

WORLD
MANUFACTURING
FOUNDATION

BACK TO THE FUTURE

MANUFACTURING BEYOND COVID-19

WOMEN IN MANUFACTURING

Group Leader

Cristina Oyon

Director of Technology, Innovation and Sustainability,
SPRI - Business Development Agency of the Basque Government

CONTRIBUTORS

Giulia Artibani

Communication Advisor, European Factories of the Future Research Association; Member, Young Manufacturing Leaders

Stijn Broecker

Senior Economist in the Skills and Employability Division, Organisation for Economic Co-operation and Development (OECD)

Rhonda Barnett

President & COO, AVIT Manufacturing

Tomas Castagnino

Head of Economic and Data Science Research, Accenture Research

Tommaso Catalini

MSc student of Management Engineering, Politecnico di Milano; Member, Young Manufacturing Leaders

Luciana Ciceri

CEO, Ciceri de Model

Chiara Cormanni

Business Controller and Developer, Piattine Profilli Inox Srl

Felipe Gomez del Campo

Founder and CEO, FGC Plasma Solutions

Ainara Isasa

Managing Director, Basque Government Trade and Investment Agency in Italy

Syed Munir Khasru

Chairman, Institute for Policy, Advocacy and Governance IPAG

Leanne Kemp

Founder and CEO, Everledger

Judith Kirton-Darling

Deputy Secretary General, IndustriAll Global Union

Julian Müller

Professor for Logistics and Operations Management, Salzburg University of Applied Sciences

Sara de la Rica

Professor of Economics, University of the Basque Country. Director, Iseak Foundation

Laura Rocchitelli

CEO, Rold

Irene Roda

Assistant Professor, Politecnico di Milano

Dominique Saillard

Executive Director, Oreka Sarea SL-Gender Consultancy

Cecilia Ugaz

Director of the Department of Policy Research and Statistics, United Nations Industrial Development Organisation (UNIDO)

Ramon Vivanco

Coordinator, European Commission Executive Agency for Small and Medium-sized Enterprises (EASME)



INTRODUCTION

The Manufacturing sector and the global economy in general are being seriously affected by the COVID-19 outbreak. However, an increasing number of studies and articles by international and state institutions, businesses, trade unions, academics and women's organisations point out to a very relevant factor: the impact of the pandemic is not gender neutral, and it has different consequences for the men and women in the manufacturing industry around the world.

Overlooking such differences would be akin to analysing the situation from a flat, two-dimensional perspective. Only through adding a gender lens will the industry and policy makers be able to draw a three-dimensional picture of what the problems really are and what the solutions might look like for the Back to the Future scenario that the World Manufacturing Foundation is intending to outline to stimulate future courses of actions in a post-Covid-19 manufacturing paradigm. To cover the situation of women in manufacturing with some depth, the Expert Group felt it had to differentiate between developed and developing countries, local realities and social backgrounds, and decided to focus primarily on the **higher added value activity of the manufacturing industry, as it felt this segment should lead the way in the "back to the future" manufacturing** and therefore contribute more to generate momentum for closing the gender gap.

Taking into account the scope for action outlined above, the Expert Group has found it necessary to first dwell at some length on the **context surrounding the issue at hand**. To understand why it is urgent to pay special attention to the experiences of women during and after the worst of the lockdown, it is useful to review what was the overall position of women in the manufacturing industry **at the outset of the sanitary crisis**. The paper then proceeds to outline the **direct impact of the Covid crisis** on the already somewhat fragile situation of women in the industry.

Yet, the Expert Group has also found that **a number of lessons can be learned** from the economic disruption produced by the Covid-19.

After outlining them, the Group goes on to identifying

a series of opportunities that have to be seized for **the new manufacturing industry to ensure it gets all the talent required** to make the transition to a more digital, greener and more inclusive future.

As a result of this analysis, the Expert Group finally formulates a set of **recommendations for policy makers and industrial leaders to stimulate future actions** for the best "back to the future" practices, ensuring that the "new normal" may lead to a rebalancing of the gender differences in manufacturing.

