حوارات تجارة
Tejarah Talks

Sustainable Manufacturing Smart Manufacturing

منتدى عمان للأعمال
OMAN BUSINESS FORUM

Sultanate of Oman سلطنة عُمان
وزارة التجارة والصناعة وترويج الاستثمار
Ministry of Commerce, Industry & Investment Promotion

تجارة حوارات
Tejarah Talks

SUSTAINABILITY: IT'S THE RIGHT THING TO DO, IT'S THE SMART THING TO DO, IT'S THE PROFITABLE THING TO DO

HUNTER LOVINS
Co-founder, Rocky Mountain Institute

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About Tejarah Talks

Tejarah Talks is organized by Oman Business Forum in association with the Ministry of Commerce, Industry & Investment Promotion. With a firm focus on Oman's current and future business, export and investment environment, Tejarah Talks is a series of informal, interactive evening discussions that brings together some of Oman's most inspirational and innovative thinkers and doers to share their stories, insights and ideas with an enthusiastic crowd. It is a platform for positive interaction.

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Tejarah Talks 'Sustainable Manufacturing: Smart Manufacturing' 15 February was moderated by His Highness Sayyid Dr. Adham Al Said, Managing Partner, The Firm. The panellists were Harssha Shetty, CEO, Jindal Shadeed; Mazin Al Rubaiai, Marketing Manager, Oman Aluminium Rolling Company; Haider Al Zaabi, Co-founder Mays EV; and Eng. Abdullah Al Saidi, CEO & Founder, Nafath Renewable Energy.

Panelists

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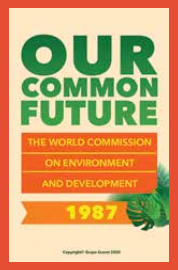
1

Defining Sustainability



The definition of sustainable manufacturing can change depending who you ask. Accordingto the UN's 1987 Brundtland Commission Report, sustainable manufacturing is a form of manufacturing development that meets "the needs of the present without compromising the ability of future generations to meet their own needs."[1] This definition focuses on conserving for the sake of the future, avoiding wasteful practices that over-consume resources and leave the world in a diminished state that cannot support the needs of future generations.

The US Department of Commerce, on the other hand, defines sustainable manufacturing as "the creation of manufactured products that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound."[2] This definition is more comprehensive than the UN's, calling for not only the conservation of resources, but for the preservation of the environment and promoting the safety of workers and the community at large.

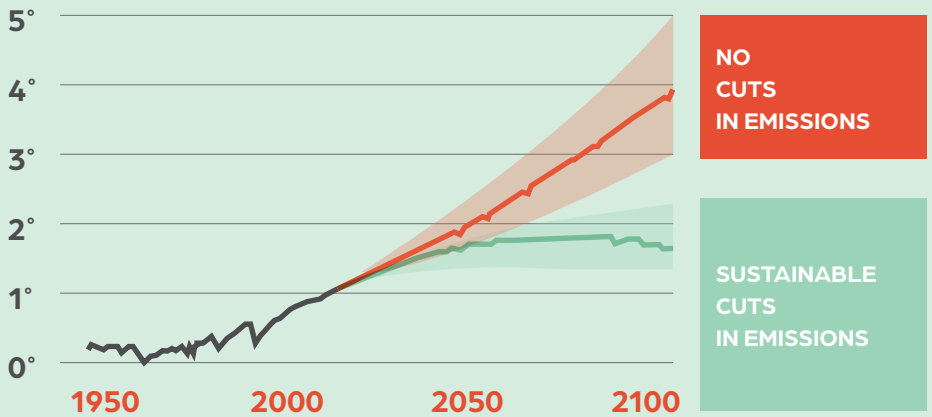
In brief, sustainable manufacturing is all about minimising the diverse business risks inherent in any manufacturing operation while maximising the new opportunities that arise from improving processes and products.

