

Are we ready for the circular economy?

E. MacArthur / A. Frérot, the great debate.

12/13

What is your definition of the circular economy?



Ellen MacArthur
Founder of the
Ellen McArthur Foundation

“It’s an industrial system in which materials – both technical and biological – are in continuous flow. Metals and polymers are part of continuous loops and reused, with a high level of quality, while organic elements return to the ground in complete safety and contribute to natural resources.”



Antoine Frérot
Chairman and CEO of Veolia

“It’s an economy in which one person’s waste automatically becomes another’s resources. An economy of recovery and reuse, recycling and re-creation. A more efficient economy with a greater social impact and a lesser environmental impact. In short, an economy that serves humans without harming the environment!”

Why is the circular economy so important for you or your company?

Ellen MacArthur / When I was sailing the oceans, it was essential for my survival to manage my resources as efficiently as possible. It's the same on dry land: we are totally dependent on the finite resources we have available to us globally. This is why I wanted to focus my foundation's work on a different way of looking at how we use resources. We highlight the economic rationale for a move to a circular economy, different from our current linear "take - make - dispose" model, which allows resources to be in a continuous flow thus maintaining products components and materials at their highest value, and building the systems to allow the regeneration of natural assets.

Antoine Frérot / Over the next twenty years, the middle classes will grow from one to three billion people. This will cause unprecedented pressure on natural resources. This phenomenon requires innovations and a new way of thinking, working and consuming. We are being forced to call traditional concepts into question. We can and we should see this break with the past as an opportunity. It is a new direction that all industrialists and local authorities are going to have to take, and this won't be limited to recycling or reusing waste. Veolia is ready and waiting to help its clients meet this challenge.

Doesn't the circular economy require a revolution? And is the economy as we know it today ready to change?

E. MA. / A circular economy is a move towards building material flows, both natural and industrial globally through rethinking our economic system, and the way resources are currently used. In this system, products are designed to be remanufactured, almost endlessly, for new uses, and if they become obsolete they have been designed for disassembly. The materials can therefore be recovered and made into the products of tomorrow. There is no doubt that, in the long term, the economy must change towards this as, our current 'linear' system is not viable. I am optimistic when I see more and more companies, students or governments becoming aware of the opportunity of this move. They understand that the circular economy can become an incredible driver for growth and prosperity. This is demonstrated by the "Towards the circular economy" report that we produced

“On the oceans and on land, we must realize the planet’s limits.”

Ellen MacArthur

“The circular economy is a more collaborative economy, which increases the interfaces between sectors of activity and therefore breaks down the old technical, organizational and social barriers.”

Antoine Frérot

The circular economy in figures

According to the McKinsey report for the MacArthur Foundation:

50% of the input costs for cellphones could be saved by manufacturing devices from recovered parts.

The United Kingdom could save up to **\$1.1 billion** per year by eliminating food waste. This would reduce its annual greenhouse gas emissions by **7.4 million metric tons**.

The European Union's manufacturing sector could make net savings in material costs worth **\$630 billion** by the year 2025.

with analysis by McKinsey. Its conservative estimate is that the transition to a circular economy could generate over one thousand billion US dollars (or commonly used 1 trillion USD) in revenue in the form of material savings.

What is Veolia doing in concrete terms to create loops for recycling resources?

A. F. / As a global leader, we offer our clients approaches that loop material, water or energy cycles. In this respect, we have a responsibility, which we are assuming as our clients are asking us to assist them in this area. Information and education are essential if citizens are to embrace the circular economy's policies. The challenge is to get them involved so that they play an active role in their consumption and environmental protection. A concrete example? In Brussels, we have developed a procedure using the sludge from wastewater treatment plants – for producing – bioplastics that meet plastic manufacturers' quality standards. You should bear in mind that in Europe, out of the 25 million metric tons of plastics produced each year, only a quarter are recycled. This is why our company is inventing technologies to recycle more. From the used plastics contained in waste electrical and electronic equipment, we manage to manufacture high-quality polymers with a 99% purity rate and at a lower cost than virgin material!

What are the main factors that could encourage companies to adopt the circular economy model? And the main obstacles?

E. MA. / In the first place, the incentive for companies to create more value from the resources that they use is driven by the increasingly volatile prices of raw materials, and the fact that we have seen a century of their price declines erased in a decade. Being better protected against this fluctuation phenomenon will increase their value, including for the shareholder. Another element in favor of the circular economy concerns products. In particular, by incorporating more services into them, they will be more reliable for the consumer and have higher added value, and therefore ultimately be available at a better price. Our "Towards the circular economy" reports show that we have a win-win situation for both the producer, who will improve their margins, and the consumer, who will have a better service/product. To bring about this change, the biggest barriers lie in product availability, and in the existence of a

••• pertinent method for most accurately calculating the benefits and the services engendered by the use of these “new” products, and the growth – or otherwise – of the reverse logistics sector, which is the key element in keeping product flows moving.

Do you think that a functional service economy, based on selling services rather than products, can one day be companies’ core activity?

A. F. / Yes, absolutely. Besides, we are seeing the emergence of sustainable economic models in this area. On the fax machine market, function has already gained the upper hand over ownership. Car sharing is expanding, and our company has put in place schemes of this kind for its employees. Paradoxically, the challenges of the 21st century are leading modern man to rediscover the ancient wisdom of Aristotle: “wealth consists more in use than in possession.”

E. MA. / What is known as “planned obsolescence” is a direct consequence of the linear production model based on volume, in which the more you sell, the more you generate profits. Under these conditions, it’s not surprising that there is no real incentive for manufacturers to put different goods on the market. In a performance model including service and no longer merely the sale of products, the rules of the game change radically. The manufacturer retains ownership of the products. The latter therefore become equipment banks and it is in the interest of manufacturers to put high quality, reliable, and ultimately disassemblable goods onto the market, for which the question of price is no longer predominant.

To transition from a linear to a circular economy, heavy investments need to be made, especially in R&D. How do we go about it?

E. MA. / It is, of course, important that the required investments in R&D and the implementation of reverse logistics are up to par. But our report clearly shows that the initial economic benefits of promoting a circular economy can be achieved with minimal investment and minor changes in design. Opportunities are now available for the taking with a change in paradigm. This is, incidentally, what lots of companies are doing and they are thus reaping the advantages afforded to pioneers.

A. F. / We are able to make major progress thanks to partnerships with leading research centers. For example, with the French Alternative Energies and



Atomic Energy Commission, we have invented a process for recycling used batteries and obtaining lithium that can be directly used by industrialists. This was a decisive discovery: in fact, this rare and expensive metal is essential for electric car batteries, and thus for a more sustainable world. If tomorrow, one tenth of all cars were electric and each battery contained 10 kg of lithium, their recycling would become strategic! We would like to stay innovative, not alone, but in partnership with universities and laboratories, or with our clients. ■

The MainStream project, a transition catalyst

> The MainStream project, to which Veolia contributes, is a collaboration between the Ellen MacArthur Foundation, the World Economic Forum and the firm McKinsey. Its objective is to help promote circularity through supply chains and by encouraging cooperation between economic players. For example, in the field of plastics, a few key players have agreed to simplify the process of certain material flows, enabling high-quality recycling. The project aims to encourage business leaders and experts to get together to activate certain catalysts that can help to accelerate the transition. Such as, for example, separating added value creation from the consumption of energy and resources. This may be done particularly through considered design and sustainably managing raw materials or by remanufacturing methods, which create jobs that cannot be relocated. According to a recent estimate, the European Union could reduce its raw material needs by 17 to 24% in this way, while boosting its GNP and creating between 1.4 and 2.8 million jobs.