

Laboratoire  
de l'Égalité

Partager  
une culture commune de l'égalité  
entre les femmes et les hommes.\*

\* Sharing a common culture of equality between women and men.

## PACT

FOR

## AN EGALITARIAN ARTIFICIAL INTELLIGENCE BETWEEN WOMEN AND MEN

TO

**Prevent the spread of gender inequalities through artificial intelligence (AI).**

**Make AI a driver of gender equality.**

**Accelerate the participation of both women and men in all teams working on AI.**

**Mobilise all AI actors for a non-sexist and ethical AI.**

*Artificial intelligence (AI) is a scientific, technical, cultural, economic and social revolution changing our lives. Its crucial impact on equality between women and men requires urgent awareness and action.*

As a formidable source of hope and concern, the artificial intelligence with which human beings equip machines (computers, robots, etc.) is invading our daily lives: multiple uses (8 billion connected objects in the world in 2020); health sector (diagnosis of pathologies, telemedicine, etc.); justice (crime prediction); security (face recognition); transport (autonomous cars), etc.

AI is profoundly transforming society and, of course, the world of work: the workforce (the digital workforce now represents a growing share and is expected to increase by 50% over the next two years according to a study by Abbey/IDC published in 2019); work organisation (based increasingly on human/machine collaboration); skills; strategy; management of public and private organisations.

Companies are increasingly using automated decision-making aids in crucial areas for gender equality, such as recruitment, remuneration, promotion and training. If algorithmic decisions are strictly based on data from the past where gender discrimination is obvious, AI is not likely to change the situation.

*AI created by human intelligence reproduces existing inequalities between women and men :*

At each stage of their development, algorithms, the basis of AI, programmed by men and women developers - 90% of whom are men - reflect a male vision of the world and “automatically” reproduce gender stereotypes which they disseminate widely.

The masculine gender is vastly more present and valued than the feminine gender in databases, which are the fuel of the AI that feeds the algorithms. They reflect past or current situations and opinions, which are largely sexist and hardly likely to bring positive change.

## **Why a Pact for gender equality on AI ?**

- To highlight the impact of AI on gender inequalities, to raise awareness and encourage corrective action by public and private sector leaders, providers and users of AI.
- To get concrete commitments from stakeholders in favour of a non-discriminatory, egalitarian, diverse, responsible, ethical AI that does not hinder professional equality between women and men, but contributes to building a, strong ? tenable and sustainable culture of equality.

*This Pact is aimed at decision-makers, public and private sector leaders, research and training organisations, companies that produce digital products and companies that use AI, AI consultants, associations and the media.*

## **Why the Laboratoire de l'Égalité (Equality Laboratory) ?**

The Laboratoire de l'Égalité is a non-profit organisation under French law<sup>1</sup>, created in 2010 and chaired by Olga Trostiansky. It focuses its actions on equality between women and men at work, acting like a “whistle-blower”, and since its inception has been exploring in depth the obstacles to this equality.

In particular, it analyses the stereotypes attached to the roles traditionally attributed to each gender and the heavy resulting discriminatory consequences for women and men (unequal pay, non-sharing of domestic work, unbalanced parenting, professional segregation, gender pension gap, women's precariousness, etc.).

The transition from the world of coding - programming - to that of learning - advice or decision-making aids in all areas - makes it urgent to raise awareness and correct these abuses.

The Laboratoire de l'Égalité proposes concrete solutions to public and private decision-making bodies to remedy them and transform mind-sets, behaviours, practices, processes and organisations.

The Laboratoire de l'Égalité could not remain indifferent to either the consequences of artificial intelligence technologies on inequalities between women and men, or to the opportunities it offers for correcting them. Consequently, following its working methods since its inception, the Laboratoire de l'Égalité has published a Pact for Equality between women and men specifically dedicated to AI.

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<sup>1</sup> Organisation created under French law of 1<sup>er</sup> July 1901.

The Laboratoire de l'Égalité is aware that AI<sup>2</sup> reproduces other forms of discrimination (based on race, class, sexual orientation, etc). The aim of the Laboratoire de l'Égalité is to work towards the implementation of professional equality between women and men. This Pact therefore focuses on gender inequalities in the AI sector and could serve as a basis for developing new tools to address other forms of systemic discrimination.