Sustainable manufacturing meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainability is a Smart Move

Sustainable business practices are a smart investment in our collective future and Omani manufacturers know it. Indeed, the latest Intergovernmental Panel on Climate Change (IPCC) report reminds us of the urgent need for sweeping changes to slow the devastating impacts of a warming climate.[3] While the goal of keeping global temperature increase below 2°C this century – to achieve this, GHG emissions must halve by 2030 – and drop to net-zero by 2050 – looks increasingly difficult – temperatures have already risen 1.1°C since the 19th century – there is still hope. While the report focuses on government actions, manufacturers can also play their part by reducing their carbon footprint and operating as sustainably as possible.

Future Temperature Graph



Responsibility

The manufacturing industry must accept its heavy responsibility for GHG gas emissions. In the US, for example, industry accounts for 24% of direct carbon emissions, according to the Environmental Protection Agency.[4] In Europe the situation is equally dire with manufacturing emitting an annual total of 880 million tonnes of CO2 equivalents making it the third largest emitter of GHG on the continent.[5] While CO2 emissions in the Middle East are small compared with the US and Europe, the GCC and Libya are among the world's top 20 per-capita emitters.[6]

It is clear sweeping changes need to be made – and thankfully are being introduced – across every aspect of manufacturing if we are to collectively transform operations and products and future-proof Oman's manufacturing growth.

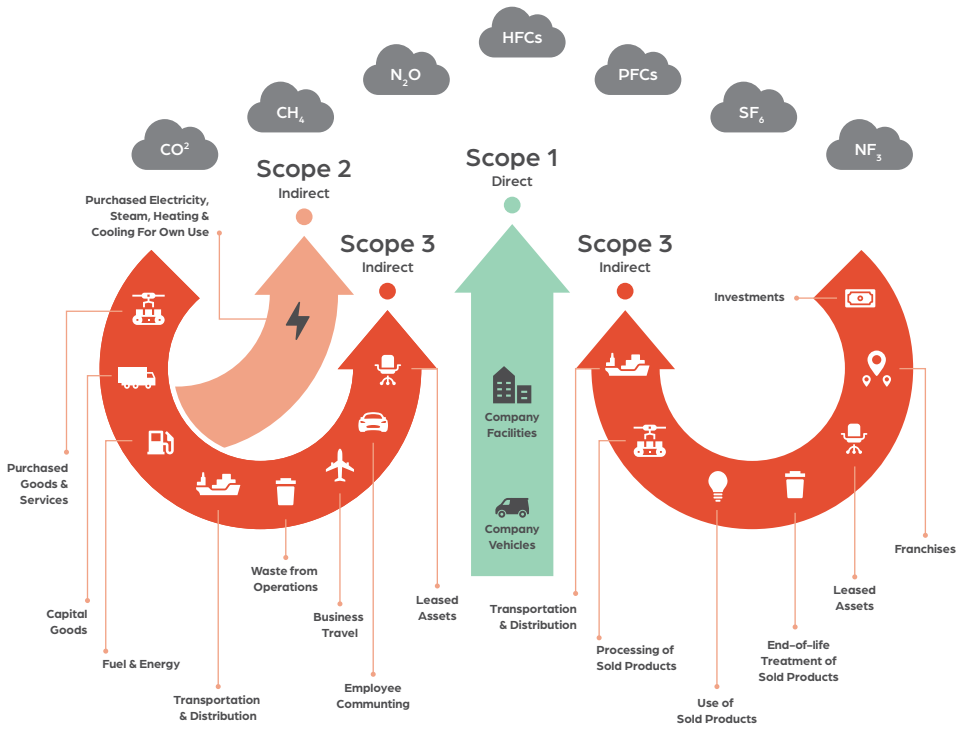
The Bigger Picture

Today, sustainability and resource productivity are top of the agenda for governments, investors and consumers. The EU has put climate change response at the heart of its post-pandemic economic-recovery plans. BlackRock, the world's largest asset manager, has told companies in its portfolio that it will vote against the re-election of directors at companies that fail to protect natural resources and cut carbon emissions.[7] Consumers have also become more vocal about sustainability and are more likely to act on their views.

3

Scopes 1, 2 & 3

Under the internationally-recognised Greenhouse Gas Protocol, an organisation's emissions are split into three 'scopes'.



