



THE CIRCULAR ECONOMY

EMBEDDING SUSTAINABLE SOLUTIONS
IN A BID TO SAVE THE PLANET
2020 THOUGHT LEADERSHIP REPORT

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FOREWORD

Vice Chairman & Group CEO

In rapidly changing ecosystems fueled by the fourth Industrial Revolution and a greater demand for accountability, the need for a more responsive approach to climate change action is taking a higher precedence.

Exploring the growth opportunities offered by the Circular Economy is a progressive step in the right direction. By seeking numerous opportunities for innovation tied to forward thinking product and service development could potentially provide societies with the mechanisms necessary to successfully address their environmental footprint.

To apply the Circular Economy Model, requires that we step away from the traditional Linear Economic Model and reengineer production and consumption with the defined goal of reducing unnecessary waste. This paradigm is of great importance as we are facing one of the greatest environmental challenges of our times, that is further amplified by growing populations.

We believe that by embracing the Circular Economy Model, the MENA region stands to have significant gains as new jobs can be generated across various sectors. Implementing sustainable solutions to current issues is a matter of urgency and we encourage all our stakeholders to play a positive and transformational role so that together we can achieve a progressive and sustainable future.

Regards,

Bader N. Al Kharafi
Vice Chairman & Group CEO



FOREWORD

Chief Sustainability Officer Message

Climate change and its devastating consequences is our new reality. It has the potential to decimate entire populations, cause mass migration and severely affect our ability to thrive. We have reached a tipping point where we must address our environmental footprint.

For the MENA region with the largest youth bulge in the world; growing populations; slow economic growth, geo-political instability and lack of growth opportunities, changing existing economic models presents a great opportunity for all.

The implementation of the Circular Economy sits perfectly in this very particular equation where the forces of climate change tied in with growing populations take a central role.

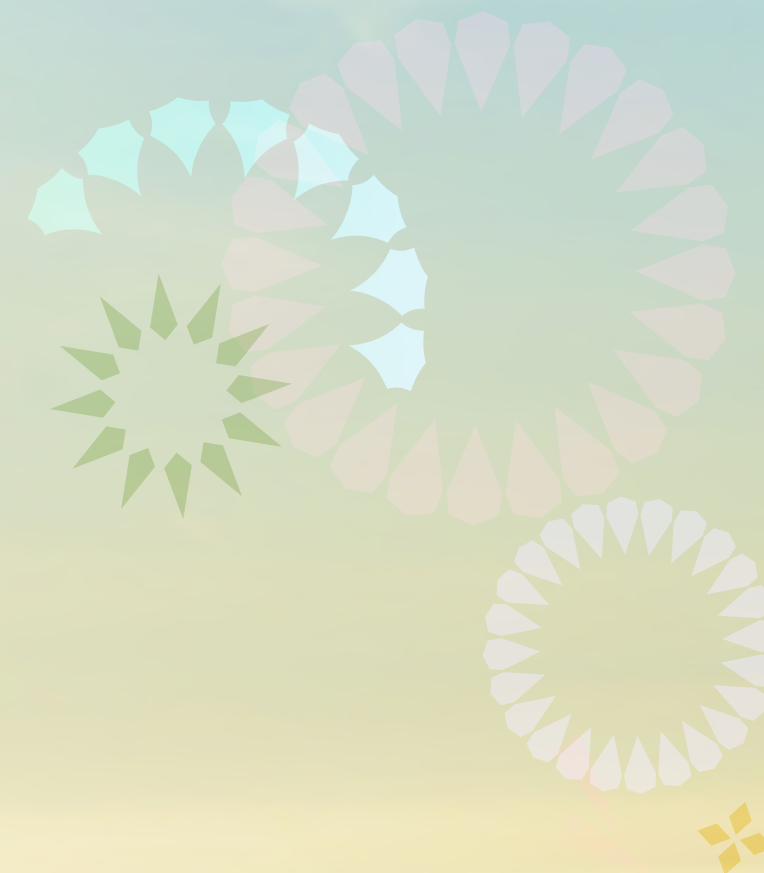
In this report we explore the Circular Economy Model with a focus on the various possibilities that it sets forth that are tied to innovation. It is through the shifting of production and consumption processes where significant opportunities for growth can materialize.