## Summary

### I – Acting on data and algorithms for an AI with non-sexist results

- A. Developing egalitarian databases
- B. Designing and developing egalitarian algorithms

### II – Create an ethical environment conducive to the development of egalitarian

#### AI. III – Appoint as many women as men at all levels and professions of AI

- A. Fight against gender stereotypes that prevent women from choosing and accessing AI and digital professions.
- B. Create a general climate that encourages women to stay in AI and digital professions.

### IV – Mobilise all stakeholders towards a culture of AI that is non-sexist and non-discriminatory:

- A. Decision-makers
- B. Education, training, research
- C. Companies that produce and use AI
- D. Civil society

The four chapters of the Pact are not in an order of priority. We have included first technical actions that may have short-term results and that are less well known. However, all the actions envisaged are important, interactive and indispensable. They can and must be carried out simultaneously. Indeed, it is difficult to program technical modifications, to develop them and to generalise them in a sustainable way if the different actors are not sensitised to and trained in gender equality-related challenges. Progress is also unlikely without regular monitoring procedures, without the commitment of public and private sector managers and without a balanced presence of women in all professions and at all levels.

## I – ACTING ON DATA AND ALGORITHMS FOR AN AI WITH NON-SEXIST RESULTS

The fact that AI propagates sexist stereotypes and reinforces inequalities is analysed by numerous researchers and is beginning to be brought to the attention of the general public through books and the media : for example applications that only recruit white men with university degrees to decision-

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<sup>2</sup> AI is the set of concepts and technologies allowing the creation of machines capable of simulating human intelligence. AIs are the various applications of AI (algorithms and databases) used in different fields: health, finance, human resources, administration, games etc.

making positions, or applications that systematically offer lower pay for women than for men in a company, etc.

Less well known but very promising is the possibility offered by AI to accurately measure inequalities, to self-correct and, through modifications of databases and algorithms, to contribute to the development of equality between women and men. Indeed, there are technical solutions, some of which are already emerging, to detect inequalities in automated decision aids, in the data that feeds them and in the algorithms that programme them, and to remedy them.

### **Immediate essential actions : training human beings to programme and develop egalitarian systems**

*The priority for developing and implementing egalitarian systems is to train women and men involved in the design and manufacture of AI (researchers, designers, developers, producers, suppliers and users) in the challenges related to a non-sexist AI. AI is never more than the result of human processes and systems of representation that permeate their intelligence. AI has no sexist biases. It is human beings who are imbued with them; it is society, and databases, which reflect them, that is filled with them.*

- **Train researchers, technicians and AI operators in gender equality issues** so that they become aware of the issues at stake. This concerns all profiles of the AI production chain: definition of the objective, design, coding, programming, development, management, evaluation so that they implement a non-sexist AI in accordance with the practices recommended by the Pact.
- **Train AI programmers and AI users on the basic principles of AI and the possible gender biases generated by AI** so that they understand the process of designing and developing algorithms and biases, that they are recognised as valid interlocutors by AI scientists and technicians, and are not subjected to AI but are free to make their own choices. This will also make them aware of the existence of biases and able to identify the gender inequalities produced by AI and request revisions and corrections from AI technicians. It is also an opportunity for everyone to question their own biases.

### **A – Develop egalitarian databases**

Databases, the big data, which permanently accumulate data from connected objects, from social networks, our data, are one of the essential fuels of the automatic learning process of predictive algorithms (machine learning, including deep learning).

However :

- Detailed information about women are hardly available. For example, in Wikipedia less than 20% of biographies are about women.
- All the sexist stereotypes present in society can be found and are replicated in abundance in data. For example, an algorithm (a programme, a software, a system) that is supposed to determine an employee's pay "learns" that over the last 10 years, men have been paid more than women with identical CVs, that loans are more easily granted to men than to women, that there are more men in management positions. It will therefore propose solutions based on this information. If we do not correct the data, these inequalities will persist.

### **1 – Providing sex-disaggregated data : bridging the "gender data gap"**

Establish comparable sex-disaggregated data that allow for the measurement of gender inequalities in specific cases. There is much less information about where women work and what they earn than there is for men. This should be generalised in all fields: health, education, economy, transport, security, justice etc.

## 2 – Measuring inequalities

Analyse available sex-disaggregated data, measure, count, and identify gender gaps in databases. What is not counted does not exist.

