directly linked with the participation of women in industry during WWII and centred on maternal and newborn health. This leave was to be taken just before, during, and immediately after birth. Although historically it was available to mothers only, currently, it is possible that part of it can be transferred to other carers, reflecting the concerns with gender equality.

The same concern led to the adoption of [paternity leave](#) and [parental leave](#). The paternity leave is generally available for fathers only, to be taken soon after the child's birth to support the family welcoming the newborn. On the other hand, parental leave is accessible to both mother and

father, intended to allow parents to take care of a young child immediately after the termination of the maternity leave.

More recently, the recognition of the effects of an ageing population by the EU led to the introduction of [carers' leave](#). This type of leave allows the worker to provide care to a relative or person living in the same household that needs significant support due to serious medical reasons.

All these instruments, along with protection from dismissal based on parental responsibilities, aim to allow workers to engage in employment without being subject to [discrimination](#) related to a perceived conflict between their work and their family responsibilities. However, in practice, the way in which they are designed and implemented in the different countries has a substantial impact on the family benefits policy.

Despite the efforts towards gender equality, men still tend not to take full advantage of these instruments. Some of the reasons for that are based on [gender](#) perceptions and [gender gaps](#), i.e. care responsibilities continue to be seen primarily as women's tasks and, as women generally are paid lower wages than men, the common choice remains that women continue to ensure this support.



The principles of offer and demand rule the economy and dictate the production tendencies. In the last century, the role of children within societies changed a lot and nowadays a great portion of industries is devoted to addressing children's needs. Can you name some examples of these changes?

64. Toys production in the biggest plastic factory on the Balkan peninsula. Ca. 1980, Period of State Socialism. Interactive Museum of Industry, Gabrovo, Bulgaria.



Family is a key concept of our society, but they are very different, and they are not necessarily based on bloodlines. What characterises a family? Does this image portray a family?

65. Consecration of the cotton mill "Knyaz Simeon Tarnovski", September 1, 1937. Interactive Museum of Industry, Gabrovo, Bulgaria.

ANNUAL LEAVE

As for the concept of [work hours](#), annual leave only became crucial with the industrial revolution. Workers that, until that moment, could rest during seasonal agriculture breaks started working six days a week uninterrupted.

Annual leave is the paid time off from work guaranteed to all employees during each work year. Behind the adoption of annual leave, there were concerns with the workers' health and security meaning that employees who benefit from this right are less likely to suffer accidents and be affected by stress. Being able to rest also favours workers' motivation and performance.

Similar to what happened with the fight for a shorter working day, the role of trade unions and [collective bargaining](#) was paramount. Consequently, in 1936 the International Labour Organisation adopted the [Holidays with Pay Convention](#), and in 1948 the

[Universal Declaration of Human Rights](#) reaffirmed the importance of the right to rest and leisure time.

Nowadays, according to the [EU legal framework](#), every worker has the right to a minimum four-week paid annual leave which may not be replaced by an allowance. The member-states are free, for example, to establish extra leave days as a reward to workers with higher rates of attendance or an additional holiday pay. However, it is relevant to consider that these regimes vary around the globe.

The simultaneous existence of different types of leave – annual leave and [family protection](#) instruments – enhances the importance of rest and the active political choice advocating that workers reserve their annual leave to just re-energise.



Repetition and exhaustion were often the causes of industrial accidents and casualties. Rest was considered therefore a necessity for achieving production quotas and avoiding accidents that could incapacitate workers. Annual leaves and a formal right to rest and enjoy leisure time came later. Should it be considered a fundamental right for workers?

66. Building the first privately owned water power plant. 1900-1906. Interactive Museum of Industry, Gabrovo, Bulgaria.



Annual leaves allow workers to rest, disconnect from their jobs, reconnect with themselves and enjoy their families. Do you think that this portrait would be possible if the annual leave was not paid and respected?

67. Christmas, Arcozelo Factory. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

UNPAID CARE AND HOUSEWORK

Unpaid care work means the set of tasks and services performed within a certain household, an external household and/or the community. Unpaid care work is considered a preferable term when compared to *domestic labour* (which can be paid or unpaid) or reproductive work (which can refer to unpaid care work regarding taking care of children but also giving birth and breastfeeding) and housework (which can also be subcontracted by an employer or unpaid).

Since the early stages of the Industrial Revolution to today, women accumulated paid work, resulting from their professional occupation, with an uneven share of unpaid work.

The use of the correct terminology is, in this case, very important: unpaid – no remuneration is received; care – caring for

or serving people and their wellbeing; work – even if it is not remunerated the activity has time and energy costs and results from socially and culturally imposed obligations or contractual obligations (i.e. marriage).

Generally, and in almost all parts of the world women take on most of the unpaid care work share with impact to their access to employment, resulting in [gender gaps](#) in terms of participation, representation and also payment. The distribution of unpaid care work is a translation of the traditional understandings on the [division of labour](#) and [gender inequality](#).

The EU has been focusing on tackling this inequality through policies and legislation on [education, family protection and benefits](#), and [work life balance](#) promotion.



Unpaid care and housework were considered to be a task for women. As the reality is slowly changing, do you think that in the long future there can be a reverse of roles and women be in majority in the main industry sectors?

*68. Leather worker with his family.
Interactive Museum of Industry, Gabrovo,
Bulgaria.*



Considering the ageing of the population, the need for taking care of our elders and the challenges associated will increase. What would be the consequences of this demographic change? How should they be addressed?

*69. Last known picture of an industrialist,
died in 1953, taken during the socialist era.
Interactive Museum of Industry, Gabrovo,
Bulgaria.*

THE RIGHT TO REST AND DISCONNECT

The right to disconnect was coined by a decision from the Labour Chamber of the French Supreme Court, in 2001. This legal decision made clear that the employee, involved in the proceeding, was not under any obligation either to accept working at home or to bring work and professional devices home. This decision was later confirmed by the (French) Supreme Court which made clear that the fact that the employee was not available on his mobile phone outside working hours cannot be deemed misconduct.