Upstream Activities	→	Reporting Company	→	Downstream Activities

SCOPE 1	Covers direct emissions from owned or controlled source
SCOPE 2	Covers indirect emissions from the generation of the electricity, steam, heating and cooling bought and consumed by a reporting organisation
SCOPE 3	Includes all other indirect emissions that occur in a company's value chain [8]

Science-Based Targets (SBTs)

SBTs are GHG reduction goals set by businesses. They are defined as "science-based" when they align with the scale of reductions required to keep global temperature increases well-below 2°C compared to pre-industrial temperatures. SBTs provide Omani manufacturers with pathways to sustainable transformational change to accelerate the transition to a low carbon economy. The business case for Omani manufacturers to set targets is clear. The Science-based Target Initiative outlines four incentives for companies to set SBTs:

- They drive innovation
- They reduce regulatory uncertainty
- They strengthen investor confidence and credibility
- They improve profitability and competitivenes [9]

As of February 2023, more than 4,600 organizations worldwide are leading the zero-carbon transformation by setting emissions reduction targets grounded in climate science through the Science Based Targets Initiative.

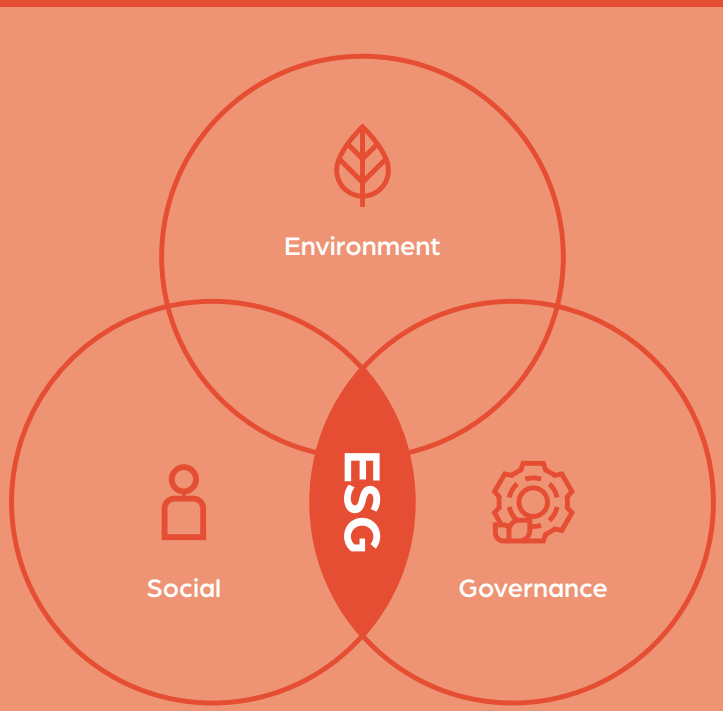
4,600

More than 4,600 organizations worldwide are leading the zero-carbon transformation

4

Manufacturers are Responding

Over the past few years, an extraordinary number of businesses worldwide have made public commitments to ongoing reductions in carbon emissions and resource consumption. Across industries, geographies and company sizes, organizations have been allocating more resources toward improving their environmental, social and governance (ESG) commitments. Ninety-six percent of S&P 500 companies now publish ESG reports in some form, as do 81% of Russell 1000 companies.[10] And it is estimated that 21% of the world's 2,000 largest public companies, representing sales of nearly US$14 trillion, now have net zero commitments.[11] Increasingly, these targets encompass not just the operations of these companies – reflected in the Greenhouse Gas Protocol's Scope 1 and Scope 2 emissions – but also the entire value chain, as envisioned in Scope 3. This in turn has placed extra pressure on thousands of suppliers to reduce their own environmental footprints.



S&P

500
companies

96%
publish ESG reports

FTSE Russell

1000
companies

81%
publish ESG reports

In addition to helping the planet, many manufacturers feel that reducing their environmental impact can offer them long-term financial gain. A McKinsey survey of 2,475 company leaders representing a range of industries, regions and company sizes found that 40% of respondents expected their sustainability programs to generate profit in the next five years by attracting more environmentally conscious consumers.[12] Going forward, any Omani manufacturer looking to grow and secure growth needs to embed sustainability into all their products, services and processes.