## 3 – Balance the volume of information on women in relation to that devoted to men

- Verify that the information on women is balanced in volume and in treatment compared to that on men.
- Fill in the gaps to ensure that the database(s) used is/are representative of the gender ratio in the given area. There are already several initiatives along this line, including the “Les sans pagEs” (“The Pageless”) project, whose contributors write biographies of women so that there are as many women as men on Wikipedia.

## 4 – Correcting gender biases in databases

- Analysing texts, identifying discrimination (associations of ideas, semantic associations, trade names, etc.) and correcting them, paying attention to the proportion of women and men, rewriting texts in egalitarian language.
- Analyse images, videos, correct text/image associations (captain, chief, engineer = men; care, assistant, secretary = women).

## 5 – Accelerate the dissemination and use of egalitarian databases

- Promote and label already existing egalitarian databases.
- Give free access to mixed databases and image catalogues (open source and free of charge).

## B – Design and develop egalitarian algorithms

Given the means available, it is now technically possible to design egalitarian algorithms, as well as to correct faulty algorithms. For example, IBM has asked a very large number of employees to say sentences to an AI to train speech recognition. Thus, the company provides all kinds of voice pitches, pronunciations and accents, to allow for diversity in the voices of vocal assistants.

It is therefore a matter of AI men and women AI stakeholders to intervene at each stage of the development of AI to eliminate sexist biases.

## 1 – Encoding egalitarian objectives into the script of algorithms

- Verify gender issues throughout the AI production chain, from the writing of the algorithm objectives to the coding.

- Think beforehand about the relevant gender equality aspects in the algorithm:  
Is it possible to code gender equality-related objectives in the algorithm?  
Is the gender variable obvious or not (notion of gender assignment of non-gendered data) ?  
Should gender equality-related criteria be added *a posteriori* as a way of analysing or when using the results (i.e. not directly in deep learning algorithms)?
- Develop an equality-based mathematical formula of the question asked.
- Test AI productions in a gendered way: highlight the differences in results by gender, analyse them, understand them.
- Correct and redo the process until the production of the algorithm is “gender neutral” or non-discriminatory.
- Fight against the reproduction of unequal codes.

## 2 – Use AI leverage to promote equality

- Use AI to make inequalities visible. For example, AI can be used to calculate and compare the amount of speaking time given to women and men in the media or in meetings, the number of women in certain positions , etc.
- Go further and ask AI to “create equality” by introducing voluntarily egalitarian lines of code (e.g. provide 50% women's CVs and 50% men's CVs in a recruitment software).

## 3 – Be careful not to develop AIs that lock women into a second role

Assign a neutral gender to digital assistance : names, shapes, colours, voices. A Danish group of computer scientists, linguists and sound designers has developed “Q”, a gender-neutral voice. This avoids the systematic use of women’s voices, perpetual assistants in the service of men.

## II - CREATING AN ETHICAL ENVIRONMENT CONDUCIVE TO THE DEVELOPMENT OF AN EGALITARIAN AI

Simplistic algorithms, statistical errors, opacity of operation, reproduction of inequalities: the operation of algorithms raises ethical questions. Moralising AI is a major issue, as evidenced by the many European and national initiatives, laws, conferences, reports, texts and charters on the subject. It is a question of overcoming the fears linked to invasive technologies that are the subject of irrational speculation, of proving that they are not only useful but also mastered in order to create or maintain the confidence of users. This implies a clear definition of what an ethical AI is and the development of reference standards, and evaluation and control procedures.

The aim is to simultaneously fine-tune and develop statistical instruments for detection, bias analysis and sustainable correction methods. It is necessary to clarify and make transparent, the

sequence and the different stages of designing and operating of algorithmic programmes (objective, training, evaluation, product) and their possible variations in order to be able to evaluate and control them. Ideally, a design thinking approach should be adopted from the inception of these programmes, i.e. a human-centred approach to innovation, a method for producing innovative services and products that meet the needs of users.

**1 – Develop multidisciplinary research on AI and egalitarian ethics** (e.g. Council of Europe, FAcCT – the annual international conference on fairness, responsibility and transparency of information systems, organised by the Association for Computing Machinery - ACM)

The ethics of algorithms leads to questions about the behaviour and habits of AI users, as well as the increasingly autonomous behaviour of AIs. It is obvious to everyone, including producers, that AI must be accountable for its operation and actions. A responsible AI is essential. This raises fundamental questions : what meaning do we want to give to AI ? What kind of society do we want to live in ? It also raises questions about what human intelligence, learning, knowledge and reality are. These questions call for dialogue and collaboration between AI scientists and humanities specialists (philosophers, sociologists, psychologists, etc.). With this objective, in 2019, the *École normale supérieure* in Paris and its foundation ABEONA created an AI and Justice Chair. The participants are academics from all disciplines.