The report also highlights the need for change not only from an economic model perspective but from a mindset standpoint as well. We recognize that utilized resources are finite and if humanity continues to produce waste at the current rate, we are placing the sustainability of future generations at risk.

We hope that you find this report insightful, inspirational and useful.

Regards,

Jennifer Suleiman
Chief Sustainability Officer



INTRODUCTION

Climate change is the undeniable result of how we as a civilization have been operating on this planet. It clearly indicates that our utilization of the abundant resources that our earth has provided is unsustainable and detrimental to our future. With the drastic change of the earth's temperature; resulting in the rise in global sea levels; further decline in coral reefs; increase of wildfires; and loss of biodiversity, an urgent change in behavior is needed.

When looking at how we can interpret the circular economy in the context of climate change, what comes to mind is how this model takes an alternative approach to resource utilization and waste consumption. As opposed to the linear model, the circular economy's aim is to build an economy that does not produce waste but reuses products that have already been consumed on a repeated basis. Examples of methods used to migrate to a circular economy include limiting the use of finite resources, transitioning to renewable energy and eliminating the use of toxic chemicals. The interesting point here is how the circular economy can impact every single aspect of any value chain spanning from the design and creation of a product or service through to what happens after that product or service has been consumed.

This report captures how the circular economy fits into helping address some of the devastating impacts of climate change. This alternative economic system provides a waste management mechanism that successfully merges economic productivity and environmental wellbeing. In order to successfully adopt this model, a sustainability mindset must be considered as a fundamental building block.

This paper explores multiple aspects of the circular economy by providing a clear definition of what it is and its various aspects, comparing the circular economy with the linear model; highlighting risks that come with the linear model; and gives examples and case studies of businesses implementing a circular economy. By providing a holistic view of the circular economy, this study demonstrates how the circular economy can be successfully implemented in our world today.

DEFINING THE CIRCULAR ECONOMY

In recent years, the circular economy has gained in popularity as it presented organizations with a model that can improve the bottom line and simultaneously benefit our environment. According to the Ellen MacArthur Foundation, “A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.” The circular model is considered to be a result and reaction to the industrial revolution where raw materials and energy seemed limitless in order to generate products that could satisfy mass demand. With the introduction of technology and with people having greater access to products all over the world, this has led to an even higher demand for products that did not exist with previous generations.

The circular economy provides an option that replaces the ‘end-of-life’ of a product with regeneration that basically shifts it towards renewable energy; elimination of toxic materials and waste; and extracting the maximum value from a product through design, management and technological innovation.¹



Based on several comparative definitions, the Ellen MacArthur Foundation's definition of the circular economy provides a comprehensive understanding of the model and identifies three base principles:

1. Design out waste and pollution: In order to eliminate waste and pollution, a mindset shift is required. It is important to view waste as a flaw in the design phase when creating and harnessing new products and materials.
2. Keep products and materials in use: This principle focuses on ensuring that such products and materials are kept in the economy and reused, repaired, and remanufactured. This ensures that such products do not end up in landfills.
3. Regenerate natural systems: Creating products that generate value for the environment after they are used is important as it proactively improves and enhances our environment.

The European Commission provides a broader definition for the circular economy, which states that this alternative economic system focuses on creating products and utilizing materials for as long as possible. The model's position is that when waste and resources are minimized and when a product reaches the end of its life, it is to be used again. This system leads to economic growth, while also contributing to innovation and the creation of job opportunities.³

The World Economic Forum defines the circular economy as “an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals that impair, reuse and return to the biosphere, and aims for elimination of waste through the superior design of materials, products, systems and business models.” This definition emphasizes the importance of the design phase of products to ensure that they can safely be returned to the biosphere. In doing so, a major shift from today's buy and consume model needs to occur, ensuring that the productivity of products is prolonged.

To successfully implement this model and maximize the benefits and opportunities that come with it, it is important to consider that each industry or sector will adopt the mechanisms of the circular economy differently. As such, the circular economy offers multiple tools and various mechanisms that all industries can adopt.

