BACK TO THE FUTURE:
MANUFACTURING BEYOND COVID-19

KEY FINDINGS FOR A RESILIENT MANUFACTURING SECTOR IN THE NEW NORMAL

World Manufacturing Forum 2020

WORLD MANUFACTURING FOUNDATION

LETTER FROM THE PRESIDENT

Dear Stakeholders,
The ongoing pandemic is an unpredictable event that has undermined our health and changed our daily lives, our jobs and the way we interact with the external world. Unfortunately, it is also affecting the capability to maintain living standards, causing substantial drawbacks in economic and consequentially social well-being.

Moreover, it has changed the framework in which our Foundation is operating, disrupting our normal activities and our short-term strategy. Despite uncertainties, we are sure that, whenever the situation will settle down, the **"New Normal"** will be driven by the capacity to restart the manufacturing sector and deploy its full capacity, considering also its ability to sustain other economic sectors. We believe that the World Manufacturing Foundation has an instrumental role in promoting manufacturing as a key driver for recovery in these challenging times.

If the pandemic had, has and will have any positive effect, it would be that it will push us well above and beyond what we consider our limits. So, during the hard days of the lockdown in April, the worry to lose our community, built since the first World Manufacturing Forum in 2011, inspired the idea to launch a new activity. We envisioned a project in which we could join forces with our network worldwide, working together with two main outcomes: a scientific research on a challenging but necessary common effort and at the same time strengthen and enlarge our community, building a sense of togetherness in these hard times. Starting from these premises, we decided to launch in June the **Back to the Future: Manufacturing Beyond Covid 19**, an initiative that aims at gathering an international community of manufacturing experts, to discuss together the best practices on how to bring manufacturing back to its central role within society. The project culminates with the publication of thirteen whitepapers and presentation of Key Findings at 2020 World Manufacturing Forum, in November, which will be a digital event with a special focus on the Resilience of Companies in the New Normal. The fact that it was participated by 160 stakeholders worldwide, not only testifies to the high scientific value of the outputs but also the strong will of our community to cooperate together for the well being of our societies.

I personally thank all the Group Leaders for believing in this project. Thanks to your dedication and unwavering support, we were able to bring together this incredible pool of experts from industry, academe, government, and other international organisations to collaborate on this very timely topic.

In the face of the pandemic, the Foundation's key strategy, which is centred in expanding knowledge, promoting innovation, and fostering cooperation in the manufacturing community, has never been more relevant. We invite all our stakeholders in the manufacturing community to help us build and enlarge our community, pool our resources, and work together to come out stronger in the New Normal.

With my best regards,

Alberto Ribolla

President
World Manufacturing Foundation

FOREWORD

The ongoing Covid-19 pandemic has caused far reaching consequences to the society. In particular, the manufacturing sector, largely dependent on closely intertwined and global supply chains has been significantly disrupted. If we could learn one important lesson from history, it is that significant crises have always brought about important changes on how we do things. It is therefore important to reflect on how the manufacturing sector is being changed and see beyond the challenges it is currently facing to seize the opportunities for the sector. In other words, it is important to explore how these challenges can transform the sector and make it more resilient in the long term.

The World Manufacturing Foundation, in collaboration with 13 different focus groups, each with a team of experts, has analysed the key impacts of the pandemic to the sector. We looked into four key perspectives, to answer important questions:

People

How does the workplace in the "new normal" look like? What skills would workers need?
How does it impact the role of women?

Policy

What are the policies to support companies to help them respond to the ongoing pandemic?
What policies are needed to support global value chains?
How can policies be aligned in the regional, national, and global levels?

Preparedness

How to build supply chains that are more resilient to pandemics in the future?
How to respond to changing demand?
What is the role of manufacturing clusters?

Productivity

How digital technologies can be leveraged upon to support manufacturing during times of disruptions?

Thanks to this collaborative project, The World Manufacturing Foundation has outlined a set of Key Findings that should be considered to make the manufacturing sector more resilient in the new normal. The ongoing pandemic has thought us that a holistic approach is needed to enable the manufacturing community to respond better to the crisis. This approach needs to be people-centric, requires us to build agile supply chains, and leverages on digital technologies. Finally, policy-makers must ensure that measures are in place not only to help the manufacturers respond effectively to crises, but also enable a positive transformation in the manufacturing sector in the long term, allowing it to become more resilient.

Marco Taisch
Scientific Chairman
World Manufacturing Foundation

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PEOPLE

1

The Covid-19 pandemic has accelerated industrial smart-working but challenges within manufacturing need to be overcome

While industrial smart working is a not a new phenomenon, the pandemic has accelerated its adoption in companies. However, there are some peculiarities within manufacturing that needs to be considered to ensure productivity of employees while complying with health requirements.