Accordingly, the right to disconnect is a purported human right protecting people from being required to continuously engage in work-related electronic communications (e-mails, messages, and other means of technology) during non-work hours. In this sense the right to disconnect is closely linked to the ability of not producing, leisure and rest.

As the contemporary working environment has been radically changed by new communication and information technologies it led as result to a continuous state of engagement and *devotion* to productivity that should be always mainstreamed, including in leisure and rest periods. While in the past the establishment of 8-8-8 paradigm (eight hours labour, eight hours recreation, eight hours rest), coined by Welsh, came to establish a sort of balance and boundary

structure to avoid exhaustion that ultimately would lead to decline in productivity – the right to disconnect emerges to establish those same boundaries, but from a human rights perspective – human beings are not machines and should have the ability to fully rest and relax through the ability of not producing.

Many countries, predominantly in Europe, have some form of right to disconnect embedded in the law, while in some companies it has been adopted as internal policy. In any case, there is presently no European legal framework directly defining and regulating the right to disconnect. The Working Time Directive (2003/88/EC) includes several rights that implicitly relate to this right (i.e., the minimum daily and weekly rest periods that are required to safeguard workers' health and safety) but it ultimately does not cover its full scope.

Recently, and in light of the pressures towards workers during the Covid-19 pandemic, the EU Parliament called for an EU law to grant workers the right to digitally disconnect from work without facing negative repercussions. This initiative counted with 472 votes in favour, 126 against and 83 abstentions, showing that the right to disconnect is a priority to address in terms of labour rights.



The right to rest and disconnect might be difficult to define. Is it attainable for everyone?

70. Women workers dormitory in a factory. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Considering that our society is characterised by constant connection and a profusion of stimuli, namely visual, what is the room left for imagination? What would be the consequences of this hyper-stimulation?

71. Photo of the english instructions page of an Electro Portuguesa product. ELECTRO PORTUGUESA LDA. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

3RD SHIFT
LEISURE AND ACTION

ASSOCIATION, COLLECTIVE BARGAINING AND ACTION

Freedom of association and the right to organise are fundamental principles proclaiming the right of workers and employers to freely gather and organise to advance and defend their interests and rights.

Workers and employers have the right to create and be part of organisations of their choice which, in turn, can define their constitutions, rules and procedures, elect their representatives, organise their activities, and develop their programmes without the interference of administrative authorities. They can also form and join federations and confederations, expanding their networks at the international level, to promote more [global standards of protection](#).

Under freedom of association, workers also have protection against anti-union [discrimination](#) – i.e. cannot be denied a job for being part of a trade union or association, and shall not face any intimidation by employers regarding association with other workers and trade unions.

The freedom of association is of particular importance within the industrial dynamic and sector development, from historical landmarks such as the onset of the Industrial

Revolution (leading to the guarantee of basic [health standards](#), [work hours](#) and other protections) to current times, with the need to ensure access to employment in the [industry sector for women](#).

Trade unions and workers associations were and still are of paramount importance in the promotion of gender equality at work. Currently, despite women being traditionally underrepresented in the trade union environment and association movements – due to its male-oriented dynamics, gender biases and the lack of family friendly trade union/associations – the proportion of women has been increasing in the latest years, which is seen as a positive trend, in line with many of the EU initiatives and policies.

[The EU Charter of Fundamental Rights](#), reinforces and acknowledges the importance of the freedom of association, the right of collective bargaining, and collective action as being at the heart of the labour laws but also of industrial relations in Europe. [The importance of collective bargaining and collective action by women and for women](#) has been focused on as one of the paths to strengthen [gender](#) equality and closing [gender gaps](#) in the labour market.



In the 20th century, many self-employed workers in industry-related professions organised themselves into trade unions to coordinate and regulate their activity. With the evolution and change in the industrial landscape of the 21st century, many of these professions have disappeared and new professions have emerged, for example in the creative industries. Today, how important is it for the new self-employed in industry to join?

72. Booklet "Portuguese Federation of Trade Unions of the Pulp, Paper, Printing and Press Industries". 1978. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



In the 20th century, the slogans written on posters and sung in workers' demonstrations on city streets expressed their needs, their problems, their struggles. Can the new social spaces on the Internet also give a voice to workers?

73. 1st of may 1945. Leather workers celebrating. Posters say: eternal glory to those who have fallen in the struggle for freedom; long live the great fraternal USSR; long live the 1st of may. 1945. Interactive Museum of Industry, Gabrovo, Bulgaria.

MEMORY

Memory is the human capacity to acquire, to store and to record information. It is therefore essential for organising ourselves in time and space. Memory is present in almost all the tasks we carry out during the shifts of 8 hours work, 8 hours leisure and 8 hours rest. We are able to [learn throughout life](#) with the help of memory. We are able to return home every day because we use our memory. Memory allows us to tell us who we are, what we work on in a company, to which club we belong or if we have a religion. Memory works in association and can be triggered by different stimuli: smell, photographic images, music, voices.

Each person remembers facts in their own way and that is why for many scientists memory represents only a part of a given event. The process of remembering is a social act, therefore it reflects the society, time and group(s) in which the person who remembers was inserted. According to [Maurice Halbwachs](#) (1877-1945) the evocation of a memory is always the result of the interaction of the individual who remembers the group where he/she is inserted. That is, memory is always a collective process ([La mémoire collective, 1950](#)). In the world of labour, workers have different memories about their experience. In industry, memory can be individual, collective and even part of [corporate identity](#). Video and audio records of the life history of these workers are held in the British Library.