**It is therefore important to define what a fair algorithm should be and to define standards, common and global standards, on the data, on the functioning of the algorithms, on the precision and coherence of the explanations, on their limits, and which parameters were used to build the model.** In April 2019, an interdisciplinary committee of 52 experts (from large companies, but mainly from civil society - academics, lawyers, advisors) met within the European Commission to determine essential criteria: human autonomy from automated decision-making, robustness, security, transparency, non-discrimination, confidentiality and governance of data, social and environmental well-being. UNESCO also decided to develop a normative, international instrument on AI ethics, centred on the human being and on human rights.

**2 – Integrate gender in the design of AI research**

Taking gender into account in research is obviously facilitated if there are more women researchers and if the research focuses as much on women as on men. It allows for a different conception of services that are relevant and useful to both women and men. It affects the quality of research and production. For example, in the health field, the symptoms of heart disease are not the same for women and men, yet diagnoses are based on male samples, and tragic errors are made in emergency departments when it comes to diagnosing women.

**3 – Generate audits of the AI production chain**

Who did what ? Which databases were used? Which code standards were used? Which code platforms were used and what were their methods?

Example : Apple, when questioned about the fact that its credit card granted lower amounts to women than to men, denied any discrimination, as gender was not indicated in the model's parameters. In fact, since women in the past had used less credit than men, Apple's algorithm had granted them less credit. Too bad for those women who wanted more !

#### 4 – Alert the National Digital Ethics Committee (composed of independent experts)

The French National Digital Ethics Committee was established in December 2019 (as advised in the Villani Report<sup>3</sup>) to deal with the importance of non-discrimination and gender issues in AI.

#### 5 – Develop a fair AI label

It is necessary to create a fair AI label to verify that clients' algorithms meet several criteria applicable at different stages of the AI production chain (labelling/certifying databases, algorithms, bodies, etc.). Some platforms/bodies already exist such as CNIL (*Commission Nationale de l'Informatique et des Libertés*, France), ORCCA (O'Neill Risk Consulting and Algorithmic Auditing), AFNOR (*Association Française de Normalisation*, France), ADEL (Algorithm Data Ethic Label).

6 – Integrate the fair AI label in the calls for tenders of public and private organisations in order to select AI providers that respect criteria based on unbiased algorithms and data.

### III - AS MANY WOMEN AS MEN IN AI AT ALL LEVELS AND IN ALL OCCUPATIONS

As in many scientific disciplines and professions, women are absent in the artificial intelligence sector, where they represent only 12% of employees. The reasons for this are well known: gender stereotypes that influence career guidance, the non-competitive choices of girls, difficulties of access and integration for girls, who are judged to be less able than boys to become good scientists or technicians and to embrace “masculine” and “prestigious” careers. This adds to the prevailing sexism in AI environments, which creates difficult working conditions for those women who manage to enter the AI field, but then leave. The absence of women in the industry is a key reason for the sexism of algorithms designed and developed by and in a male world.

There is a need for more women be in the driver's seat in all AI occupations, in order to :

- Reflect the existence and choices of half the population.

- Ensure more neutrality in digital strategies, research, algorithms, codes, databases, AI products (example: products must be tested on a mixed team), but also for specific automated decision aids, for example, in health care;

- Give women access to a rapidly developing sector that offers well-paid and socially valued jobs and needs a wide range of talents and profiles ;

- For democratic and ethical reasons, and because everyone now agrees to consider diversity and equality as a source of economic performance.

#### A - Fighting gender stereotypes that prevent women from choosing and gaining access to artificial intelligence and digital professions

There must be general mobilisation to overcome the low 12% of women in technical positions in the digital profession.

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<sup>3</sup>Report commissioned by the French Prime Minister and drafted by member of Parliament Cédric Villani in 2017. Link to the report: <https://www.vie-publique.fr/rapport/37225-donner-un-sens-lintelligence-artificielle-pour-une-strategie-nation>



**1 – Train career guidance counsellors** (in France, psychologists from the national education authorities) in AI and gender bias

**2 – Encourage more girls to choose “Digital and Computer Sciences”** as a speciality in secondary school and to pursue studies in the fields of computer science and mathematics

Provide girls with accurate and broad information about studying and opportunities in these career paths.

