

Institutionalizing Circular Economy through Quality Management

*Global economy is only **7.2% circular**.*

*As principles of **Circular Economy** and **Quality Management** are closely interconnected, Quality standards and frameworks can be used to increase the rate of global circularity.*



Written by:

Sunil Thawani

Author, Board Member & CEO, Quality Indeed Consulting Ltd., UAE

www.qualityindeed.com

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The Calling

Thanks to my ex-employer, Bhilai Steel Plant, Steel Authority of India Limited, I got trained as a Total Quality Management professional way back in 1991. Since then, I have been a Quality & Excellence professional helping organizations improve customer experience, processes, performance and reduce errors, delays, rework, and create a culture of excellence.

With my growing interest in the United Nations Sustainable Development Goals (UN SDGs), employment opportunities with the Government of Abu Dhabi etc., my journey in the field of Quality expanded from manufacturing to services to social sectors of the economy.

As part of UN SDG Goal No. 12 "Responsible Consumption and Production" I have got deeply interested in the principles and frameworks of Circular Economy. Good amount of reading and researching on this emerging and very important topic made me think how can I use my Quality & Excellence knowledge and experience in making organizations transition from the Linear Economy model of "Take-Make-Use-Throw" to Circular model? After all, the fundamental principles of Circular Economy are embedded in Quality Management principles, strategies, tools and techniques.

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This article is about exploring the interface between the newly developed principles of Circular Economy and the existing principles of Quality Management, and leveraging it to increasing the global rate of circularity especially by businesses and hence reduce the global greenhouse gas emissions.

So, let's get started.

Circular Economy

As per the Circularity Gap Report 2022, from 1972 to 2021, i.e. in only 50 years, global use of materials has nearly quadrupled – outpacing population growth. In 2019, we extracted 100 billion tonnes¹ of materials for our use and consumption. Just unbelievable. And with business as usual, material extraction is projected to surpass between 174 to 184 billion tonnes in 2050.

The current global circularity rate is only 7.2% and it's getting worse year on year – driven by rising material extraction and use. Circularity of 7.2% means that over 90% materials are either wasted, lost or remain unavailable for reuse for years causing significant social, economic and environmental damage.

This current Linear Economy model of “Take-Make-Use-Throw” is destructive to humans and the planet and hence is no longer sustainable. The Circularity Gap Report 2023 continues to warn us that today, five of the nine key ‘planetary boundaries’² that measure environmental health across land, sea and air, have been crossed and it is largely due to the impacts of the linear ‘take-make-use-throw’ economy.

Adopting principles of Circular Economy could reverse the overshoot of planetary boundaries, reduce need for material extraction and help increasing circularity to 18%³. This will help the world limit global warming to around 1.5°C (2.7°F).

Key Elements of Circular Economy

Circular Economy is built on three principles of design with focus on:

1. Eliminating waste and pollution;
2. Circulating materials and products at their highest value;
3. Regenerating nature.

These design principles look deceptively simple to understand and implement, but in reality they involve huge challenges as they need to be applied across diverse and complex business operations covering entire business value chain for any product. For example, designing a building which is easy to dismantle rather than demolish, or a building that allows to easily segregate concrete and steel once the building is demolished after its full use is not easy.

¹ The Circularity Gap Report 2022

² The Circularity Gap Report 2023

³ Ibid.

Habit 2 – Begin with the End in Mind

*“The 7 Habits of Highly Effective People”,
Stephen Covey*

Dr. Stephen R. Covey’s 2nd habit of highly effective people “Begin with the End in Mind” applies very well to the Design thinking from the circularity perspective.

In Circular Economy, products and services must be designed to minimize extraction of materials, extend life and usage of products, designing out waste etc. This means organizations need to consider the following approaches:

- *Design for ease of sharing (EKAR, Netflix);*
- *Design for ease of repair and maintenance (Toynovo, Colombia);*
- *Design for ease of dismantling and disassembly (Brummen Townhall, Netherlands);*
- *Design for ease of replacement and remanufacturing of components;*
- *Design out of waste at every stage of product lifecycle: manufacturing, packaging, storage, transportation, use etc.*
- *Design with materials that can be easily separated for recycling etc.*

Key Enablers for Going Circular

In order to adopt the principles of the Circular Economy, top management has to take ownership for developing, implementing and maintaining the “Key Enablers of Going Circular” – essential elements for transitioning from Linear to Circular Economy and sustaining it.