CONTEXT

The situation of women in the manufacturing industry before and during the sanitary crisis

The exchanges celebrated within the Expert Group and the review of relevant literature has allowed us to pinpoint a number of specific pre-existing difficulties that have been amplified by the world-wide health crisis.

Women are nowadays still significantly under-represented in the industry.

In general terms, the share of women employed in industry only represents around 30% of the workforce. According to a study published by the World Economic Forum (1) in June 2020, the figures were still as low as 33% at junior level staff, 24% at mid-level staff, and 15% at senior level staff, while only about 9% of the CEO positions across all industries were occupied by women.

In order to develop **a better understanding of women's situation in the manufacturing environment** (2), the group first centered its attention on the reasons for such low participation, and outlined two main phenomena: on the one hand, the barriers to entry and, on the other hand, why the industry loses women along the pipeline.



Barriers to entry

So, **why are women not accessing the industry** as much as they could? The first answer is that **manufacturing activities do not result attractive enough to them**. There is a social perception of gender roles that makes women feel industry “is not for them”, for various reasons:

- Role models at leadership level and on the shop floor are lacking.
- Women do not feel comfortable entering male-dominated workplaces.
- There is a widespread perception that manufacturing mostly offers monotonous, assembly-line jobs, normally in a dirty and dangerous environment, a preconception that bear little resemblance to the modern, innovative and technologically advanced manufacturing operations.

A second answer lies in **women’s still limited presence in STEM fields (2), from early education to university studies**. As a result, they concentrate on administrative, client support and marketing jobs, and are still under-represented in most engineering and scientific career tracks.

In addition to strongly reducing the number of entrance doors into the manufacturing companies, **the lower interest in STEM also limits the presence of women in R&D activities**, which are key to the development of a more innovative and sustainable industry.

Moreover, the significant **gender gap in digital skills is** something worrying, since labour markets increasingly reward the social and digital skills that are key for the dual digital and green transition ahead.

Losing women along the pipeline

The problems resulting from the existing barriers to entry are compounded by the fact that **the industry often fails to retain women or provide them with attractive career advancement perspectives**, leaving them to concentrate in lower-paid supporting jobs. Again, various motives can be outlined:

- The **uneven sharing of domestic and care duties at home** impede most women to devote as much time to their business or R&D career as men. The

so-called “sandwich women”, who take on board a still disproportionate burden of unpaid work as they take care of young children and aging parents, experience more drop-offs or interruptions, and find it difficult to maintain formal and informal networking activities, which are crucial for career development.

- Furthermore, **persistent wage gaps are reported across all industries**, even in sectors where female participation is comparatively high.
- **Young female researchers drop out in a higher proportion** than men from university teaching or research positions, as they find it difficult to obtain long-term work contracts and turn to other jobs.

All in all, women often find that **a glass ceiling prevents them from reaching the top levels of leadership**, as mentioned earlier on. In fact, board membership also lags very strongly behind. However, it would be a mistake to think that the problem mostly arises from a lack of qualified women. The very strong societal expectations regarding gender roles for men and women do have a very relevant influence on the organisational culture in the industry (from family businesses to big companies), and generally, for a woman to reach a leadership role, competence, motivation and a great deal of resilience are needed.

In this context, what is the impact of the covid-19 crisis on women’s position in manufacturing?

On the negative side, the Expert Group has found that **the crisis is disproportionately weighing on female workers (3)**. This is happening through different mechanisms that manifest themselves in the manufacturing companies, in the R&D field, and at home.

The impact of job losses

According to trade unions and industry analysts, the job cuts in the manufacturing industry will probably happen in three waves: the first wave is already taking place in big companies, who have closed down some of their facilities; as a result, the second wave is hitting the supply chain businesses (especially SMEs); and a third wave will start as soon as the various time-reduction and job retention schemes run out, causing a general surge in



unemployment.

During crises, part-time and temporary employees, i.e. women for the most part, usually bear the lion's share of such job losses. **Women therefore stand to lose in terms of parity**, as the still fragile gains made in female labour force participation are rolled back, and the **skill mismatch between supply and demand** for work could be substantial **in the future**.