¹ https://circular-impacts.eu/sites/default/files/D2.1_Review-of-definitions-processes-26%-impacts_FINAL.pdf

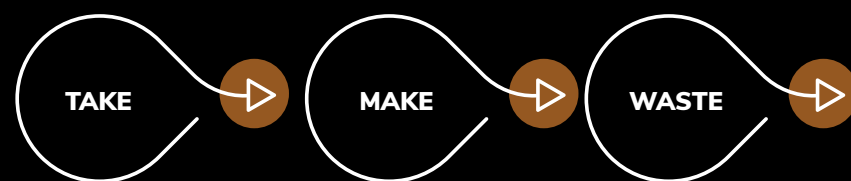
² <https://www.mywaste.ie/the-circular-economy/>

³ https://ec.europa.eu/growth/industry/sustainability/circular-economy_en

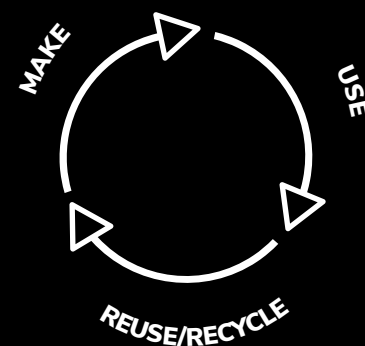
LINEAR VS CIRCULAR

The way the world is currently operating is not sustainable and is negatively impacting our environment. According to the 2019 World Economic Forum's Global Risk Report, three out of the top five risks related to likelihood to occur fall under environment-related risks. This highlights the lack of action being taken when it comes to protecting the earth and human health. The current linear model is using raw and non-renewable materials to create products and after the product is used it is automatically turned into waste. This model is also described as "take, make, waste", where the materials being used are not being optimized, nor is the life of a product, and the waste generated is not being reused.⁴

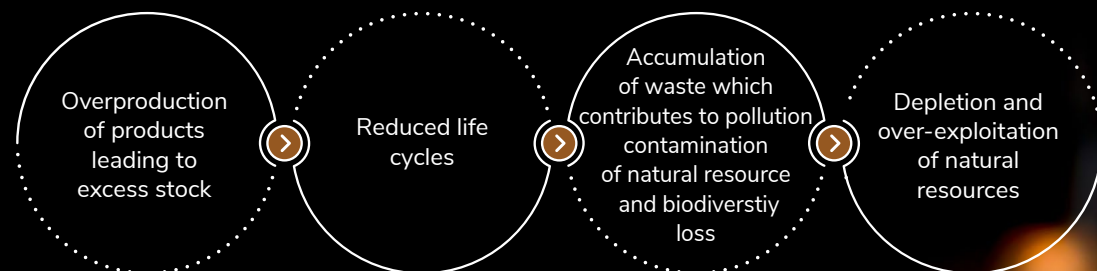
LINEAR ECONOMY



CIRCULAR ECONOMY



Humanity is consuming more natural resources than it can replenish. By continuing to adopt the linear model, which originated in the Third Industrial Revolution, the depletion of natural resources and environmental pollution will persist.⁵ According to c-voucher, an organization that helps companies adopt technologies that lead to the integration of the circular economy, four major consequences of the linear model have been identified:



The earth continues to bear the wounds that the linear model has caused, and it is our role to acknowledge the need for significant change to preserve what is left of our planet. This mind shift requires businesses to invest and transform their operations to ensure they include aspects from the circular economy while simultaneously being able to generate financial value.

An example of this would be how Phillips allows its customers to lease lights instead of buying physical light bulbs. This ensures that when newer models are developed the customer does not generate any waste, and lights can be given back to Phillips in exchange for updated models. This approach can be applied and scaled to many other technological gadgets and devices.

With the rapid evolution of products, their lifespan becomes shorter as consumers look to own the latest versions. The aim of the circular economy is to ensure that products are designed in a way that is flexible and adaptable to evolutions and improvements; whether through the business model or the actual design of the product itself.