More importantly, manufacturing workers in production lines cannot completely work remotely in contrast to many administrative or support roles.

Workers are also used to working on site, in synchronisation with others in the production line and make routine decisions on what they see and feel in their environment.

A people-oriented manufacturing work environment in the new normal would leverage on a combination of physical and virtual activities leveraging on digital tools to re-organise workplaces to increase flexibility and safety, providing flexible working time to employees and eventually supported by a cultural shift across the organisation to support this new way of working.

This transformation in workplaces should also be supported by adapting industrial relations through future-oriented negotiations that place a great value on workers' safety, working time flexibility and skills development.

2

The pandemic has increased the importance for certain types of skills

Regulations and company health safety measures have required many employees to work differently.
Many employees found themselves communicating with customers and colleagues using virtual channels.
This set-up has not only reinforced the need for skills in using digital communication tools but also effective communication skills.

Workers needed to cope up with new realities such as ever-changing workplace demands as companies re-organise various aspects of their operations.
This makes qualities such as resiliency, managing uncertainty, and openness to change more important than ever.

Systems thinking and strategic foresight could also prove valuable to navigate the increasing complexity and uncertainties in the external environment.

As companies speed up digital transformation efforts, the company will require skilled workers that are able to work with key enabling digital technologies.
New roles such as those that are strategic in digital transformation will also increase more importance.
Companies, educators, and policymakers have a shared role to ensure that workers are well-equipped with the necessary skills to thrive in the new normal.

3

Job losses are affecting women disproportionately, renewing calls for gender equality in manufacturing

The Covid 19 Pandemic has caused job losses in the manufacturing sector, particularly impacting part-time and temporary workers.
A significant share of this category of workers includes women. This is rooted from the historical difficulty of women in negotiating job contracts with better terms or provisions compared to male counterparts.

As a result, women who are forced out of their jobs are being affected disproportionately, especially those who have less access to unemployment benefits.
This issue calls for solving a much bigger issue, which is the lack of inclusion of women in manufacturing.

In order to solve this issue, stronger gender policies in the manufacturing environment and overcoming gender stereotypes are required to reduce the pay gap and provide women with better working terms and conditions.

4

The scale of the pandemic calls for more inclusive decision making

Given the scale and complexity of problems arising from the pandemic, diversity and representation from all segments of the society is warranted.
This ensures a more holistic approach to prevent potential biases in decision making and allow for a more inclusive social dialogue.

Important attention should be given to sectors in the industry which are particularly impacted by the pandemic, ensuring that their voices are heard in decision making. Policies should also be bias-free and more adapted to changing realities in households, workplaces, and communities.
It is also an opportunity to harness the leadership potential of women and promote the broader view that women are an untapped pool of talent in manufacturing.
Women leaders in companies or governments for example have exhibited great leadership in finding inventive solutions during the pandemic.

POLICY

5

Policies should be focused in building resilient global value chains

The Covid pandemic has caused widespread disruption in the global value chains largely because of trade restrictions and added complexities in sourcing materials and logistics. Governments should aim to protect crucial and strategic industries and their respective supply chains in times of crisis in order to make them flexible and thrive.
This also entails re-assessing existing regulations in order to lessen the burden experienced by companies and speeding up bureaucratic and legal procedures.

Governments should also not be short-sighted and evolve policies that would make the manufacturing community more resilient in the "new normal" with a long-term perspective. This could entail improving the long term competitiveness of the industrial ecosystem.

Additionally, it is crucial to help build the digital capabilities of organisations. This is invaluable not only in helping them respond to the immediate disruptions caused by the pandemic but also support them in the long term allowing them to respond better to similar crises.

6

SMEs are among the most severely affected and need to be supported

Small and medium size enterprises which comprise a significant percentage of manufacturing companies have been particularly impacted by the pandemic.

The most pressing issue is the lack of financing to help them whether the effects of the pandemic in order to protect jobs and ensure business continuity.
As SMEs comprise an important backbone of the global economy, urgent measures to help them to access financing and provide liquidity is a priority for governments and intra-national organisations.

Additionally, to promote their long-term resilience, measures should be adopted to support SMEs in their digital transformation journey, in particular in providing them financial incentives and support to equip their workforce with the required skills.

7

Regions have an important role to play to support the manufacturing community in their territories

The pandemic has provided an impetus for higher levels of coordination at the regional level among different stakeholders to increase efficiency and effectiveness in fostering the development of manufacturing firms in the medium and long run.

Regional plan for investments and policies should have a broad strategy for all sectors in helping manufacturing firms to build capabilities to be resilient.