Hard work memories are part of the labour world and, by remembering the evolution that industry underwent in the last century, we better understand the role that workers played in this process. In your neighbourhood or city can you find memories of an industrial past?

74. Worker in the leatherworking process using quicklime. End of XIX century. Interactive Museum of Industry, Gabrovo, Bulgaria.



The speed of the Digital Revolution makes us often forget what the first computers and communications were like. What is the influence of the COVID-19 pandemic in this revolution? Can you illustrate this acceleration with an image?

75. Plotter produced in Mechatronics – Gabrovo. Ca. 1980, Period of State Socialism. Interactive Museum of Industry, Gabrovo, Bulgaria.

INDUSTRIAL HERITAGE

Industrial heritage refers to the remains of industrial culture which are of historical, technological, social, architectural or scientific value: buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.

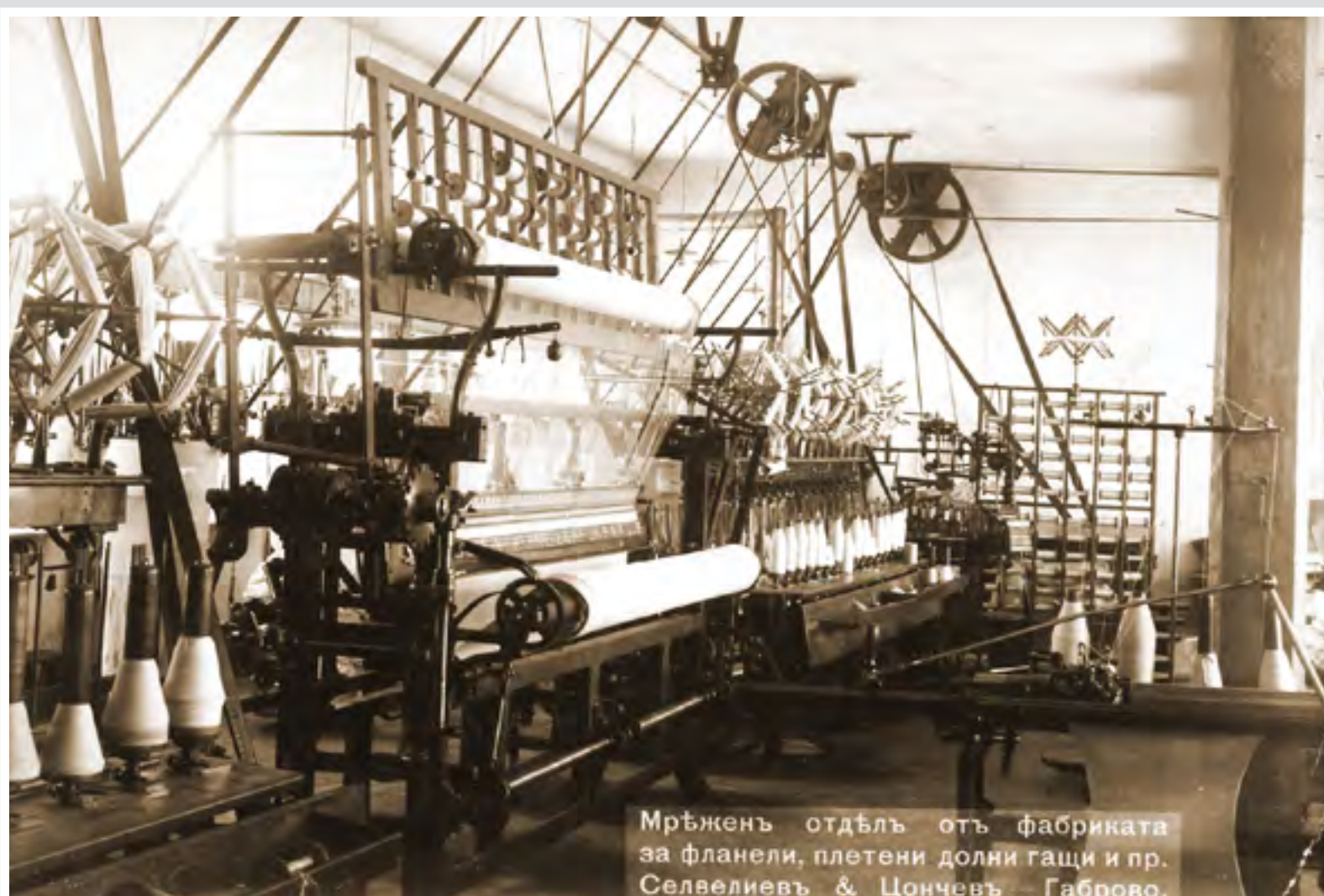
The Industrial Revolution changed the face of Europe. It left us with a challenging industrial heritage. The historical period of industrialization considered for heritage organisations extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots. In addition, industrial heritage is a field that includes technologies and, therefore it draws on the study of work and working techniques as encompassed by the history of technology (adapted from [The Nizhny Tagil Charter For The Industrial Heritage, 2003](#)).

The [European Route of Industrial Heritage](#) (ERIH) is a giant network of sites across Europe that we must get to know.



Factories, chimneys, warehouses and workers are testimonies of different industrial activities. Today, all over Europe it is possible to find memories of progress linked to Architecture, Science and Technology. Can you indicate what types of industrial heritage are associated with the robotization of industrial processes?

76. The brick factory of Gabrovo. Ca. 1920. Interactive Museum of Industry, Gabrovo, Bulgaria.



Worn gear is essential evidence to understand the industrial past. Their presence in many factories has determined, and still determines, an increase in production. Can you identify any kind of gear in your city?

77. Netting and knitwear departments in a flannel factory. Beginning of XX century. Interactive Museum of Industry, Gabrovo, Bulgaria.