McKinsey & Company

2,475 company leaders expected their sustainability programs to generate profit in the next five years

5

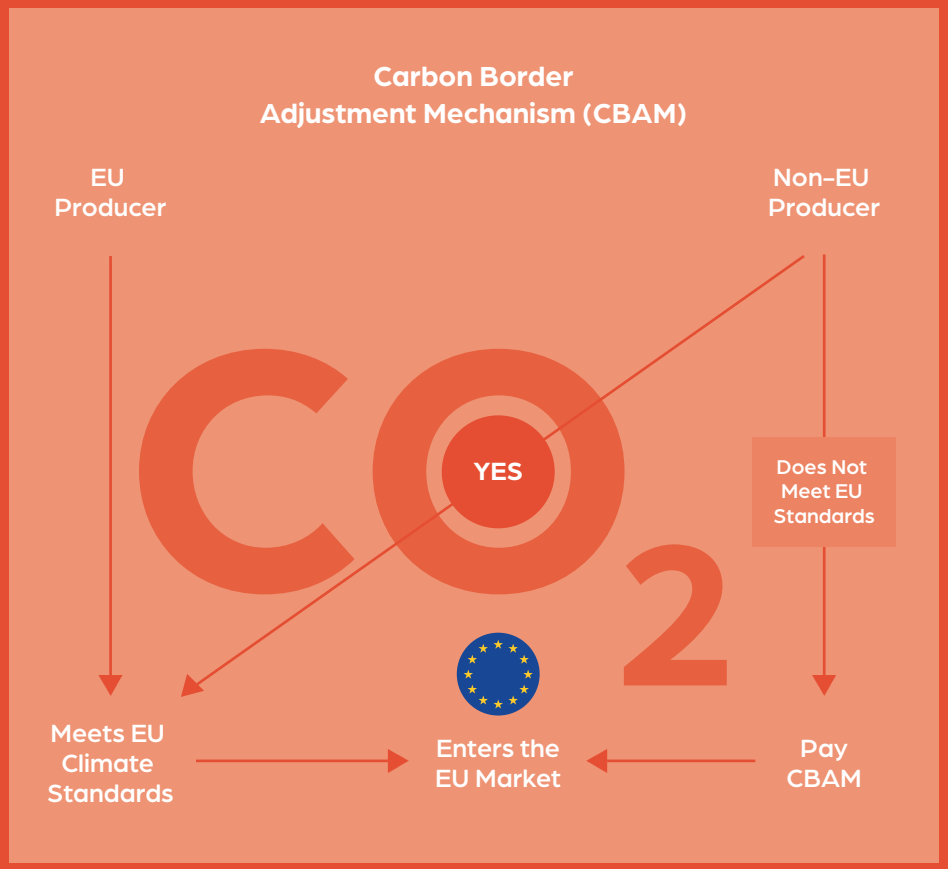
The Rising Green Tide

In PWC's 2019 Global Consumer Insights Survey, just 35% of respondents said they chose sustainable products to help protect the environment, 37% said they looked for products with environmentally friendly packaging and 41% said they avoided the use of plastic when they could.[13] But in PwC's June 2021 survey, results show percentages 10 to 20 points higher in response to similarly worded questions.[14] In fact, in PWC's 2023 survey about half of consumers said a company's actions related to ESG often or always influences their trust in the company or the likelihood to recommend the business or brand to others.

A study by Visual GPS in conjunction with market research firm YouGov also indicates a shift during the COVID-19 pandemic – finding 81% of those polled expect companies to be environmentally conscious in their advertising and communications, while 69% of respondents said they were doing everything possible to minimize their carbon footprint – up from 63% just a year earlier.[15]

In December 2022, the EU reached a deal on the world's first major carbon border tax, as part of an overhaul of the bloc's flagship carbon market that aims to make its economy carbon neutral by 2050. The landmark Carbon Border Adjustment Mechanism (CBAM) adds a pollution price on certain imports to the EU. Carbon-intensive industries inside the bloc must comply with strict emissions standards and the CBAM is designed to ensure those businesses are not undermined by competitors in countries with weaker rules.