Regional governments are in the front line and are instrumental in delivering solutions in a swift way ensuring that companies have access to crucial resources when they need it. While regional policies can implement solutions catered local needs quickly, it is also important that these measures are coordinated with national level responses, requiring dialogue and cooperation from all levels of government.

PREPAREDNESS

8

The pandemic has accelerated the demand for digital experiences among consumers

Shifts in consumer behaviour has been observed in the ongoing pandemic.
Although pre-pandemic, many retailers have already been expanding their digital presence, the pandemic has accelerated this trend even further as consumers turn to online shopping to comply with health regulations to minimise social distancing.

Manufacturing companies will have to think of the broader "digital customer" journey which requires an analysis of how the customer digitally interacts with the firm from the initial purchase of the product or service to when it is actually consumed.

Several measures would need to be done in this space which will support the continuation of this trend in the longer term. This includes understanding customer preferences, choosing the right go-to-market model and monitoring.
When done correctly, strengthening the digital presence could be a source of competitive advantage for companies.

9

New approaches to demand management will be crucial to build resilient supply chains

Uncertainties in the environment have caused demand to fluctuate considerably. This calls for a reliable and flexible demand management in organisations.
Powered by a strong technology ecosystem and collaboration models, demand management would permit various participants across the entire supply chain to share and access real time information to drive decisions.

In addition, companies should use dynamic demand management segmentation to be more customer-centric across multiple channels and optimize their cost-to-serve at the same time.

Companies could also leverage on artificial intelligence tools to aid demand planning in managing complex amounts of data and segmenting demand.

10

Sourcing locally increased in importance as manufacturers aim for uninterrupted production

A surge in reshoring of manufacturing activities has increased as a key to ensure continuity of supply during disruptions at a time when global supply chains are being disrupted. This has resulted in increased localization within a country's borders, or within a region.
This is particularly true for certain essential goods such as medical products which need to be available at a short amount of time. These supply chains will be shorter but will also increasingly digitally connected. This reshoring trend also affects the logistics and transportation of goods considerably.

For example, companies using lean methods must ensure the availability of critical supplies in inventories.
The increased local content provides maximum local economic activity as well as alternative supply sources.
This also decreases transportation time and ensure continuity of production.

Increased local production can be expected to continue even post pandemic amid a clamour to support local manufacturing and the ongoing trade issues involving large economies at the global level.

11

Manufacturing clusters are instrumental in fostering collaboration among actors to improve response to the pandemic

The pandemic has stressed the importance of cooperation to generate new solutions to problems that are not seen before.

Clusters promote collaboration among different actors in the manufacturing community , acting as a platform to confront common challenges and identify opportunities in times of crises. Clusters can be instrumental in knowledge sharing, allowing the sharing of transferable skills among companies and networks.

Additionally, through clusters, firms can undertake projects that generate shared value boosting innovation and leading to novel solutions to problems posed by the pandemic.

PRODUCTIVITY

12

Companies with higher levels of digitalisation have responded better to the crisis

The experience of companies during the pandemic has revealed the importance of technologies for uninterrupted production, maintaining safety, and reaching out to customers.

During the pandemic, it has been found that the most successful companies are the ones that have higher levels of digitalisation. In this regard, companies should see the current pandemic as an opportunity to accelerate their digital efforts to increase their resilience to disruptions.
In this regard, it is imperative for companies to analyse how the overall manufacturing strategy can be improved using digital technology.

As with any organisational initiative, commitment from top management will be crucial as well us understanding what digitalisation means for workers in terms of up-skilling or re-skilling.

13

Industry 4.0 Technologies have proved to be very valuable in responding to the crisis

Industry 4.0 technologies have shown great promise in helping solve the challenges that manufacturing companies were facing at the height of the pandemic.
In addition to helping manage complex data, technologies such as AI can be leveraged to support the organisation's over-all risk management strategy.

AI solutions at the shop floor can promote a more agile way of production and could be indispensable for predictive maintenance to ensure the continuity of production during crises.
Other industry 4.0 enabling technologies such as collaborative robots and augmented/virtual reality are also instrumental to keep production uninterrupted such as those that permit remote monitoring and execution in a factory integrated with industrial smart working.

14

Companies must re-evaluate existing business models or seek new ones to be more resilient

Manufacturers should take the pandemic as an opportunity to re-engineer their existing business models to reduce their risks and remain competitive.

For example, servitisation which was already an important trend even before the pandemic, has even became more important. Although it was expected that consumers would delay important purchases of goods during crises, the demand for services have proved to be resilient offering potential revenue streams for companies.
In this regard, companies are increasingly engaged in providing remote services amid restrictions in the ongoing pandemic.

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