THE RIGHT TO PLAY

The [United Nations Convention on the Rights of the Child](#) establishes that every child has the right to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts.

Children have, therefore, not only the right to education but also a right to recreation, to play and participate in the cultural and artistic life of their communities. Although the Convention on the Rights of the Child explicitly prohibits the worst forms of child labour, the right to play is a reinforcement of the protection sphere that children shall be guaranteed.

The understanding that children shall be protected from hardship and not be forced to work is a relatively recent reality in some countries of the world (until the 1980s it was common that children were engaged in agricultural work to support their families as well as in some domestic/family industries, for example sewing shoes in southern Europe). Child labour still persists in others countries too, namely in specific industry sectors (handmade sewing, placing of tiny electronic components or other pieces, among others) highlighting the importance of protection frameworks as those that can

be found through international law, regional instruments ([as those found in the EU](#)) and the national constitutions and criminal legislation of the different countries.

Child labour has, indeed, a strong connection with the industry sector and its historical evolution – from the Industrial Revolution to today. Some of the reasons why children were part of the labour force in the 19th century remain the same: children could (can) be paid less, and their physical characteristics would prove ideal to the performance of specific scrupulous tasks. Children's right to play, their health and development were (and are) jeopardised by the negative impacts of child labour.

[The EU has been putting a lot of emphasis and efforts on promoting respect for the rights of the child and fighting child labour through its external policies](#) (i.e. banning imports of goods which result from child labour), namely by including human rights obligations (including the protection of the rights of children) in its trade and cooperation agreements, [under ILO instruments](#) – including those relevant to child labour.



Since many of the objects we consume are produced by countries outside the EU, how can we know and guarantee that they are not produced by children?

78. Sinclair ZX Spectrum, personal home computer, Grundig. 1965-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Children grow into working adults. Does playing with colleagues still have benefits for the worker and the work they do?

79. Playroom, Refinaria Angola RAR and Imperial chocolates. 1973-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.

WORK-LIFE BALANCE

Work-life balance refers to the state of equilibrium between an employee's work and private life, including family responsibilities (domestic tasks) and other interests and hobbies.

Despite the increasing presence of women in the labour market, care and housework remain primarily feminine responsibilities, with a negative impact on women's employment.

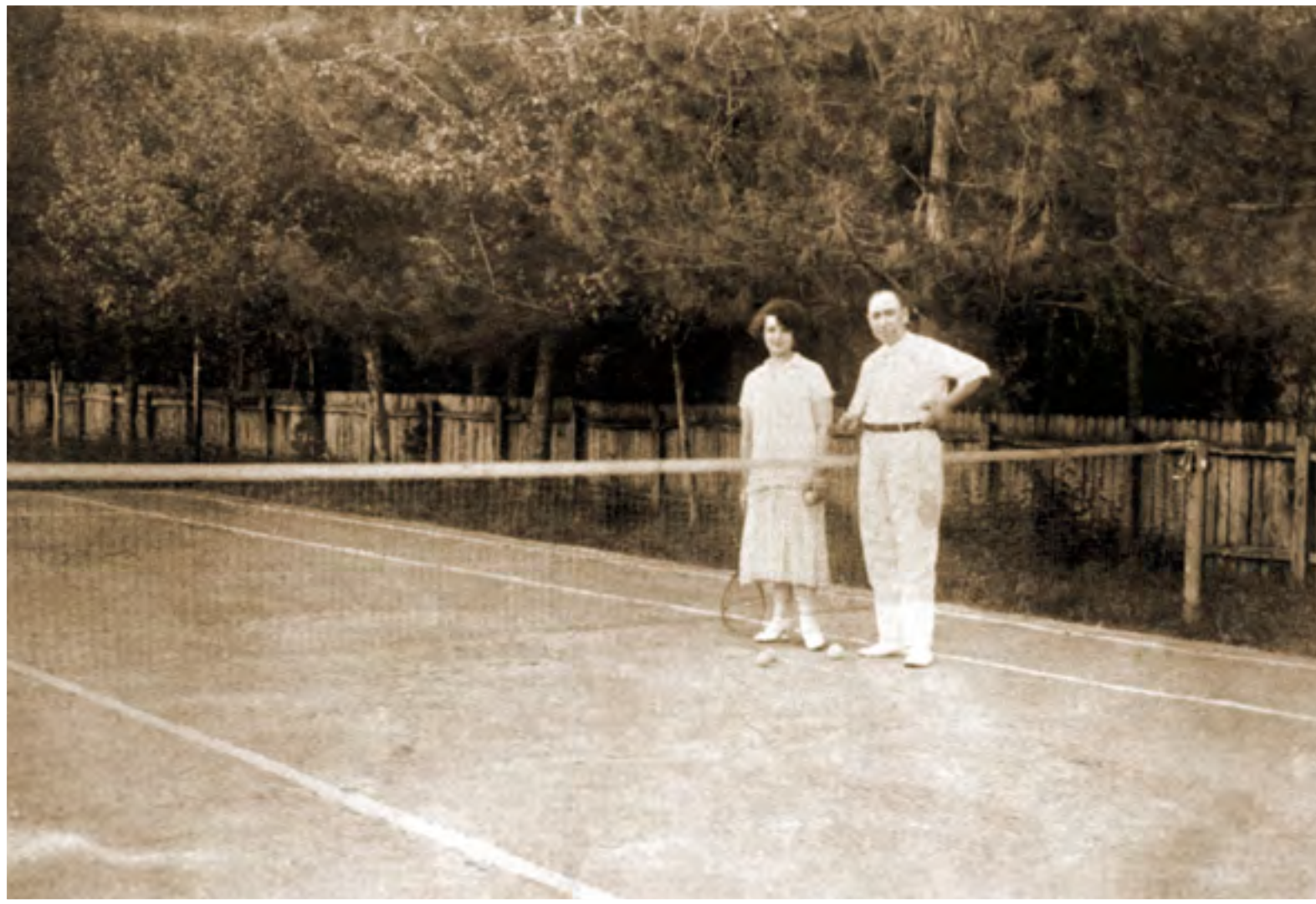
Therefore, when reconciling family responsibilities (taking care of children or elderly dependents and domestic tasks) with work becomes harder, and women tend to reduce the number of working hours, while some are forced to drop out of the labour market completely. This resource allocation, however, has a negative reflection on social security contributions and pension entitlements, worsened by generally lower wages for women.