⁴ <https://www.ideationcenter.com/media/file/Putting-GCC-cities-in-the-loop.pdf>

⁵ http://www.renewablematter.eu/en/art/776/The_World_is_only_9_Circular

LINEAR RISKS

Shifting to a circular economy will impact the entire value chain of a business and will require close collaboration and cooperation between multiple stakeholders. As many current leading companies were established on the basis of the linear economy, they must set bold goals, innovate and tap into new markets, understand their supply chain, and ensure that they collaborate and advocate for climate change so as to fully transform to a circular model. Understanding the risks of a linear economy and taking into consideration the viewpoint of different stakeholders will help in embedding circular mechanisms and establish an inclusive position on the changes necessary.

The impact of the linear economy can be witnessed throughout the value chain of any entity as it affects the supply chain and investors with the potential to even have an effect on the macro-economy as it increases efficiency and lowers production. Some of the characteristics defining the linear economy are:⁶

1. Using non-renewable and finite resources such as fossil fuels, earth minerals, and metal ores.
2. Designing and prioritizing the sale of short lifetime products
3. Does not engage in partnership and collaboration with other entities
4. Lacks business agility and ability to innovate

Pressure on non-renewable resources is growing exponentially; the number of landfills is increasing; and old-world companies are failing, highlighting the chronic need to shift to the circular economy model.

Our planet is clearly at a point where it cannot withstand the waste generated from human activity. Today, people all over the world are producing an astounding 3.6 million tons of solid waste per day. It is estimated that by 2025, this amount will reach 1 million tons per day.

Waste creation impacts all aspects of life ranging from oceans, to landscapes, air and water.⁷ It is specifically, alarming in the MENA region as studies show that there is a lack of proper legislation in the areas of waste management. The Global Recycling Magazine has identified definite challenges, which include:

1. Public awareness
2. Insufficient governmental framework
3. Lack of separation and collection of recyclable materials
4. Deficit in trained personnel
5. Absence of reliable database

Such issues pose serious risks to the region overall as it is estimated that in 2020 waste will exceed 200 million tons per year, which will cause negative consequences to human health and standards of living through the potential spread of parasites, diseases and pollution. Additionally, uncollected waste and waste directed to open landfills is extremely common across the region.⁸ With recycling, reusing and recovery considered in its infancy stages across the MENA region, it is considered an urgent issue that must be addressed. Multiple economic opportunities are also lost as greener economies have better resource conservation, job creation and can stimulate demand for high-quality and sustainable products.

⁶ <https://www.circle-economy.com/wp-content/uploads/06/2018/FINAL-linear-risk20180613-.pdf>

⁷ <https://synovapower.com/a-global-problem/>

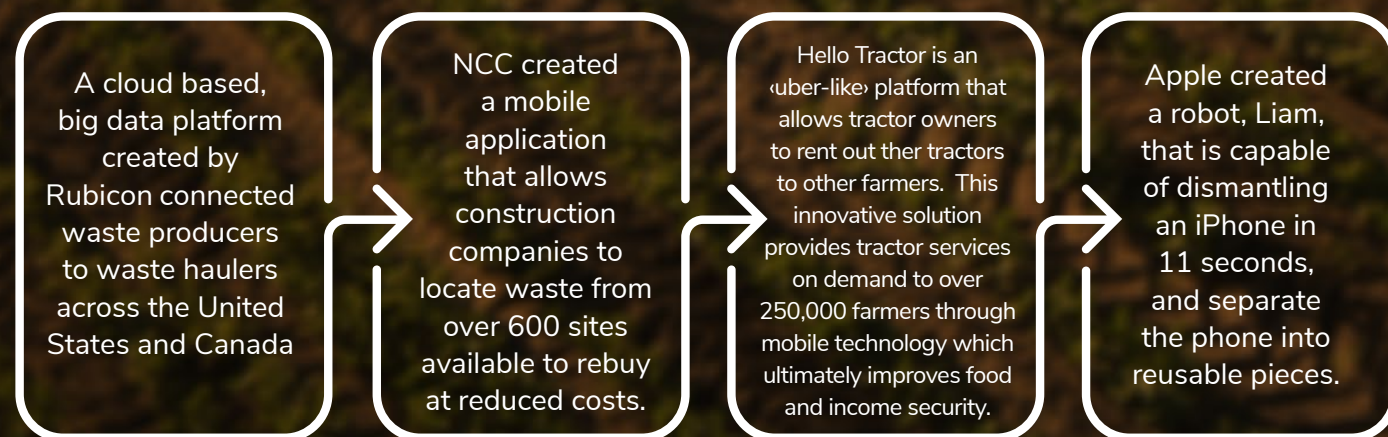
⁸ <http://afedonline.org/Report2011/PDF/En/chapter20%207%Waste.pdf>

TECHNOLOGY AND THE CIRCULAR ECONOMY

We will be exploring two different aspects of the relationship between the advancements in technology and the circular economy.

