

## THE SPECTRUM ROUND TABLE

Getting to the heart of industry matters



# FORWARD THINKING

## The Future-Proofing of the Pulp and Paper Industries

SPECTRUM recently brought together industry professionals from three of the leading companies in the global industry, Metsä Group, Smurfit Kappa and UPM, to discuss the main issues affecting the industry. Below are excerpts from a lively and enthusiastic discussion held at ANDRITZ offices in Vienna.

**The basic definition of future-proofing** is the ability of any one given entity to continue to be of value into the distant future, ensuring that the item does not become obsolete. In the case of pulp and paper mills, this becomes even more complicated, as there are numerous working, moving, and operating components that need to be taken into account.

### FROM THE INDUSTRY:

Ismo Nousiainen – CEO (as of January 2018), Metsä Fibre  
Mat Maessen – Head of Paper Production Technology, Smurfit Kappa Group  
Sami Saarela – Vice President, Finland Operations, UPM Pulp

### FROM ANDRITZ:

Bjorn Hansen – Vice President, Commercial Sales, ANDRITZ  
Harri Quintus – Senior Vice President, Sales, ANDRITZ

### MODERATOR:

Mark Rushton – Editorial Director, SPECTRUM Magazine

**What do our panelists believe about the long-term future for the pulp and paper industries and how are their companies strategizing for the future?**

**SAMI SAARELA:** At UPM, we strongly believe there is a need to replace non-renewable materials with renewable ones such as wood and wood fiber. We believe there is a growing demand for pulp and we would like to share in that growth. We also believe that pulp is a good business which will yield enough profit in the long term to enable us to develop other products from wood, which will make us even more profitable. Our strategy is to be committed to growth and to the development of new products.

**ISMO NOUSIAIMEN:** At Metsä Group, we face the global megatrends head-on that are impacting on consumption. We work on solutions directly associated with these megatrends: for instance, climate change, population growth, and aging populations. In the case of climate change, for instance, we are examining all our processes and products – looking at ways to replace those made from fossil fuels, in packaging for example. And in our processes we are completely eliminating the use of fossil fuels – as in our latest start-up, our Äänekoski bioproduct mill. Of course, we are also actively looking to make other products out of wood.

**MAT MAESSEN:** At Smurfit Kappa, our slogan is “Open the Future” and that slogan is based on our firm conviction that for the long-term future wood, paper, and fiber based materials are really the way to go, as they play a central role in the future of this world. We have strong beliefs in recycling, but also in virgin wood, and we have a firm strategy to replace fossil fuel derived products wherever we can. In fact, we have an internal slogan as well,

“Sustainability in Every Fiber” and these two slogans really do sum up our ongoing strategy at Smurfit Kappa.

**BJORN HANSEN:** From the ANDRITZ point of view, where our customers go, we follow. But of course in some ways we have to be ahead; we have to look forward to our customers' customers and analyze the trends. In our case, our slogan is: “We accept the challenge!”, but to do that we have to be in close cooperation with our customers, so really, we approach these challenges together.

**HARRI QUINTUS:** A must for us at ANDRITZ is effective research and development alongside our customers. Although some of them have been really demanding, keeping on track with them has enabled us to grow and develop some excellent products and processes.

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**Looking ahead into the future, what are the main challenges our panelists are facing?**

**MAT MAESSEN:** Our challenge is keeping to the idea of the circular economy – we must use raw materials in such a way that there is no waste, low water consumption, and minimal emissions, and to reuse everything we possibly can. To do this, we need the best available technology, for instance in lowering energy use for recycling paper, a major cost in the process. At Smurfit Kappa, we strongly believe in recycling, and ideally we would want to recycle recovered paper even more than the five or six times it is used now, perhaps even up to 10 times?

**ISMO NOUSIAIMEN:** When you build a pulp mill, you have to look a long way ahead, as much as 40 years into the future – and we have to ask ourselves: how will we be operating then? In fact,



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Harri Qvintus (Senior Vice President, Sales, ANDRITZ)



Sami Saarela (Vice President, Finland Operations, UPM Pulp)



Ismo Nousiainen (CEO (as of January 2018), Metsä Fibre)



Mark Rushton (Editorial Director, SPECTRUM Magazine)



Mat Maessen (Head of Paper Production Technology, Smurfit Kappa Group)



Bjørn Hansen (Vice President, Commercial Sales, ANDRITZ)

that was always the challenge; however, that is even greater now, as we have to think about other bioproducts that go along with the pulp mill as well. So really, the greatest challenge is to be able to have the flexibility at a mill to swap, change, and swing as and when the markets move according to product and consumer demands.

**SAMI SAARELA:** For us, one of our major challenges is planning and developing long-term projects when it comes to plantations. In Finland of course, forests are not a problem, but go somewhere else and they could well be a big problem. You have to be sure that the environment is safe, and that the politicians are not going to change their minds, or lose an election, and then have a leader who looks less favorably on our operations.

**BJØRN HANSEN:** Our main challenge is looking deeply at the trends, and deciding which ones should be pursued and which ones should be ignored. The challenge is to not spend a lot of money and effort on new technologies, but to identify long-term feasible demand. It seems as if we have got something right over the last years; we find ourselves a leading supplier in chemical and mechanical pulp, packaging, tissue, recycled fiber, and energy, so it seems we are definitely doing something right.