Furthermore, **women also lose out in terms of economic benefits**, as female employees find it harder to remain economically independent when they become unemployed. Even when there are social protection provisions, women's interrupted career patterns and the wage gap often cause them to receive inferior monetary compensations compared to men. Obviously, the impact varies according to the socio-economic characteristics of women. Young, lower social strata women with children usually suffer more than others.

Different health impact for female and male workers

In some manufacturing industries, the situation of low-income female workers is especially worrying in the production lines where distancing and protection measures might be more difficult to implement.

For workers less likely to have access to remittances, savings, or insurance that could help them in emergencies (often women, especially in single-parent households), not going back to work because of a risk to health is not an option.

The impact of increased care and domestic work during lockdown

Early studies in several countries (4) show that the lockdown might have further **widened the existing uneven distribution of child and other care duties between men and women at home**. The latter have dealt to a major extent with the great disruption caused by the closure of schools and other care facilities and the social distancing measures from family members, who used to contribute to informal care (especially grandparents). Paid help has also been more difficult to obtain. As a result, a number of surveys have pointed out to the fact that women have struggled to maintain work schedules,

often connecting at early or late hours; they have reported worse working conditions at home, having less access to isolated working spaces than their partners; and they have generally referred to suffering a higher rate of mental stress, burnout and risk of depression.

The increase in care duties seem to also have caused an **incipient decline in women's research and scholarly production**. A recent study (5) shows for example that there has been a lower number of female first authorships during lockdown, and female researchers have published fewer articles in the first months of the pandemic, while male researchers, on the contrary, have been more likely to have a partner engaged in full domestic care, therefore devoting more time to R&D activities. From a health perspective, another issue to be mentioned is that if **women are missing out on COVID-19 research**, it may alter the emphasis on aspects of the virus that are particularly important for certain populations.

Gender-based violence has also significantly increased

Numerous institutions and women's organisations have reported that the use of gender violence helplines (through phones or text messaging) has risen very notably during the lockdown period, partly due to higher economic and social stress, coupled with restricted movement and social isolation measures that made women more vulnerable to possible ill-treatment.

Obviously, **such cases of domestic-based gender violence have a strong influence on the victims' ability to perform at work**, whether in the manufacturing industry or elsewhere.

The lessons learned

As outlined above, our Expert Group has found that **most evidence gathered so far points out to the fact that women have been especially hard hit by the COVID 19 crisis**.

Yet, on a much more positive note, the experts have also drawn up three main lessons, **as follows**:

- **The pandemic teaches us the importance of acting to reduce the gender imbalance in responsibility for care of the children and other dependent persons.** Such responsibility is still very



unevenly shared between men and women within the home. And men that wish to overcome the traditional gender mandate and take an active part in their children's education or parents' care do not always find supportive responses from their superiors at work. There is indeed also a lack of co-responsibility between the state, the employers and the families, leaving the latter to cope with the bulk of the practical and financial burden, even more so in the context of a widespread closure of public and private services, such as schools, day care centres, old people homes, etc.

- **The remote work experience has been important to understand that some functions can be performed with greater flexibility.** The crisis has shown that such systems can be put in place quickly and function efficiently, but the experience of women and men working from home has also made clear that remote work cannot be thought of as a lasting solution without combining it with affordable care services and shifting away from a business culture that is still too often based on presentiality patterns.
- **A number of different approaches by female leaders has been put into practice at the beginning of the emergency and during the lockdown, giving priority to the safety of the workforce over production goals.** This is not to say that male leaders cannot overcome gendered expectations; in fact many have. But it may be less politically costly for women to do so, because they do not have to violate perceived gender norms to adopt cautious, defensive policies. What we learned with Covid is that, actually, a different kind of leadership can be very beneficial, and all industry leaders, men and women, must rethink the business values which are deemed desirable and effective. In other words, being "risk-adverse" in a pandemic context, for example, is far from being a bad idea!

OPPORTUNITIES AND RECOMMENDATIONS

The COVID - 19 crisis is an **invitation to "think out of the box"** – Think strategically, think systemically, think sustainably.