**3 – Systematically integrate gender equality teaching modules** in the training of trainers, of teaching and education staff (origin of stereotypes, discrimination, benefits of gender equality)

**4 – Teach women and girls to code**

Example : Simplon organise “Initiation Kids” workshops to prevent gender bias in guidance by introducing girls and boys to code and by stimulating interest for and in AI.

**5 – Steering women in engineering schools towards AI**

**6 – Attract girls** by putting in place training conditions that are more accessible and more inclusive

Example of the Simplon schools or the INSA did in Lyon (France)<sup>4</sup> : The Simplon schools have 36% women students, partly thanks to the willingness of these schools to recruit 30-50% women students and partly thanks to non-co-ed recruitment systems, information sessions or non-co-ed pre-training sessions to encourage women to enrol together.

Online MOOCs (Massiv Open Online Courses) are flourishing on the net, whether free or not, with or without diplomas, such as the ones offered by the “Openclassroom” platform.

La *Grande Ecole du numérique*<sup>5</sup> trains young people lacking employment opportunities, women and people coming from priority neighbourhoods. Google, Apple, Facebook, Amazon, Microsoft, and IBM (GAFAMI), which are looking for very diverse “digital” profiles, have introduced ambitious training programmes at all levels from high school onwards, in more or less concentrated modules. GAFAMI now also have recruitment targets in terms of percentages of women. Thus Microsoft, in addition to its DigiDiz programme to raise awareness among schoolgirls from priority areas, provides a 7.5-month training course for students in its AI school created with Simplon (Issy les Moulineaux, France), which currently has 30% women students. In collaboration with its partners, it conducts professional training.

IMPACT AI,<sup>6</sup> a Think and Do Tank on AI, has selected and listed 200 training courses related to AI provided in France in its library intended for the general public.

<sup>4</sup> Institut National des Sciences Appliquées (National Institute of Applied Sciences).

<sup>5</sup> Launched in 2015 by the French Government, the *Grande Ecole du Numérique* is a network of hundreds of training courses in digital professions. The Grande Ecole du Numérique promotes inclusion and meets the needs of recruiters for digital skills.

<sup>6</sup> <http://imPact-ai.fr/formations-ia/>

The efforts of the *grandes écoles* and universities to attract and promote the integration of women into their curricula are indispensable and are proving to be worthwhile. One of those is the INSA Lyon, which welcomes nearly 40% of women students into its computer engineering programme. The places reserved for women in this programme was particularly praised by third-year students, as well as the parity recruitment in the integrated preparatory classes. Another example is the Carnegie Mellon University in the United States, which, based on a diagnosis of girls' motivations, has modified its curriculum, organised remedial sessions and a support network to foster self-confidence. The drop-out rate after two years of study fell from 60 to 10%.

**7 - Systematically integrate gender equality teaching modules** in digital training (origin of stereotypes, discrimination, benefits of gender equality)

**8 – Integrate gender equality into the management of digital companies**

Implement clear and quantified diversity objectives (e.g. Microsoft had set itself a target of 30% women by 2018, which has been achieved).  
Revisit all human resources processes, starting with recruitment.  
Encourage women (mentoring, training, etc.).  
Promote women's career advancement.  
Comply with the (French) legal obligation to publish the ratio of women to men (in all positions), publication of salaries.

**9 – Sensitise company employees to the possible impacts of unethical AI.** Raising awareness among employees also raises awareness among families and initiates a change of perspective and practice in the private sphere.

**10 – Training and raising the awareness of professions that use AI**

AI systems are not only used by engineers and AI and data departments but also by many other professional sectors in which women are very present: marketing, human resources, etc. It is essential that they acquire digital skills.

**11 – Avoid the hyper-precariousness of certain professions related to AI,** mainly occupied by women.

They are called “click” jobs, such as : training AI programmes to identify objects (a lamp, an armchair), emotions (sadness, anger), classify data, order data by size, by micro-tasks, at a volume of several thousand per day. These are repetitive tasks, poorly paid and performed mainly by women. A new form of Taylorism that creates precariousness for women.