- The first aspect focuses on how technology plays a role in driving the implementation of the circular economy.
- The second aspect looks at how the circular economy can be embedded into technology driven industries.

Digitization can offer crucial solutions in addressing the negative impact of excess waste. The emergence of new technologies such as Big Data, Artificial Intelligence, Robotics, Internet of Things (IoT), and others provide significant potential to address today's challenges with waste. The World Economic Forum provides a number of examples on how different technologies can inject momentum to this new wave of waste management solutions.



Social media, which is considered one of the most powerful communication tools used in our world today, can play a major role in advancing the circular economy. Its ability to connect people, share information and gain insights can drive social change by accessing the masses through the click of a button. The epitome of how social media can play a fundamental role was evidenced during the #strike4climate protests. This movement was inspired by a young climate activist, Greta Thunberg, who raised awareness on the risks posed by climate change by going on a school strike.



Her strikes gained great media exposure, attracting other students to do the same in their own communities. Around 2,000 cities around the world have joined the movement, which has urged world leaders to take a firm stance on climate action. This specific movement connected different stakeholders globally through the use of social media.

The circular economy can easily be embedded into the Information, Communication and Technology (ICT) sector. For businesses, it encourages greater innovation with respect to business models as it pushes such companies to develop innovations in the area of waste management. Technology-driven organizations can educate consumers and provide them with options on how to reuse and recycle digital products.⁹ This step can open doors by educating customers on how to save money, as well as shedding light on the presence and activities of waste management companies.

VTT Research provides different concepts that are important for the technology industry to consider when transiting to a circular business model.

- Circular design is related to ensuring the lifecycle of products is prolonged by examining their ecosystems, such as how the product is being manufactured. The aim is to use resources more efficiently, designing products that can be remanufactured and reused.
- Materials out of secondary resources is about being able to reuse waste generated in a single industry as an input in a completely different one. This pushes companies to examine opportunities out of their own sector to maximize their resources after they have been used, providing opportunities to generate business cases and cross-sector collaboration.
- Environmental sustainability considers waste management from an environmental perspective, assessing how waste impacts the planet. This focuses on minimizing waste solely from an environmental perspective and not a financial one. To incorporate environmental sustainability into the business, the company must inject sustainable components into the value chain.

Case Studies

1- Mazuma mobile is a UK-based online service that recycles and reuses mobile phones. The company refurbishes old mobile phones and provides its customers with same-day payments. After collecting the handsets, the company resells the mobile phones to emerging markets, and insurance dealers.¹⁰ Today, they have traded over five million devices.¹¹

2- Kaer, a Singapore-based company, is revolutionizing the way air conditioning units are utilized. The company's solution is extremely relevant for the MENA region as it known for its extremely hot climates. To address such conditions, Kaer altered the traditional business model for air conditioning systems by offering it as service that uses multiple technological tools such as IoT, data analytics and collection to operate with the lowest amount of energy as possible.¹²

⁹ www.techuk.org/circulareconomy

¹⁰ <https://www.ellenmacarthurfoundation.org/case-studies/collection-refurbishment-and-resale-of-mobile-phone-handsets>