Key enablers for going Circular are:

1. Leadership commitment to circularity and sustainability;
2. Establishing companywide policy to support principles of Circular Economy and their implementation;
3. Understanding the external business environment in which organization is operating and using insights to go circular;
4. Knowing key stakeholders – customers, suppliers, society, regulators, investors etc. - and their needs and expectations;
5. Establishing Extended Producer Responsibility;
6. Developing strategy for circularity;
7. Establishing performance measures, including rate of circularity and transitioning from linear to circular model;

8. Building people competencies, including mindsets, in the field of circularity;
9. Determining environment management related risks and their mitigation;
10. Designing business processes to support circularity;
11. Designing products and services in line with principles of circularity as briefly explained above;
12. Establishing procurement policies to support buying of used, reconditioned, environment friendly products etc.;
13. Establishing materials unique identification and traceability system so as to track them for their potential for future usage;
14. Operating recycling programs at different stages of value chain;
15. Engaging with suppliers and contractors to promote circularity;
16. Continually monitoring feedback of key stakeholders, measuring and improving their levels of satisfaction on topic of circularity;
17. Monitoring and reporting compliance to applicable Government policies and regulations relevant to circularity;
18. Continually improving product design, services, supply chains and processes to increase the rate of circularity.

Going Circular by Applying Quality & Excellence Standards

Organizations committed to the principles of Circular Economy and implementing the Key Enablers for Going Circular can readily use existing Quality and Excellence frameworks and standards, such as EFQM 2020 model and ISO 9001 Quality Management Systems standard. Let's look at some examples below on how organizations can do so:

1. For understanding the external business environment in which business is operating and using insights to go circular, organizations can refer to clause 4.1 of ISO 9001 – *"Understanding the organization and its context"*.
2. For knowing organizations stakeholders, their needs and expectations, organizations can refer to *criterion 1.2 and 3 of the EFQM Model 2020*.

EFQM 2020 and ISO 9001 Quality Management Systems can be used for transition from Linear to Circular Economy model.

3. Clause 8.3 of ISO 9001 *"designing and developing products and services"* provides a detailed guidance on designing products and services according to the principles of Circular Economy.
4. For sourcing of the used, reconditioned and environment friendly components, organizations can develop appropriate sourcing policies, processes, criteria for evaluating vendors as per the clause 8.4 of ISO 9001 *"Control of externally provided processes, products and service"*.
5. To assess stakeholder perception about an organizations' contribution to UNSDGs, EFQM 2020's criteria 6.1-6.5 provide further guidance on what to measure.
6. The need for identification and traceability of materials and components is as important as it is for individuals with passports and identity cards. Clause 8.5.2 of ISO 9001 *"Identification and traceability"* provides clear guidance on this topic.
7. ISO 9001 clause 9.1 *"Monitoring, measurement, analysis and evaluation"* can be used to establish performance measures for circularity and its reporting and monitoring
8. ISO 9001 clause 10.3 *"Continual improvement"* can be used to improve rate of circularity by way of improving product design, services, supply chains and processes become more sustainable.
9. In addition to above the EFQM 2020 model also has focused requirements on Circular Economy such as criterion 5.3 *"Driving Innovation & Utilize Technology"* and criterion 5.4 *"Managing Assets & Resources"*.

Conclusion

In writing this article, I was reminded of many highly regarded teachings of Dr. Joseph Juran, one of the world's top-quality gurus. His definition of Quality as "Fitness for Purpose" incorporates a sustainability perspective, and his saying that "the last century was of mass manufacturing, next one (21st century) will be of design" prove to be so true. In his last book, Architect of Quality, he says "Quality professionals, thank your lucky stars. Your world is about to grow". So true.

We only need to reread the wonderful work done by the world's leading quality gurus and interpret it from a circularity perspective.

Here is a wonderful and enormous opportunity for quality professionals to help organizations transition from the Linear to Circular Economy model so that "No One is Left Behind"⁴.

⁴ 2030 Agenda for Sustainable Development, United Nations Sustainable Development Goals



Author

Mr. Sunil Thawani champions UN SDGs 2030. He is recipient of the prestigious ASQ Lancaster Medal for his dedication and outstanding contributions to the International Fraternity of Quality Professionals. He lives in Abu Dhabi and can be reached at contact@qualityindeed.com



Contributor

Marina Pugacheva is a Circular Economy advocate and enthusiast with the career expanded over several industries including hospitality, finance, media and manufacturing. She is passionate about the future of cities, protecting nature, and is interested in human behavior in environmental sustainability. She can be reached at marina.p@qualityindeed.com