**B - Create a general climate that encourages women to remain in the AI and digital technology professions.**

**1 – Fight against everyday sexism and harassment in the digital world** (companies, schools and training), against the “geek” culture and its sexist practices.

- Implement information campaigns.
- Appoint a gender equality focal point.
- Organise debates.
- Distribute quizzes on equality.
- Write a charter.

- Provide compulsory training via a MOOC for example, provide sanctions.

Example : Simplon offers workshops for company employees to raise awareness of the role of women in technology; identify areas for improvement; and design solutions to solve the problem of under-representation of women.

**2 – Aim to have 50% women in all strategic places of AI development in three years**, by insisting on interdisciplinarity (it is not necessary to be an expert to join a regulatory committee). This includes

- Research institutions and think-tanks.
- Development and steering committees.
- Control and validation bodies.
- Ethics committees.

**3 – Sensitise the media to the challenges of a non-sexist AI**, and encourage them to :

- Create or consult databases of women experts in AI and update them.
- Diversify their stories and include an egalitarian dimension in all their news stories (gender mainstreaming).
- Highlight women role models in the AI sector.

**4 – Support the development of digital start-ups by women**

- Encourage women's access to funding. 85% of start-ups are created by 100% male teams. Women creators of start-ups, particularly in the digital sector, have raised only 2% of all funding since 2008. Banks lend more easily to men and it is known that they question women about the risks associated with the development of their start-up, and men about the potential of their project. Several initiatives are underway to stimulate women entrepreneurship, including the 'Sista Charter', which aims to accelerate the financing of women entrepreneurs, in collaboration with the National Digital Council. 'Femmes Business Angels' brings together 150 business investment professionals to select and fund projects led by women.
- Promote women role models working in the AI sector, beyond stars like Sheryl Sandberg, current COO of Facebook, or Marissa Mayer, former CEO of Yahoo. There are other women entrepreneurs worthy of being visible, as showed by Station F's Female Founder Fellowship, which promotes start-ups founded by women and helps them find funding.

## IV - MOBILISATION OF ALL FOR A NON-SEXIST AND NON-DISCRIMINATORY AI CULTURE

AI concerns everyone, the same goes for gender equality as well. The AI regulatory framework is recent and deserves to be completed and communicated widely. It should be subject to enforcement monitoring measures. Each stakeholder in the AI system must feel concerned by the subject and know their duties, rights, action or reaction plan. It is also important that all these stakeholders work together: companies with researchers, and with users, and with suppliers.

Moreover, the increasing and general ethical requirements concerning AI imply the use of humanities, philosophy, sociology, psychology to shed light on essential questions such as: what meaning should be given to the evolution of societies? What kind of society do we want to live in? How does human intelligence work? What values are fundamental and shared? What are the limits? Which direction should society take? What common standards should be set by the authorities? What should the controls be?

Solutions can only emerge through discussions and interdisciplinarity.

In this section, proposals from the previous sections are attributed to the relevant stakeholders.

### A - Political leaders

#### 1-Regulatory level

- Always remind people about the laws in force, information campaigns.
- Monitor the implementation of existing laws on gender equality and digital transparency.
- Encourage, sanction, reward: organisation of public debates, prizes, labels.
- Create the conditions for gender equality, including safeguards consisting of ethical and deontological standards and codes of conduct, set up and steered by joint bodies.
- Implement a wide-reaching programme to fill the gender gap in public data (make the collection of sex-disaggregated data mandatory for all public initiatives).

#### 2-Operational level

- Impose gender equality in all digital and AI programmes driven by public investment, from their conception.
- Make neutral datasets freely accessible, create standardised and representative databases.
- Create public support platforms for digital and AI companies and organisations, subject to the respect of gender equality conditions.

Examples: Labs, digital competitiveness clusters; SMART programmes (Smart city, Smart Region Initiative, Smart platforms, Hospital of the Future); Digital community spaces (Dighall, AI factory hub, Station F).

- Put in open data programmes dealing with the sharing and release of data : industrial, health, voice recognition, mobility, transport, etc. - open data sharing and data release programmes.
- Make public assistance and actions (such as the AI pack of the Île-de-France region) conditional on respect for gender equality.
- Set up doctoral and post-doctoral fellowship programmes with controlled conditions to help recruit women doctoral students in AI and to encourage research on non-sexist AI.