The measure will apply first to iron and steel, cement, aluminium, fertilizers, electricity production and hydrogen before being extended to other goods. It also disincentivizes EU companies from moving production to more tolerant countries, something EU lawmakers refer to as "carbon leakage." Under the CBAM – which comes into force 1 October 2023 – companies will need to buy certificates to cover emissions generated by the production of goods imported into the EU based on calculations linked to the EU's own carbon price.[16]



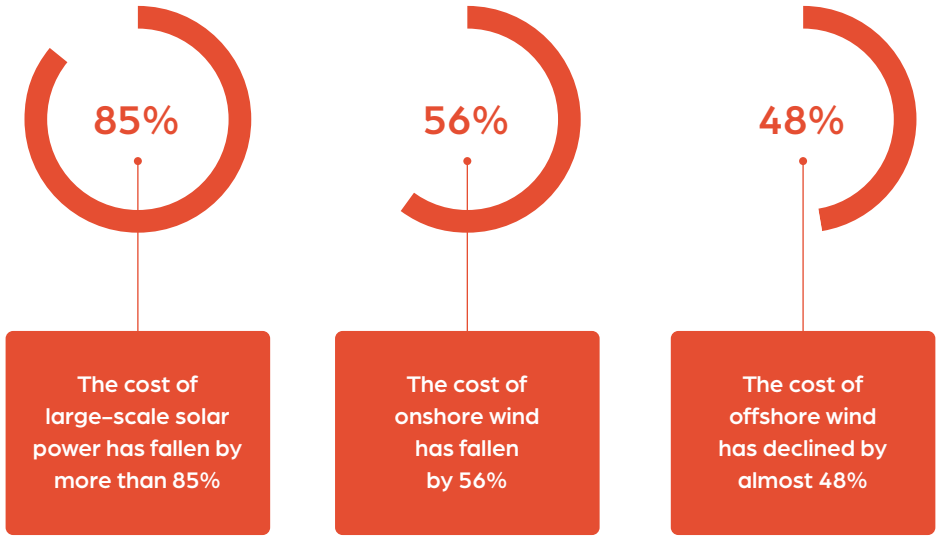
Wind farms have the potential to produce up to 40 times the electricity the world consumes.

Benefits of Sustainable Manufacturing

Doing business built on good environmental practice is increasingly becoming essential in the eyes of investors, regulators, consumers and the communities where manufacturers operate. Failure brings with it high costs – fines, penalties and consumers choosing to go elsewhere. Success, on the other hand can help manufacturers in a number of ways.

Reduce Energy Usage & Waste

Sustainability shapes how key resources like energy, carbon, water, materials and waste are used throughout the supply chain. The development of sustainable business practices helps manufacturers reduce their carbon footprint, become energy efficient and decrease overhead costs. Simply replacing all incandescent light bulbs with energy-efficient compact fluorescent lamps, which last three to 25 times longer and use about 25 to 80% less energy will significantly reduce energy costs. According to the International Renewable Energy Agency in less than a decade the cost of large-scale solar power has fallen by more than 85% while onshore wind has fallen 56% and offshore wind has declined by almost 48%.[17]



Responsible Global Brands

ESG is far from a new concept, but it has taken off in popularity over the past 15 years. And rightly so: ESG has the potential to reduce overheads, boost stock performance and increase customer and employee loyalty.

Enhance Brand Image & Increase Customer Loyalty

Sustainability impacts purchasing decisions. In 2023, consumers are more aware than ever of the power of their buying choices and the difference between climate action and greenwashing. They prefer to buy from manufacturers that are mindful of their impact on society and the environment. Sustainability improves a company's brand image, giving it a competitive advantage.

Increase Revenues

Sustainable strategies can boost revenues, cut operating costs and achieve better borrowing rates. The more sustainable a manufacturer becomes, the lower its energy bill. Savings can be reinvested in additional sustainability efforts to expand a company's positive impact on the planet.

The more sustainable a manufacturer becomes, the lower its energy bill.

