



## **Introduction WMF 2021 by Philippe Varin**

Good morning and welcome to this 7th edition of World Materials Forum.

Last year was very special. Due to Covid 19, we did WMF in August instead of June, and we were mostly Europeans with only 130 participants, half of 2019 participants .

This year we are progressing back to normal. We are very happy to welcome a sizable number of our speakers and participants from the USA and this is great!

Not yet from Japan , Australia or Canada who will be with us by video link . Here in Nancy we will be altogether 200 participants.

I wish to warmly thank all of you, for deciding to be with us today, tomorrow, and Saturday morning, and to comply with the WMF tradition of meeting during the month of June...

And thank you in advance to all of you for understanding that we still need to respect stringent precautionary sanitary measures.

Please revert to Muriel if you have any question: she is in charge of the sanitary oversight, a steel hand in a velvet glove, and I warmly thank her for the drive on this matter, as she did successfully last year.

As a way of introduction to this edition let me remind you why we are here and what are our objectives during these three days.

### Why are we here ?

We are here because at World Materials Forum we are convinced that we can find solutions to decouple economic growth and materials consumption, while creating value for our industries.

Decoupling means reduce the use of materials , but also of water and energy, lower the level of CO2 emissions and stop the use of all types of toxic substances... while still covering the needs and improving the standard of living of our citizens in terms of food, housing, transportation, connectivity and healthcare.

So we are here because we are convinced that this will happen thanks to a step change in using materials Less, Longer and Smarter...

We must speak with facts and figures and not only find ideas but put them to work. We must find new business models and develop breakthrough technologies.

And all of this while involving all stakeholders of the value chains - industrialists, start ups, academics and regulators.

In this room today and again, you are a good sample of these stakeholders and WMF is a lab for putting this collective intelligence at work.

Now, what are our objectives for this 7th WMF session ?

First, sharing with you the progress made on our 4 « signature tools », and also digging into recent progress in the area of solutions.

Progress on the « signature tools »

1. Our Criticality Assessment : we will update our overview of the Mendeleev table while incorporating a 7th dimension highlighting the environmental footprint and we will address the convergence of high technologies and green materials, with a deep dive on the energy transition, and the move from traditionally long and lean supply chains, to new resilient and local supply chains

2. Our KPIs toolkit : 6 years ago, we were ahead of our time when we launched the idea of a KPIs toolkit « less, smarter and longer », to make it easy to use from the floor to the boardroom. ESG has now become a top priority for any corporation. A priority to be communicated efficiently towards investors, customers , regulators and employees. We will show great examples of such communication.

3. « WMF Top 10 Technologies » second year of review : those technologies that the world must urgently develop to make the necessary step change in "our" decoupling. Here we would be interested to get your feedback on how we can collectively do to speed up their industrialization: what needs to remain private and what requires public support? How should we handle IP? How can we improve the relationships between Start ups and Big Groups to be safe and agile at the same time?

4. Start Up and Scale Up Challenges : we will reward the best start up achievements . Tonight we will give the Start Up Awards. Also this year , we have created a new challenge for our « Scale Ups », because we must celebrate not only good ideas at their starting phase, but also those leaders who manage to reach industrial scale and demonstrate that materials efficiency means robust value. And of course let me warmly thank the jury members for their input and time in this process.

Beyond these 4 signature tools, our second objective for this 7th edition will be to share with you the progress we see on 4 areas of "solutions"

1. Decarbonation of bulk materials : here the breakthrough technologies are at the heart of the solutions : Hydrogen, electrolysis of molten salts, inert anodes . We will take stock of where we stand in cement , steel, and aluminium and everything will be about timing to implementation because we have no choice but to succeed .
2. Conversion to electrification : we are seeing energy storage technologies evolve at a rapid pace, batteries, in particular. But these technologies require metal and it's important that we do not simply shift environmental liabilities to the mining sites . Can we innovate fast enough to build sustainable technologies all along the value chains and how do we do this faster and smarter ?
3. Future of packaging : from plastic production using waste gaz stream to the challenges to overcome to close the plastic loop, from packaging design to biodegradability, technologies are there, but how and at what economic conditions can we speed up their implementation so that plastics remain the solution of the future ?
4. Journey to green hydrogen : Here it will be not only about breakthrough technologies, but also about the infrastructures and business models that can enhance the development of a full ecosystem, from low cost energy from renewables to massive use in the industry and for mobility applications. And it will also be a great case to discuss about optimum policies and partnerships

On the scientific side we will benefit from the forward looking view about ammoniac that can be a complementary as well as a transition route to hydrogen, while leveraging the existing and fully amortized infrastructures over the entire supply chain ( be manufacturing, storage or transportation).

Finally I want to give a warm thank you to you, Mayor Mathieu Klein, Chairman of Nancy Metropolis for welcoming us again in this city, rich of its legacy in materials sciences and in industry - together with our President d'Honneur Andre Rossinot.

And I will now leave the floor to Mathieu.

Thank you all in advance for your contribution , and let us enjoy those two days together that I am sure will be memorable!