¹¹ <https://www.mazumamobile.com/>

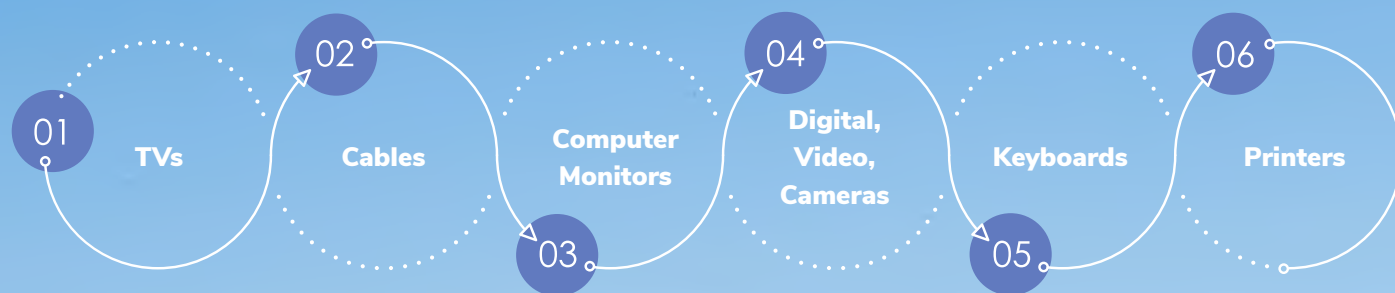
¹² <https://www.ellenmacarthurfoundation.org/case-studies/air-conditioning-as-a-service-reduces-building-carbon-emissions>

E-WASTE

With technological products, devices and services being used by so many people all over the world, most gadgets end up in landfills after use with just 22% of used electronics being recycled. Alarming, e-waste contains toxic components such as lead, mercury and cadmium that once disposed of, filter into the soil and harm the environment. According to The World Economic Forum, e-waste is currently considered the fastest-growing source of waste today.

With the introduction of 5G, numerous devices that are not compatible with the technology will be discarded. Such obsolete gadgets must have a recovery plan and users must be given information on where and how to recycle them. In 2018, 1.5 billion mobile devices were manufactured, with such products containing toxic chemicals. According to recent studies, more than 48 million tons of e-waste are produced every year, without enough recyclers to handle all the products that are being thrown away.¹³

Examples of E-Waste



The MENA region lacks an adequate ecosystem that can dismantle and salvage used devices as much of this material is shipped outside the region. Hence, it is up to progressive companies to take a stance and pave a path for their consumers to recycle their used devices.

Zain Bahrain, for example, has recognized the important role it plays in selling products that turn into e-waste and it has taken it upon itself to tackle the issue. The company partnered with the Supreme Council for the Environment and Crown Industries to push the envelope and come up with sustainable, long-term solutions to this growing challenge. Crown Industries is considered a strategic partner of the initiative as it is a pioneer in recycling in Bahrain and possesses the full spectrum of capabilities to recycle plastic, metal, obsolete machinery, and electrical and telecommunication cables and equipment. The project was established in 2011 and reintroduced in 2019, with a number of different activities across Bahrain:

1. Zain Bahrain first launched an internal awareness campaign to its employees and held an awareness session that was conducted by Crown Industries.
2. Launched a school campaign and competition by conducting 50 awareness sessions in schools.
3. Collected e-waste over a period of six months from schools.
4. Published mass campaigns through social media on the impact of e-waste and what Zain is doing to address this issue.
5. Created a competition amongst schools, with winners selected based on the largest amount of e-waste collected, best marketing campaign, and digital innovation and e-waste.
6. Call to action for the public to collect e-waste and place it in bins located on Zain's premises.
7. Encouraged other corporations to participate in collecting e-waste.

¹³ <https://www.ifixit.com/Right-to-Repair/E-waste>

CONCLUSION

The wide range of opportunities from the circular economy can be adapted to different markets and sectors. The model is considered an efficient solution as it addresses the root cause of waste management challenges we are facing today. As most economies are built on the linear economy, concerted efforts from all stakeholders must be taken to successfully transition to circular models.

The flexibility and adaptability of the circular economy helps address multiple Sustainable Development Goals as articulated by the United Nations. The benefits of circular economies will help achieve the following outcomes:



Transformation from linear to circular offers great potential in achieving long-lasting sustainable development.

With climate change being considered one of the biggest challenges we face, government and private organizations must be prepared to transform. As such, for-profit businesses must ensure environmental practices are incorporated into all their operational practices and not only aim to reduce their negative impact, but proactively create positive developments.

It is paramount to acknowledge that the only way to achieve climate-related goals set by the international community, is to incorporate an intersectional approach with respect to addressing the overwhelming concerns that environmentalists have when it comes to the future health of our planet.





DATE OF PUBLICATION: MARCH 2020
WWW.ZAIN.COM