The COVID-19 crisis is clearly intensifying the **industrial development trends** towards digitalization, sustainability, and servitization that may open opportunities to build and bring **stronger gender equality policies to the manufacturing industry environment.**

National and European industrial strategies are currently addressing a **new industrial model**, where value creation is not only economical, but also socially oriented and environmentally sustainable, and where **the key drivers of innovation and technology must go hand in hand with** a third and very important one: **innovation in the workforce.**

Overall, making the manufacturing industry as resilient as possible to sudden contingencies requires **as much talent as possible. This implies fostering diversity:** the extent to which members of a company's workforce, including the leadership team, differ from each other in terms of age, ability, ethnicity, gender, gender identity or expression, religion or sexual orientation is important to that end. Equality is a critical building block to unleashing innovation.

This also implies **tackling the cultural changes** that are needed to truly insert gender equality into the mainstream of the manufacturing industry's policies and practices. Despite decades of progress, **gender stereotypes are still present** in our everyday lives, at home and at work, and are **a consequence as well as a cause of persistent inequalities between women and men.** Removing cultural barriers is therefore key to strengthening the role of women in industry and improving female perception in the labour market.

Key Recommendation:

Fostering women to ACCESS, THRIVE and LEAD

If we are to build a new **industrial model for high added value manufacturing that becomes part of the solution to the health, climate and social crisis**, the policy



recommendations ought to address **both the practical and the strategic needs** of women. To give an example, while it is certainly necessary for companies to offer flexible work options to their workforce – most of which are still used by women nowadays, in order to solve part of their work and life balancing **practical needs** –, little progress will really be achieved until companies actively encourage their male employees to make full use of those measures, thereby responding to a **strategic need** of women: ensuring that they may pursue a career in similar conditions to their male counterparts. The seven main recommendations that our Expert Group has formulated therefore correspond directly with the strategic needs that must be addressed for women to fully contribute to the future of the manufacturing industry in the building of the “new normal” (6).

Access

The first set of recommendations deals with creating the conditions for women to more easily access the manufacturing industry. To do so, it will be necessary to overcome a number of current barriers, in particular those related to the digital gap, the scarce presence of women in STEM, and a still largely gender-biased organisational culture. In this context, the main opportunities to be seized have to do with the design and consolidation of new business models based on sustainability and servitization. In summary, the recommendations for action must aim at creating awareness and communicating the attractiveness of the manufacturing industry and the new opportunities lying ahead.

Recommendation 1: Revise the workplace culture to ensure that the manufacturing industry can attract and retain women’s talent.

Education: As already highlighted previously, cultural factors are strong obstacles to the participation of women in the manufacturing sector. In this direction, one of the recommendations is to define a policy able to reduce the lack of incoming female talent in specific fields, especially in STEM sectors, where women are under-represented, acting on all levels of education, starting from primary and secondary education, as well as in technical and vocational education and training.

Researchers at risk need institutional support: When the teams that design, develop and deploy new technologies are not diverse, there’s a high risk of bias. Increasing the number of women in technology and R&D positions would help counter some of these biases. There are already reports of COVID putting young female researchers especially at risk, and institutions must create bridges to support these early career researchers, so that we do not lose an entire cohort of scholars.

Organisational culture must be revised: Getting women in manufacturing is not only a question of STEM education. Culture in general, and workplace culture in particular, is what largely determines whether women thrive in technology-focused academic programs or jobs. Business leaders can accelerate the pace of change by pinpointing the most relevant “cultural drivers”, which can be grouped in three main categories (7):

- Bold leadership - requiring a diverse leadership team that makes gender diversity a priority for management setting, sharing and measuring equality targets openly.
- Comprehensive action - Policies and practices that are family-friendly, support both genders and are bias-free in attracting and retaining people.
- An empowering environment - One that trusts employees, respects individuals and offers freedom to be creative and to train and work flexibly.

Recommendation 2: Target women in all efforts to address the socio-economic impact of COVID19

The pandemic is having a strong economic impact on workers in the manufacturing industry, and as governments seek to reboost economic activity, it is unclear whether all women will be able to re-enter the economy after periods of unemployment, especially at the lower levels of qualification. Even in the high added value sectors of the technology-, knowledge- and capital-intensive industries that we are mostly focusing on in this chapter, the situation of workers that participate in the GVCs at the globalized production platforms levels must be taken into account.