That is the reason why the EU establishes work-life balance for workers across the life course as a policy goal, focused on the achievement of [gender](#) equality by promoting the participation of women in the

labour market and equal sharing of caring responsibilities between men and women. Additionally, the EU considers part of work life balance the protection of all workers against [discrimination](#) or any less favourable treatment related to them by the use of the family protection measures.

Within the [EU legal framework](#), [family protection](#) instruments like paternity, parental, and carers' leave aim to break gender stereotypes and differences between work and care. In addition, EU legislation provides for flexible working arrangements, including remote working arrangements, flexible working schedules, or reduced working hours, to allow workers to adjust their working patterns to their family responsibilities.

Nonetheless, to be successful and inclusive, these protection instruments need to be sufficiently well remunerated to promote de facto gender equality, and the non-discriminatory measures that go along with them need to be effective, which also depends on affordable [childcare](#) and long-term care services.



The notion of balance might be difficult to define as it is a subjective concept. It is increasingly accepted that leisure and physical activity are important for a healthy life. Is it possible to ensure space for those activities if work occupies the biggest space in our life?

80. The first tennis court in Bulgaria, built in a factory of the owner of the first private water power plant. Ca. 1920. Interactive Museum of Industry, Gabrovo, Bulgaria.



We are generally close to those with whom we share affinities and our hobbies. Those can be found both in professional and personal settings. Do professional and personal spheres need to be apart to achieve a work-life balance?

81. Holiday in one of the wool textile factories. Early XX century. Interactive Museum of Industry, Gabrovo, Bulgaria.

THE ABILITY OF NOT PRODUCING

In the 19th century, industrialisation created a new kind of slavery around the machine and the aims of mass production. The oppressive feeling of workers caused by work in industry was expressed, for example, in the Luddite resistance movement of textile workers in England, which triggered a series of concerted actions to destroy the new industrial machines.

It is in this context that Paul Lafargue, revolted by the pain, misery and corruption of the so-called “century of labour”, proposes “Le droit à la Paresse”, an utopia according to which each person would not work more than three hours a day. This would be possible because of the balance achieved between the production of goods and their consumption by the workers themselves, similar to a subsistence economy based on exchange value, which would prevent the creation of significant or non-indispensable surpluses.

The collective imagination has conceived two antagonistic and radical perspectives on the relationship between machines and human beings and their relationship with work: the utopian perspective envisages

and desires the use of technology to replace human labour and thus enable a life without work; the dystopian perspective is profoundly anti-technological, considering the machine as the ultimate instrument of subjection to authoritarian structures.

The image of the utopian life without work is realised in the New Babylonian city projects (between the 1950s and 1970s) by the Dutch architect Constant Nieuwenhuys, linked to the Situationist International movement. One of the images, entitled *View of New Babylonian Sectors (1971 I Yellow Sector, 1958)*, depicts a gigantic architectural structure stretching over a vast terrain. This structure consists of various sectors of the New Babylon: the ground level is almost exclusively for vehicle traffic, and in the basement there is an automated industry entirely constituted and guided by machines; the inhabited areas are well above ground level and completely covered, illuminated and ventilated by air conditioning. The inhabitants are free from the obligations of work through complete automation and therefore have all their time for leisure and relaxation.



If the utopia of a fully machine-supported industry is fulfilled in the future, which human activities will cease to exist? Would it be necessary to continue researching, inventing and innovating? What themes, what problems will the arts talk about?

82. Man resting under a tree, outside the Porcelain Factory Vista Alegre. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Our society increasingly uses its leisure time to interact with digital multimedia devices (films, series, games, social networks, etc.). Is it important for human beings to simply do nothing?

83. Workers, between the shifts. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.

OVERTIME



Switching on/off is one of the most basic and essential functions of button switches. Today, we can replace that button with palms or a voice command. Will we gradually stop touching machines and replace all buttons with digital interfaces?

84. *Electric switch buttons from Electro-Cerâmica Company, dedicated to the manufacture of electrotechnical ceramics. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



At the beginning of the 20th century, many women joined the factories at a very young age, being uneducated in formal work protocols, assuming tasks which were monotonous and without responsibility. Could today women be tutors and educate other people on how do machines work?

85. *Spinning workshop. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*



While industrial qualified work was often seen as pertaining to men, women occupied a central role in the industrial revolutions. Should a diverse working environment and representativeness be considered a fundamental right/principle?

86. Locksmiths in the workshop for the production of callipers. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



A factory growing along a valley is usually exploring the proximity to the power of the river waters as hydro energy would propel the beginnings of industrialization. Which energy sources may today be used to change the old construction along rivers?