## B - Education, training, research

### 1-The school sector

- **Treat pupils at school in an equal manner.** Therefore, train parents and children from nursery school through to university in gender equality.
- **Ensure gender-neutral education and career guidance for pupils** , promote digital training to girls (useful in all professions, not only AI), and the stimulating and well-remunerated professional opportunities offered by STEM subjects (Science, Technology, Engineering and Mathematics).
- **Ensure the learning of coding and AI fundamentals** for all and therefore train teachers in both areas, technology and gender equality (Example : “Wi-filles”, a code training programme for middle- and high school girls, started in the Seine-St-Denis department, and which exists all over France).

### 2-Training organisations

- **Ensure that participants of training courses sign the Pact** so they will have to commit to applying it in their studies and working life.
- **Lean towards parity** in promotions (for example, question recruitment processes including age limits, levels of diploma, teleworking, etc).
- **Create a welcoming environment for women**, notably by developing an internal network for women (Example : INSA Lyon organises a mentoring programme for students of the engineering cycle).
- **Introduce mandatory training** on the impact of AI on gender inequalities and possible solutions to ensure that AI results are not biased.
- **Provide training in egalitarian code writing** (how the objective of the algorithm is evaluated, review of the results to ensure that egalitarian objectives are followed up, creation of practical kits, etc.).
- **Disseminate directories of (women)experts** who can advise on the principles of egalitarian AI.

### 3-Research organisations

- **Train and recruit AI researchers and operators of both genders, on an equal footing.**
- **Integrate sex and gender in the design of research, i.e. promote ensure gendered innovation.**
- **Develop research :**
  - Research on AI and ethics in line with the international and interdisciplinary annual FAccT conference, integrate the recommendations of the General Data Protection Regulation (GDPR) set up by the CNIL<sup>7</sup>, and the (French) Digital Law of 2017, implement the recommendations of the Villani Report<sup>8</sup> “Giving meaning to AI” (inclusion, transparency, explanations, responsibility, ethics).
  - Research the notion of responsibility and its translation into law: Who is responsible for a sexist algorithm? Is it the person who designed it? Or is it the person who provided the database ? Or is it the company or public body that misused the algorithm?

<sup>7</sup> Commission Nationale de l’Informatique et des Libertés, France (National Commission for Computer Technology and Freedoms).

<sup>8</sup>See Note 3.

- Research and develop systems for testing and monitoring AI applications, transparency and explanations of algorithmic decisions.

## C - AI-producing and AI-using companies (private and public)

- **Align AI technological advances with legal and ethical values.** As Nozha Boujemaa, Director of INRIA<sup>9</sup> and the Convergence DATAIA Institute for Data Science, Intelligence and Society, pointed out in 2019, *“Robust AI is that which provides guarantees for the safe operation of algorithmic systems, which ensures the absence of bias or fragility throughout the phases of an automated decision. These qualities commit the producers of these technologies in all fields (health, banking/insurance, environment, security, defence, culture, etc.). These guarantees are not limited to ethical qualities but represent a guarantee of quality of service and confidence in their use. And much remains to be done to ensure the alignment of technological progress with legal and ethical values. Humans alone will not be able to carry out this algorithmic behaviour control without the help of other algorithms that will be able to measure and objectify these situations.”*

- **Comply with existing laws on equality between women and men**, in particular regarding the equal pay index, and laws related to IT and digital issues.

- **Ask executive committees, managers and technical teams that create algorithms and use AI to sign this Pact** and create a follow-up committee with monitoring deadlines to measure efficiency.

- **Conduct a self-evaluation** of the proportion of women at all levels and of their salaries compared to those of men, in accordance with legal provisions, and analyse the decisions made using AI to assess their relevance in terms of gender equality.

- **Develop information and training for managers and developers on AI and gender inequalities** (e.g. Simplon's “Dégenrons la Tech” (Let’s ‘ungender’ the Tech !) workshops).

- **Train HR teams on AI and gender inequalities** so that they are aware of the biases of the software that they use and so that they support advances in this field.

- **Resolutely fight against sexism:**

- *Establish a real diversity of teams* in digital professions, both in technical and decision-making positions.
- *Remove all gender bias from databases and algorithms.*

## D - Civil society

### 1. Associations, opinion leaders, AI experts

- **Work together** on actions promoting gender equality in AI in France and at the European level.

- **Propose news items to the media**, a gender-based analytical framework, women role models, lists of women AI experts, examples or counterexamples from different countries.