Furthermore, in order to make the manufacturing sector even more economically attractive to women, the difficult economic situation created by the pandemic



should not be used as a pretext to let go of the incipient efforts to legislate and tackle the wage gap issue between women and men at all level of responsibilities. Finally, the COVID-19 crisis is also having a strong impact on **women entrepreneurs** in the manufacturing sector. Specific measures will be needed to **close the finance gap** and help them **rebuild financial health and resilience**, especially where deeply-rooted structural gender inequalities result in unequal access to infrastructure, productive resources and procurement opportunities.

Thrive

A second set of recommendations seeks to generate better conditions for women to thrive in the new manufacturing industry environment, overcoming the current barriers related to working conditions (in particular those dealing with work and life balance). In this area too, the opportunity to create a more flexible, diverse and equitable workplace can be seized through actions that aim at changing the mindset towards outcome-oriented working models and towards boosting innovation through diversity.

Recommendation 3:

Drive transformative change for equality

Care duties: when designing public and business policies around care issues and work/life balance, it is crucial to not only address childcare, but also the situation of the elderly, sick or disabled people. The current pandemic has increased the already heavy load of working-age family members (mostly women) who have to care for their dependent relatives in Covid-induced isolation situations, with little or no access to external public and private services.

Co-responsive care practices within the family: Gender norms must be challenged in order to better distribute the weight of care and household tasks between women and men, taking advantage of the consciousness-raising impact of the lockdown period and remote work arrangements. Institutions can speed up the change through public campaigns and measures aimed at male workers, such as extended mandatory paternal leaves. Other measures must aim at economically and

socially empowering women, so that they are able to negotiate better work/life balance arrangements within their families and at the workplace.

Co-responsibility between families, the state and the manufacturing industry. Economic activity is resuming, and most people go back to presential work, while others keep working from home. Yet no country is yet guaranteeing sufficient care infrastructure or full schooling, leaving to individual arrangements a social problem that should be addressed from a collective perspective, pulling together the public and private sectors.

- Packages on work life balance must include a mixed policy approach of legislative and non-legislative measures on family leave and flexible working arrangements, childcare and long-term care, and economic incentives for parents and carers to work.
- The periods of leave should be included in the calculation of social benefits and, in particular, for the retirement pension.
- Access to affordable external care services should be promoted, through public investment.

Lead

The third set of recommendations from our Expert Group deals with creating better conditions for **women to lead** in the industry, thereby overcoming the barriers that often maintain a glass ceiling over their head, and impair their career development plans. Again, to do so, there lies a opportunity to promote not only economic values, but also social and environmental values towards sustainability, with policy actions aimed at mainstreaming gender issues in industrial policies and company strategies, providing decision makers with data, clear objectives and resources.

Recommendation 4: Collect and analyse data from a gender perspective

Policy responses should address shortcomings in statistical data collection as a key tool to provide gender-related targeted solutions and responses

Short, middle and long-term data will be needed to measuring progress and hold the manufacturing industry accountable, treating gender goals like any other busi-



ness priority.

As an example, further data is needed in order to clearly document which proportion of the paid and unpaid care economy men and women are currently assuming, in order to be able to make the necessary policy decisions both at the industrial and societal levels

Recommendation 5: Ensure women's equal representation in decision-making.

The pandemic has provided many examples of **effective women's leadership and ingenuity in responding to the crisis**, and previous evidence also suggests a relationship between women's representation in decision-making and increased social benefits for societies as a whole.

It is crucial to consult women and have gender-balance in decision-making at all time, but also especially during crisis situations. To that end, **women must be strongly involved in decision making at all levels**. While their role as CEO and their participation in company boards must be strengthened, it is important not to oversee their contribution at lower management positions, all the more so in smaller companies where they often have a higher possibility to be part of the decision-making processes than in the bigger manufacturing companies.