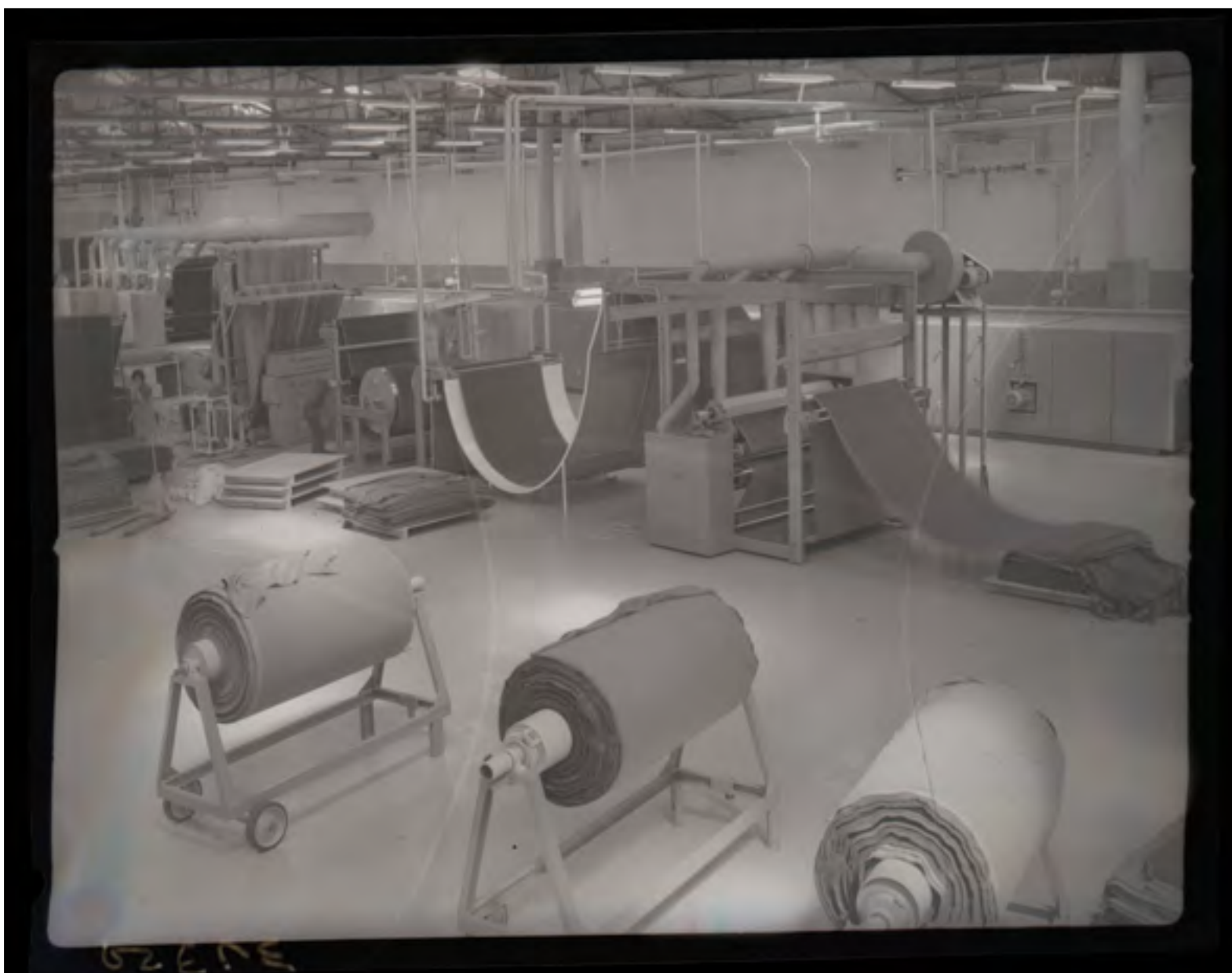
87. View of the second (middle) and third (right) factories in Gabrovo. Wool textile. 1884-7. Interactive Museum of Industry, Gabrovo.



The implantation of industrial settlements near rivers and forests for the exploration of its resources increased the occupation of rural areas and natural lands creating new urban centres which, in some cases, lacked nature protection laws.

In the future, how will the growing impact concerns with sustainability and the footprints of new industrial developments impacting on natural lands?

88. Gabrovo from a bird's eye view.
Interactive Museum of Industry, Gabrovo.



Materials are collected from natural environments to be transformed into products, whether final or intermediary. Would you consider a fabric a raw material, or a product?