Heighten Attractiveness for Investments & Funds

Financial and investment experts have found that organizations with sustainability plans are more likely to attract investors than those without any. In 2018, Bank of America Merrill Lynch found businesses with a better ESG than their peers, produced higher three-year returns, were more likely to become high-quality stocks, were less likely to have large price declines and were less likely to go bankrupt. Conversely, poor performance can be a serious risk. Companies with significant environmental problems, including litigation, pay up to 0.64% more to service their debts and secure credit.[18]

Businesses with Better ESG
Produced higher three-year returns
More likely to become high-quality stocks
Less likely to have large price declines
Less likely to go bankrupt

Improve Talent Retention & Recruitment

Sustainable companies are more likely to treat employees as critical stakeholders, increasing employee retention and productivity. Gen Z workers in particular value sustainability and are demanding green workplaces. A recent Deloitte study revealed that 60% of Gen Z employees are concerned that current leaders in business are not focused enough on protecting the environment. These young workers are looking for employers who can demonstrate their commitment to combating climate crisis.[19]

Increase Ability to Comply with Regulations

Incorporating sustainability into business practices allows manufacturers to comply with regulations and avoid non-compliance costs.

Boost Innovation

When employees at all levels are asked to identify and implement sustainable manufacturing practices, it sparks an environment of collaboration and teamwork. When management recognizes these contributions and even rewards those who go above and beyond, it encourages staff to work harder, reminding them they are making a positive difference to manufacturing as well as the environment. Sustainability also leads to increased innovation. When employees are encouraged to follow sustainable methods, they are inspired to pursue R&D projects that create new and efficient ways of doing things.

60%

60% of Gen Z employees are concerned that current leaders in business are not focused enough on protecting the environment

7

Potential Barriers to Sustainable Manufacturing

As discussed, sustainable manufacturing brings any number of benefits, helping Omani businesses increase exports, enhance their business profile, as well as improve consumer perceptions and corporate reputation. However, despite these benefits, achieving sustainable manufacturing faces numerous barriers – particularly in three areas.

1. Economic & Financial Misperception

Manufacturers often prioritize economic growth and profit over environmental welfare. Part of the problem is that sustainability is perceived as expensive. Achieving sustainable manufacturing involves a paradigm shift from considering the environment as part of the economy to considering the economy as part of the environment. In brief, Omani manufacturers need to modify the economy to safeguard the maintenance of the environment. The message is that profitability and sustainability can co-exist.

2. Poor Monitoring & Evaluation

Just as collaboration is crucial, the lack of sufficient and accessible information makes it difficult for senior management to implement sustainable manufacturing at scale. Manufacturers that do not have reliable means to measure data and track progress end up with poor specifications and sustainability targets. To overcome this, businesses must strengthen their monitoring and evaluation systems. A process of continuous improvement must be put in place with the goal of increasing efficiency and effectiveness. Together, government and manufacturers must dig deeper to evaluate the socio-economic impacts of sustainable manufacturing and make those outcomes public.

3. Lack of In-house Expertise

The shortage of data scientists or sustainability experts within manufacturing is a common barrier to implementing sustainable manufacturing initiatives. To overcome this, companies can hire experienced consultants or third-party vendors who can provide the skills, expertise, software and insights needed.

Realizing Sustainable Ambitions

In order to realize sustainability ambitions, Omani manufacturers are prioritizing three key areas.

Product Design

For everything that is manufactured, it makes sense to look at sustainability from the beginning of the process and so the concept of eco-design has evolved over time. In fact, eco-design has been around for years, even Dieter Rams, Braun's chief designer in the 1960s and 70s included environmental considerations in his 10 principles for good design.[20] If a manufacturer wants to design a product with sustainability principles in mind, all it needs to do is to consider its eco-design and its life-cycle impacts and then minimise the biggest environmental impacts identified from this analysis. This is the first step to sustainable design. For example, Henkel, the German manufacturer looked at the sustainability of Persil, its global flagship detergent product – its "eco-design" solution was to move the Small and Mighty bio-liquid detergent to a 2x concentrated product. The benefits of this was that it now only takes half the water to make it, half the packaging volume in which to put it and half the number of lorries to deliver it.[21]