- **Point out cases of sexist discrimination** (including both “everyday sexism”, sex-based discrimination and discrimination related to algorithms) in all public and private organisations using AI.

- **Propose training modules for digital equality.**

<sup>9</sup> French National Institute for Research in Digital Science and Technology.

## 2. Media

- Systematically analyse from a gender perspective** the AI and digital news, the treatment of subjects, the choice of interviewees.
- **Programme and advertise programmes** on AI, digital issues and gender equality.
- **Ensure** gender balance among interviewees.

The Covid-19 crisis spectacularly demonstrated the dynamism and possibilities of AI and the monitoring needs with regards to gender equality. First, in relation to health: help with diagnosis, assistance to caregivers and patients, help in the search for drugs and vaccines, robots to replace overexposed caregivers. Its management and prediction models are proving to be essential crisis management tools for the government. Now more than ever, it is essential to ensure that algorithms are programmed and fed by egalitarian data.

AI has provided companies, from the smallest to the largest, with tools that have enabled them to manage their continuity to the maximum through telework. Telework has been effectively extended to 25% of staff thanks to the intensive and secure digitisation of home offices, to home assistance, chatbots powered with AI, etc.

This compulsory generalisation of working from home will certainly have a major impact on the reorganisation of work after the crisis. Indeed, it is likely to gain followers on both sides and to develop on a voluntary basis. The consequences in terms of reorganisation of work, type of management and human resources management will be important. It will inevitably be a management based more on trust and autonomy instead of a typically French style of management based on control and presence, based on a refined human resources management of profiles, of revised remuneration, and an equal treatment of women and men, taking into account the constraints that women still face (higher share of unpaid care work etc.)

If teleworking is increasing, the vigilance of legislators, trade unions, managers of public and private companies and associations will also need to increase regarding the automatic inequalities (largely demonstrated during the Covid-19 period) encountered by women teleworking. Indeed, they seem to largely have been assigned the triple punishment of paid work, domestic work and home schooling. The Laboratoire de l'Égalité has already tasked a working group with this the subject.

## Conclusion

The aim of the solutions evoked by this Pact is to inspire AI stakeholders and to show them that it is possible to control its discriminatory uses, to correct them; to use the tremendous opportunities of this technology and its applications to orient it towards the service of everyone. And more specifically, to the service of human development, of which gender equality is an intrinsic part.

It is around this objective that the Laboratoire de l'Égalité wants to bring together political, economic and social decision-makers, and at the same time raise awareness among the wider public, to stimulate its vigilance and formulate its demands.

Currently, awareness of the discriminating sexist biases generated by AI is increasing. Awareness of the insufficient presence of women in AI-related sectors is also growing. Numerous initiatives are emerging companies are correcting the most blatant biases from a technical point of view; while associations campaigning for gender equality are promoting the presence of women in science. Companies, in general, are gradually striving to meet their legal obligations in terms of equality. Institutions are developing standards and checks on the fairness of algorithms (transparency, explanations, etc.).

The Laboratoire de l'Égalité, one of the first associations to have sounded the alarm about the sexist biases of AI, and proposed or suggested possible solutions, welcomes this trend. There are never too many people committed to the search for gender equality.

The Laboratoire de l'Égalité is one of the few places that devotes work exclusively to AI and promotes simultaneously a wide range of other activities:

- an educational and training policy for all ages and all people about gender equality and the fundamentals of AI;
- a policy of innovation targeted at companies to correct discriminatory biases through AI and to make AI not only a robust and safe technology, guaranteeing a good quality of service and non-discrimination, but also ethical and responsible technology;
- an egalitarian human resources policy for AI producing and using companies.

For decision-makers and AI stakeholders, this Pact is an official recognition of the clear awareness of all the gender equality-related challenges, that are part of a system. It aims particularly at promoting the indispensable trust of users. It is to show a commitment to what is within one's own field of action while being vigilant in other fields and ready to collaborate with the different stakeholders in the area, in order to obtain together rapid, coherent and responsible results. It is, in addition, to become aware of one's own biases, and of the functioning of human intelligence from which AI is supposed to draw its inspiration.

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The Artificial Intelligence Working Group of the Laboratoire de l'Égalité and the Pact were led by Muriel Garnier, in charge of the AI Programme at the Laboratoire de l'Égalité. It was written by Annie Batlle, Director of the Equality Collection at the Laboratoire de l'Égalité.

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