**HARRI QVINTUS:** From the service side at ANDRITZ, we never stop learning, and this is the ongoing challenge. From the

very first time we drew up a maintenance contract in Uruguay in 2005, we realized that every day, every minute of the day, could present a new challenge and we had to rise to them.

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**What would you like to see in the future that would make your operations even more successful when it comes to life cycles of equipment and technologies such as Industrial IoT?**

**ISMO NOUSIAIMEN:** In Metsä Group, we recognize that we have to have good assets, that is why we are renewing key parts of our mills very regularly. We are constantly looking at ways to improve our performance and as a result we have been able to improve our production by two and a half times compared to an older mill. Our next challenge is to improve yield, as the major cost in our operations is raw materials.

We are already using Industrial IoT solutions to great effect. We, in fact, developed our own online quality index for pulp, which meant that we eliminated time-consuming laboratory trials, and could see our pulp quality report in real time as the pulp was being produced. I am happy to say that ANDRITZ has now taken this technology into its portfolio for its Metris offering. We are also getting much further along when it comes to using IoT in predictive maintenance, where we are getting crucial

information from sensors all over our production processes.

**SAMI SAARELA:** When you think of future-proofing, the pulp industry is already doing a good job – looking 40 years ahead when building a new pulp mill is pretty impressive. Also, a life cycle of 40 years is a long one for one product – a pulp mill. My feeling is that there are so many changes in 40 years that it would be best to knock the mill down and start again rather than keep replacing technology and rebuilding.

In terms of Industrial IoT, at UPM we were collecting data even more than 10 years ago, but the problem has been manpower; there is simply not the resources for mill personnel to be sifting through data all day long trying to come to a conclusion. The advent of data management systems with automation and software that allows operators to measure and manage the quality of raw material in real time is an excellent addition and I can see this being a big growth area in mills in the future.

**MAT MAESSEN:** The lifetime of a paper machine can be from 20 to 40 years; that is a long time. What I would like to see is paper machine manufacturers coming up with much more flexible machines, ones that can switch grades without having a rebuild, or can be adjusted much more quickly when the market conditions or consumer demands for different products change. This is the climate we have to operate in

and it would be great if the supplier recognized this and came up with a solution.

In terms of Industrial IoT, data management, and gathering, this is definitely the future for us. A perfect scenario would be to be able to constantly monitor quality, not just once an hour as the older measurement systems do. In our world, consistency is absolutely key, and if we can maintain quality and keep in the “flat lining area” allowing us complete control of the process, that would be a dream. It would also be a major advantage if costs could also be reported, for instance, when adding more chemicals to a process, so operators could take more responsibility for their actions.

**BJØRN HANSEN:** As a supplier to the pulp industry, a 40-year life cycle is terrifying; what are we going to do in those 40 years? Of course, there is plenty of other work to do, on improving yield, and on new, adaptive technology such as swinging from kraft pulp to dissolving pulp. Also, for instance, water has become an increasingly important issue; we have been proactively working on this. In the 1970s, water use was up to 100 m<sup>3</sup> per tonne pulp produced, now we have it down to around 10 m<sup>3</sup>. We are also closely working on packaging technology and on efficient ways to convert graphic paper machines into packaging machines.

In terms of Industrial IoT, or our ANDRITZ offering, Metris, we are speaking to a lot

of customers about solutions for quality measurement, predictive maintenance, and optimization of, for instance, process chemicals which they can see are really helping to level out the imbalances across the mill. We see this as an exciting, growing area for us.

**HARRI QVINTUS:** The major area we have been working on with customers and the service side is on maintenance shutdowns. It used to be the case that a mill would shut down two or three times a year, now that has extended to once every 18 months, or even two years. We have learned so much over the last few years about managing shutdowns, so that the maximum amount of replacements and service can be carried out in the shortest possible times. What we have clearly learned is that these shutdowns are not just about speed of service, they are also about the quality of the spare parts – which have to be of the very best quality to ensure efficient operation for another long period of uptime at the mill.

Our Industrial IoT offerings through Metris are now becoming key components in maintenance and service, both in predictive and preventative maintenance. We have sensors now that are reporting in real time the status of bearings and pumps, motors and machines, as well as all sorts of measuring for the efficient management of the processes.

### Summing up: A Bright Future Ahead

A number of points came out of our Future-Proofing discussion in Vienna. One of the highlights that was clear to see from our panelists' views is that the pulp and paper industry has an exciting future ahead, driven by people who are completely committed to their individual strategies, and with a solid belief in the environmental attributes of the industry. Another highlight was the fact that the leading pulp and paper companies are already fully engaged in the concept of future-proofing; in fact, most of them have been doing it in one way or another for decades when looking ahead at major expansion plans.

With the opportunities the future holds when it comes to growing markets and new products, combined with a cautious, but healthy attitude to the adoption of new, game-changing technology, we can be sure that the future of the pulp and paper industry is in safe hands, from both producer and supplier perspectives.

[The SPECTRUM ROUND TABLE on the Future-Proofing of the Pulp and Paper Industries is the first in a series of regular round tables.](#)