Oman's Mays EV driving the green auto industry agenda

Energy Efficiency

According to analysis from the UK's Carbon Trust Advisory Services, energy costs of at least US$1.9bn could be saved by the UK's large businesses. And the investment required to realize these savings has attractive payoffs – on average an internal rate of return (IRR) of 48% and payback within three years. The investments required to save 15% of energy bills have an average IRR of 48%, well above the minimum requirement set by businesses, which averages 11.5%. Up to 94% of businesses have an IRR requirement of under 30%.[22] The Carbon Trust's research suggests four key principles are common to companies that are most successful in exploiting energy efficiency opportunities.[23]

Key Principles

Make the case: the true value of energy efficiency is investigated, accurately determined and communicated clearly to secure finance to effect change when other business demands also require expenditure.

Use organizational culture and behaviour to overcome inertia: organizational culture is aligned to energy efficiency from the boardroom to the shop floor.

Resolve misaligned incentives: innovative ways are found to overcome the split incentives as well as weaknesses in the structure of incentives and objectives within and external to the business.

Enhance the customer proposition: business investment in energy efficiency is aligned with positively impacting the customer experience.

According to analysis from the UK's Carbon Trust Advisory Services, energy costs of at least US$1.9bn could be saved by the UK's large businesses

10 Principles
for Good Design

Dieter Rams, Chief Designer, Braun

1

Good Design is Innovative

2

Good Design Makes a Product Useful

3

Good Design is Aesthetic

4

Good Design Makes a Product Understandable

5

Good Design is Unobtrusive

6

Good Design is Honest

7

Good Design is Durable

8

Good Design is Consequent to the Detail

9

Good Design is Eco–friendly

10

Good Design is as Little Design as Possible

Circular Economy

The transition from a linear to a circular economy requires Omani manufacturers to consider the products they make today as resources for the future and to find ways to optimize the value generated by those resources through multiple lifecycles.

Today, the circular economy has moved from the fringes to the mainstream. For example, the Ellen MacArthur Foundation, in collaboration with the UN Environment Programme, the Global Commitment has united more than 500 organisations behind a common vision of a circular economy for plastics. Driven by the goal of tackling plastic pollution at its source, companies representing 20% of all plastic packaging produced globally have among other things, promised to ensure 100% of plastic packaging is reusable, recyclable, or compostable; increase the share of post-consumer recycled content target across all plastic packaging used; decrease the use of virgin plastic in packaging; take action to move from single-use towards reuse models; and eliminate problematic or unnecessary plastic packaging.[24]

The Global Commitment has united more than 500 organisations behind a common vision of a circular economy for plastics. Driven by the goal of tackling plastic pollution at its source.

In the IT, fashion and consumer electronic space, manufacturers are taking back from customers products at the end-of-life stage and developing second-life markets and remanufacturing programs. In fact, the EU's Waste Electrical and Electronic Equipment regulation for example, requires manufacturers to provide for returning and reprocessing products, including disassembly and separation of various types of materials for recycling or disposal. It also requires manufacturers to offer spare parts for at least 10 years after the date of original sale.[25]

In many markets, trade-in programs and markets for second-life and refurbished goods are already enjoying considerable success. The global refurbished and used mobile phone market, for example, is anticipated to reach US$146 billion by 2030, growing at a CAGR of roughly 11.45% between 2022 and 2030.[26] New business models, such as bike and car-sharing schemes and fashion-rental shops are challenging traditional concepts of product ownership. The use of recycled materials has become a marketing point for sportswear brands and car companies. And automakers are looking at ways to boost the use of recycled steel and aluminium in structural applications too.

To achieve their full potential, circular economy concepts require collaboration across the full value chain, from the design of safe, easily recycled materials and of products that support repairs, upgrades, disassembly and remanufacturing to the development of an ecosystem of providers to deliver those services.