There is a **need for more women on ad hoc task forces at international, state and business levels**. Lack of diversity and representation accentuates biases and gaps, and slows down issue detection and solutions. Beyond individual women, **women's organizations**, who are often on the front line of response in communities, should also be represented in social dialogue mechanisms, and financially supported.

Recommendation 6: Integrate gender policy with other industrial work transformations, especially the dual transition towards digitalisation and sustainability

Industry 4.0: Digital technologies are increasingly present in both our daily lives and our working lives. They have dramatically changed whole industries and will continue to do so in the future. It is believed that COVID-19 might speed up a digitalisation process that can-

not be regarded as gender-neutral, and has to be analysed from a gender perspective.

In order to reduce the negative impact of digitalisation on female workers, access to training must be secured on a life-long basis for women, irrespective of their type of working contracts and its duration, and paying particular attention to women aged 55 and over, in order to safeguard them from exclusion from the labour market.

Climate change: We must not lose sight of what UN Secretary-General calls "the most important global systemic threat in relation to the global economy": **climate change**. The post-pandemic medium to long-term economic recovery measures represent a unique opportunity for state and industrial policymakers to institute bold measures for more resilient, inclusive and sustainable economies, and to reshape industrial development towards environmentally sound technologies. In doing so, it is paramount to harness women's full potential as leaders, innovators and agents of industrial and environmental change.

The Green economy and sustainability policies will be a key driver for the industry in the near future. It might help capture women's interest in contributing to a green future and attract them to the manufacturing sector.

Recommendation 7: Act through social dialogue and using gender equality policies as the building blocks for change.

Reinforcing women's contributions to the post-COVID-19 manufacturing paradigm should be done through **social dialogue**. To do this, there must be an effort by trade unions, industrial and state actors to involve women on the negotiating tables, as there are still often very much male-dominated social dialogue models in place. It is important that social partners (both employers' organisations and trade unions) take onboard gender related questions into their solutions, programmatic actions and discussions in tripartite and bipartite dialogues.

Gender equality is not a women's issue, it is a social justice and a business issue. One important recommendation is to encourage the adoption by companies of **gender equality plans**, where not already compulsory, and to monitor their implementation. There must be



mandates for companies on Diversity, Equity and Inclusion (DEI).

The adoption of **ethical and equity certification tools**, such as the ethical balance sheet, code of ethics, ethical manifesto is also very useful to promote gender equity measures within the companies.

CONCLUSION

To make the business and economic case for a sound “back to the future” scenario, the manufacturing industry needs to take advantage of all resources available, and **women are one of the industry’s largest pool of untapped talent**. To overcome existing barriers in the high added value industries it has focused on, the Expert Group on Women in Manufacturing has opted for selecting seven strategic needs in order to formulate its main recommendations. Its line of analysis has been summarized in the following table.

Fostering women to...	...overcoming current barriers...	...and seizing new opportunities...	...with recommendations for action...
ACCESS	Digital gap. Not enough interest in STEM	Sustainability servitization – new business models	Create awareness – communicate attractiveness of manufacturing and new opportunities
THRIVE	Working conditions	More flexibility, more diverse and equitable workplace	Change mindset towards outcome oriented working models and boost innovation through diversity
LEAD	Glass ceiling	Not only economic values, but also social and environmental sustainability	Mainstream gender issues in industrial policies and company strategies with data, objectives and resources

...in a new industrial model for high added-value manufacturing, that becomes part of the solution to climate and social crisis.

The Women in Manufacturing Expert Group hopes that its policy recommendations will contribute to **building a lasting and prosperous recovery of the industry**, while stimulating an equal participation of women and men in the workplace.



ENDNOTES

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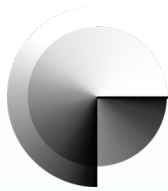
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For more information on the project and to read other topic-focused white papers that are part of the initiative, visit <https://worldmanufacturing.org/report/whitepaper-back-to-the-future/>



**WORLD
MANUFACTURING
FOUNDATION**

World Manufacturing Foundation
Via Pantano, 9 - 20122 Milano, Italy

info@worldmanufacturing.org
worldmanufacturing.org