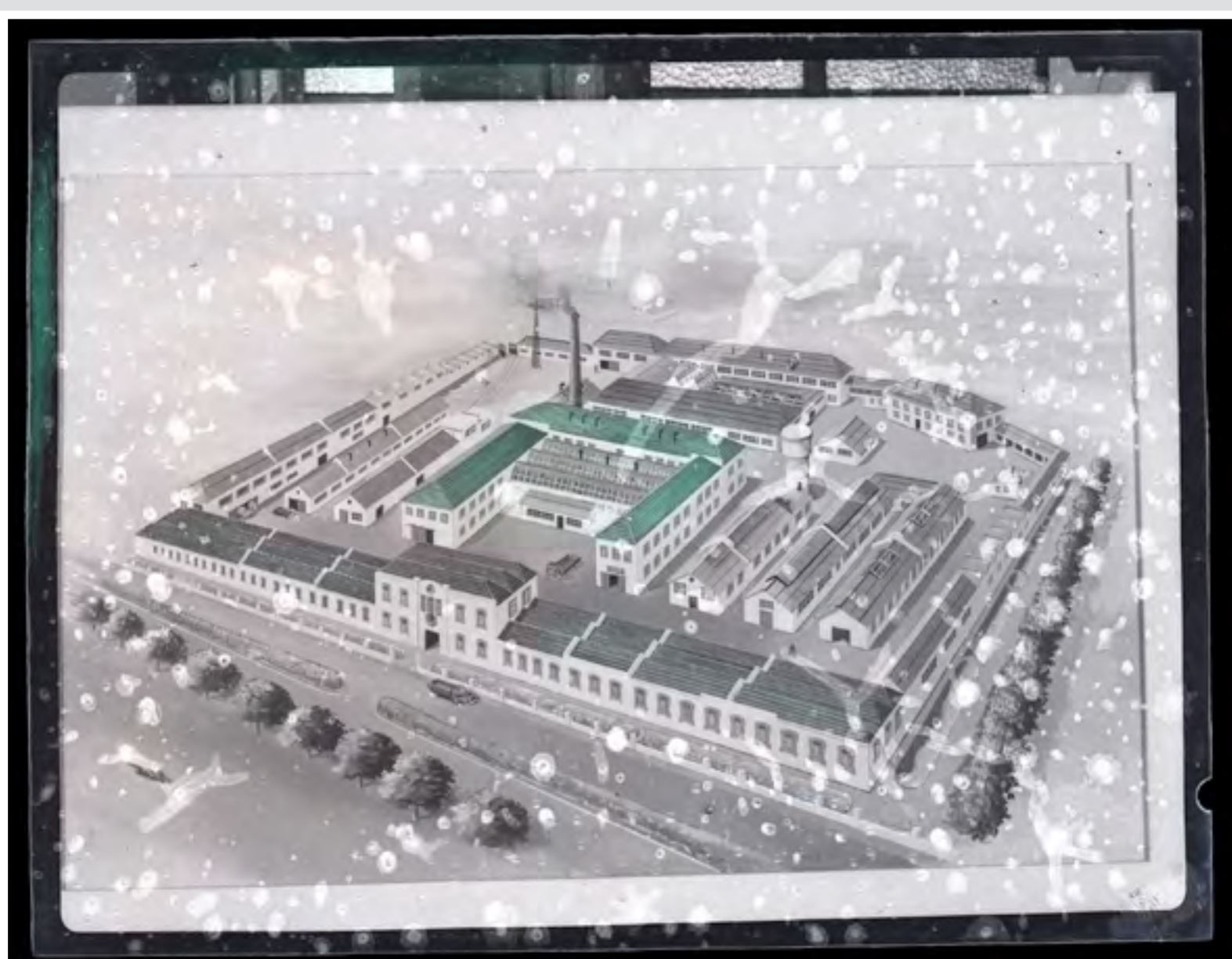
89. *Água Longa Velvet Factory, Santo Tirso. 1947-1985. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



Wooden casks and barrels became important shipping containers for industries because they facilitated trade and logistical activities.

How did the increased changes in industrial technologies impact on the production and use of wooden casks today? Have you heard of Euro-pallets?

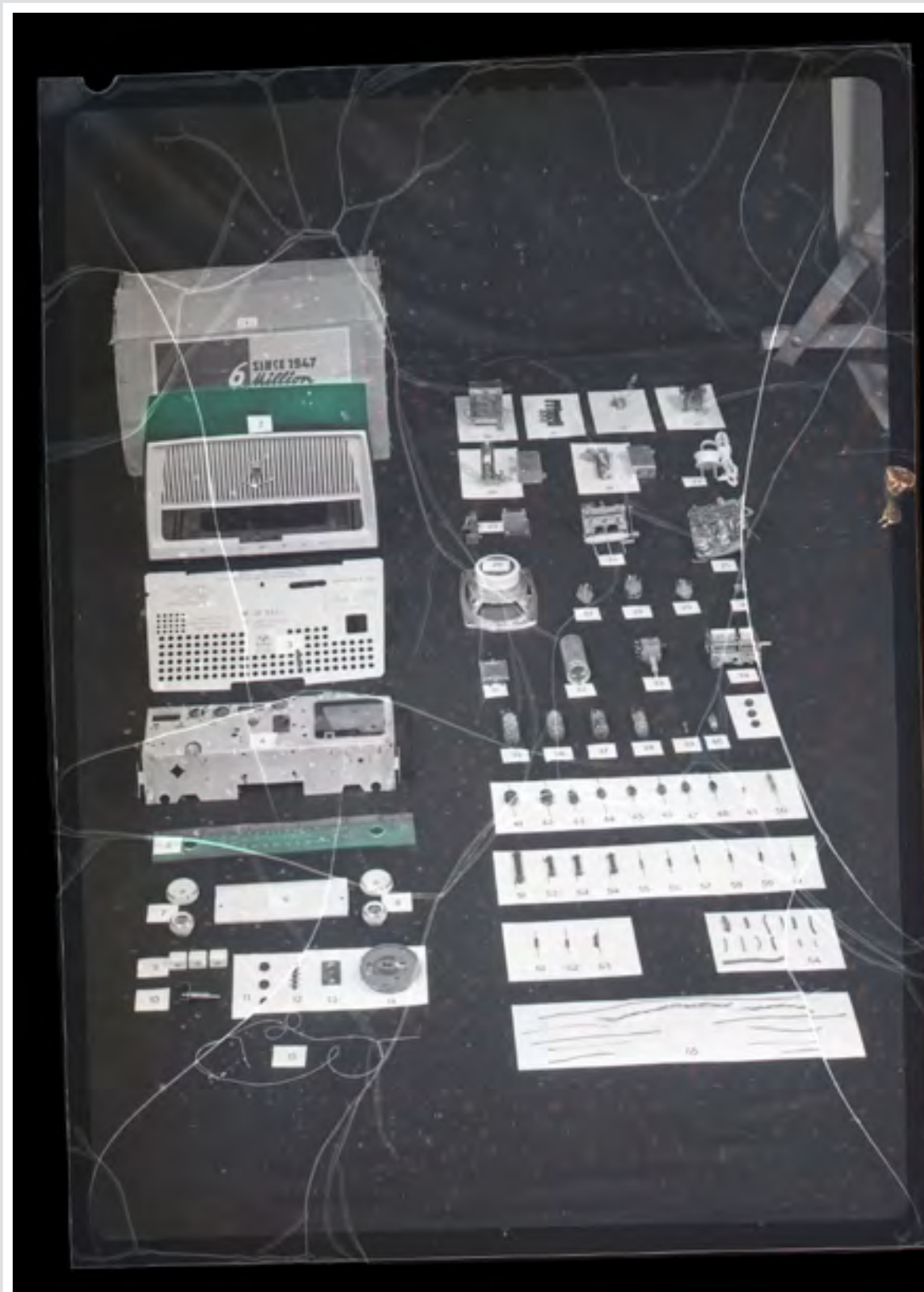
90. Workers loading a vehicle with products from the Porcelain Factory Vista Alegre, in Ílhavo. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Industrial settlements were represented as an extensive unitarian land occupation with different building components responsible for the stages of a production chain.