US$146bn

The global refurbished and used mobile phone market will reach US$146 billion by 2030

It's All About Money

A Grant Thornton study of 40 UK-based lenders – from the large clearing banks to smaller alternative lenders showed that while ESG lending has been dominated by large, listed companies, there has been an important change in the direction of travel with lenders increasingly focusing on ESG for the mid-market.[27]

In 2021, the global loan markets issued over US$681 billion of green and sustainability-linked loans (SLLs). Of that volume, SLLs accounted for more than US$600 billion, an increase of 3.5 times the level reached in 2020.[28]

Green and Sustainability-linked Loans (SLLs)

US$681bn

2021

US$600bn

2020

↑ An increase of 3.5 times

When looking at new mid-market lending, a third of lenders in the Grant Thornton survey said green loans or SLLs accounted for 11 – 25% of new loans being advanced, while 30% of lenders said the proportion of new green loans or SLLs was over 26%.[29] The trend is clear – the proportion of green or SLL lending to the mid-market will only continue to grow. For this reason, major banks are committing significant resources to ESG.

Lenders are also facing scrutiny vis-à-vis their ESG credentials from stakeholders, regulators, governments, NGOs and consumers. Virtually every large bank has made a commitment for their balance sheet to be net zero by 2050. Some have gone further and set themselves interim targets.

For example, Lloyds Banking Group has the target of reducing the carbon emissions they finance by more than 50% by 2030[30] while Barclays has set reduction targets across four of the highest emitting sectors in their portfolios: energy, power, cement and steel. These ambitious targets could directly affect the loans lenders make to mid-market borrowers.[31]

Responsible Banking

In March 2023, Bank Nizwa became a Signatory to the UN Principles for Responsible Banking and a member of the UN Environment Programme Finance Initiative – aligning the bank's strategies and practices with the UN Sustainable Development Goals and the Paris Climate Agreement.

Final Word

Omani manufacturers cannot just wait and hope that things will all work out. Instead, they need to get ahead of the climate crisis by building sustainability into their business models and demonstrating that they benefit multiple stakeholders as well as the broader public.

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Footnotes

Page		*Footnote*
6	1	UN, Report of the World Commission on Environment & Development
	2	US Department of Commerce
8	3	IPCC Sixth Assessment Report, Impacts, Adaption & Vulnerability
	4	US Environmental Protection Agency, Sources of Greenhouse Gas Emissions
	5	Eurostat, EU Economy Greenhouse Gases Still Below pre-COVID Levels
	6	Our World in Data, CO2 emissions
9	7	S&P Global, BlackRock Voted Against Management at 53 Companies Over Climate Concerns
10	8	The Greenhouse Gas Protocol, A Corporate Accounting & Reporting Standard
11	9	The Science Based Targets Initiative, Driving Ambitious Corporate Climate Action
12	10	Governance & Accountability Institute, All-Time High of Sustainability Reports Among U.S. Publicly-Traded Companies: 96% of S&P 500 and 81% of Russell 1000
	11	Energy & Climate Intelligence Unit, Taking Stock: A Global Assessment of Net Zero Targets
13	12	McKinsey, How Companies Capture the Value of Sustainability: Survey Findings
14	13	PWC, Global Consumer Insights Survey 2019
	14	PWC, Global Consumer Insights Survey 2021
	15	Getty Images, Climate Crisis Still Top Concern for Consumers Despite Pandemic
15	16	European Commission, Carbon Border Adjustment Mechanism

Page		*Footnote*
16	17	UN, Climate Action, Renewable Energy Powering a Safer Future
18	18	Robert G. Eccles & Svetlana Klimenko, Harvard Business Review, The Investor Revolution
19	19	Deloitte, Deloitte's 2022 Gen Z & Millennial Survey
22	20	The Design Museum, What is Good Design? A Quick Look at Dieter Rams' 10 Principles
	21	Packaging Insights, Eco-packs for Persil Small & Mighty Range
23	22	The Guardian, Energy Efficiency Can Drastically Reduce Energy Costs
	23	Carbon Trust, The Business of Energy Efficiency
26	24	The Ellen MacArthur Foundation, The Global Commitment 2022
27	25	European Commission, Waste from Electrical & Electronic Equipment
	26	Custom Markets Insights, Global Refurbished & Used Mobile Phone Market 2022 – 2030
28	27	Grant Thornton, ESG Lending: Momentum is Building for the Mid-market
	28	Ibid
	29	Ibid
29	30	Lloyds Banking Group, Our Operational Emissions
	31	Barclays, Addressing Climate Change

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