How would we represent the land occupation of a complex international industry system nowadays?

91. Drawing of the Portuguese Tannery Factory. 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The disassembly of an industrial product makes us think of the different networks that are activated so to bring together the bits and pieces that compose the industrial system. If we dismantle a computer produced today, would its components have the same network coverage of the product shown in the image?

92. *Various components of an electrical device. Grundig. 1965-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.*



Hand trucks, mechanical lifts and pallets are equipment used on one of the most critical phases of a production chain: the loading and unloading of products and goods. Which is the role of transportation in the production chain?

93. *Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.*



The photographer records the factory installations, the machines, the products, the workers, the raw material, the visits and inaugurations. While photography allows the industry to be documented, it also gives it visibility and status. Which products will confer status to their users 50 years from now? Will they still be cars?

94. Van CUF (Manufacturing Union Company). 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The workshop was a mode of production closer to craftsmanship than to the factories transformed by the new digital revolution. What would robotization mean to this factory?

95. Hoist assembly. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



One of the bases for the EU framework for health and safety is related to workers rights to have a work environment adapted to their professional needs, promoting their long participation in the labour market. Different cultural backgrounds are related to several cultural manifestations and dailly habits related to food, religion and dressing codes. Do EU workers, from different cultural backgrounds, have their personal and professional needs guaranteed by the work environment?

96. Sanctification of a factory. 1936. Interactive Museum of Industry, Gabrovo, Bulgaria.



Until today, many industrial sectors are homogenic and lack diversity. What could be the benefits of a more diverse industrial landscape?

97. Spinning department of one of the knitwear factories with workers. 1939. Interactive Museum of Industry, Gabrovo, Bulgaria.



Many companies consider their staff to be their asset. Therefore, training and working conditions are some of the aspects that define a company and it can also be through the identity, joy and pride in the company brands. What kind of criteria do workers use to choose a corporation?

100. Workers, EFACEC – Electrical Machinery Manufacturing Company. 1948-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



The entrance of women to the labour market allowed them to contribute to the family budget. What other consequences do you think this change brought?

101. Canteen of a wool textile factory. Ca. 1970. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



For many years housing was built near industrial units as a way to have workers within walking distance of the workplace. What are industrial cities like today? What are the differences between industrial cities in Europe and India?

102. CUF (Manufacturing Union Company). 1947-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



For many years, the economic power and the family descent were two essential factors for a family to make its business grow. What are the factors that today make companies successful?

103. The owner of the first privately owned water power plant with his family in France. Early XX century. Interactive Museum of Industry, Gabrovo, Bulgaria.



Some industries develop their activities far from the urban centres. Addressing some of their workers' needs, factory owners develop some essential facilities near their industrial complexes, namely schools. Was this a good system?

104. School, HICA – Cávado hydroelectric plant. 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



In a world increasingly connected and anchored in an idea of ideal productivity levels, and a pressure towards more competitiveness in the industrial sector, are laws important to ensure rest and time off work?

105. Welders. Period of State Socialism, 1944-1989. Interactive Museum of Industry, Gabrovo, Bulgaria.



Many of the current professions do not require their workers to share the same physical space or even know each other in order to carry out their work. So how can these workers develop a collective consciousness and join together to play an active role in the organisation of work? Is it crucial for workers to come together?

106. Opening of a hoist factory. Later to become the biggest producer of hoists in the world. April, 1963, Period of State Socialism. Interactive Museum of Industry, Gabrovo, Bulgaria.



Proto-industry memories are part of industrial heritage. The craft and domestic production of manufactured goods was fundamental for the Industrial Revolution to happen. Today, some consumers seem to prefer manufactured products to industrialised ones. In your town, is there a pre-industrial workshop? What does it produce?

107. Old machinery used for wool braid spinning. End XIX century. Interactive Museum of Industry, Gabrovo, Bulgaria.



Western children do not work in industry but have become major consumers of industrial products such as films, computers, smartphones, games, etc. We know that many of these products are addictive and that they prevent children from playing freely, preventing them from developing the social and emotional skills that are fundamental to their growth. So, does the progress of industry collide, once again, with the child's right to play?

108. School, HICA – Cávado hydroelectric plant. 1945-1964. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



Many industrial settlements offered their workers spaces for socializing as well as fomented the factory theatre group, carnival or other kind of leisure activity that would unite workers in their out of work time as well as spread the company name on a cultural level. These kinds of opportunities allowed to build a community of workers at the same time as allowed, the factory owners, to control the all day of a worker.

What kind of cultural activities do industries promote, now a days?

109. Dance team from the biggest wool textile factory on the Balkan peninsula during a hollyday. Interactive Museum of Industry, Gabrovo, Bulgaria.



Would the idea of leisure, as opposed to work, cease to exist if everyone stopped working? Would the words rest and holidays cease to exist?

110. Theatre play, TEP (Experimental Theatre of Oporto) for EFACEC – Electrical Machinery Manufacturing Company. 1948-1997. Teófilo Rego Archive, Casa da Imagem – Manuel Leão Foundation, Vila Nova de Gaia, Portugal.



*Spinning workshop. Period of State Socialism, 1944-1989.
Interactive Museum of Industry, Gabrovo, Bulgaria.*



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