

The University of Cambridge Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership partners with business and governments to develop leadership and solutions for a sustainable economy. We aim to achieve net zero, protect and restore nature, and build inclusive and resilient societies. For over three decades we have built the leadership capacity and capabilities of individuals and organisations, and created industry-leading collaborations, to catalyse change and accelerate the path to a sustainable economy. Our interdisciplinary research engagement builds the evidence base for practical action.

Breakthrough Energy

At Breakthrough Energy, we are committed to supporting new technologies that change the way we live, eat, work, travel, and make things so we can avoid the most devastating impacts of climate change. We believe that funding cutting edge research; investing in new clean technologies as they evolve from idea to commercial adoption; crafting smart, tailored, and scalable energy policies; and forging deep partnerships among policymakers, innovators, and industry leaders will lead to positive solutions that can bring clean energy to all.

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2024 Competitive Sustainability Index 2024 Competitive Sustainability Index

Foreword



Policymakers and business leaders today face the profound challenge of building competitive and resilient economies that respond to shifting geopolitical forces and address pressing issues such as cost of living and national security. They must achieve this while responding to the

urgent climate and nature crises, which are increasingly destabilising societies and economies. At the heart of this challenge lies the need to rethink economic paradigms and strategies; traditional growth models often undermine the very natural and social ecosystems on which economies depend. This work by the University of Cambridge Institute for Sustainability Leadership (CISL) offers a solution, presenting a credible approach to reconciling sustainability with competitiveness.

In this second edition of the Competitive Sustainability Index (CSI), CISL provides the tools and insights that policymakers and businesses need to navigate these interwoven priorities. The CSI responds directly to the urgent demand for new thinking on competitiveness – one that aligns with political priorities in the EU and beyond by addressing the triple planetary crisis of climate change, biodiversity loss and resource overconsumption. This index is a valuable and integrated framework that assesses competitive performance within the sustainability transition, offering an evidence-based guide for decision-makers facing complex tradeoffs. With a data-driven foundation, the CSI enables leaders to make strategic decisions that support both long-term resilience and immediate economic needs.

If the insights from this second edition are applied, Europe – along with its partners, including the UK – has the opportunity to demonstrate a model of economic progress that will deliver a cleaner, greener, fairer and more prosperous future. By embodying a vision of competitive sustainability, Europe can set a benchmark, proving that economies can thrive while transforming to address global challenges.

The insights provided by the Competitive Sustainability Index are critical for policymakers to design policies and markets that align competitiveness and sustainability.

However, government action is only half the equation – businesses must act boldly within these frameworks, transforming their commercial strategies to enable them to compete in more sustainable markets.

This requires businesses to move beyond an ambition that is limited to doing only what is possible within current markets – a strategy which leaves all markets and sectors at risk. In their own long-term interests, they must actively work alongside policymakers to champion and support the transformation of entire markets to reward climate-neutral, nature-positive and circular business practices, while holding those who resist change accountable. Such transformations to economic policy and market structures will enable businesses to innovate and transform their commercial models, processes and products to embrace superior sustainability performance as a core driver of competitive advantage.

A vision of competitive sustainability – which designs out the prevailing tension between growth, profitability and sustainability – lies at the heart of CISL's work with businesses, financial institutions, innovators and policymakers. Realising this vision will demand concerted effort and determination, and CISL is committed to supporting this endeavour. Through networks such as our Corporate Leaders Groups, the Green Growth Partnership, our Canopy innovation ecosystem and our Centre for Sustainable Finance, and work with individual businesses and leaders to inform and support action, CISL will help drive this agenda, enabling both policymakers and businesses to leverage the CSI to foster tangible progress.

The CSI serves as an invaluable tool for realising this vision at the level of whole economies. We encourage our partners and networks to engage deeply with the Index, exploring its applications and refining it through future editions. By championing competitive sustainability, businesses and policymakers can build a prosperous, resilient future that secures economic stability and meets the urgent demands of our time. Together, we have the opportunity to create a world where economies thrive within environmental limits, ensuring long-term benefits for both society and the planet.

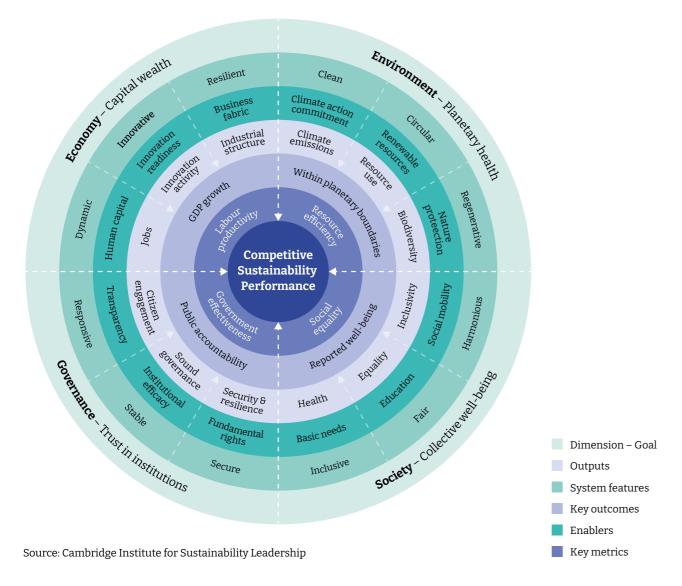
Lindsay Hooper, CEO, Cambridge Institute for Sustainability Leadership



New performance metrics for new European competitiveness for an economy in transition

Competitive sustainability is the ability of an economy, its companies and industrial ecosystems to excel relative to international peers in a competitive transition to a sustainable economic model through investment in purposeful innovation

Figure 1. Competitive Sustainability Compass



A new approach: from orthodox competitiveness approaches to 'competitive sustainability'

In contrast to orthodox approaches that try to put some sustainability thinking into economics, the Competitive Sustainability Index (CSI) provides a more forward-looking, integrated and nuanced picture than other competitiveness performance assessments used by the EU or other institutions, by putting economic thinking

into sustainability. This is because it aligns the various economic, social, governance and environmental dimensions that countries, their value chains and companies take into account when seeking to attract investors in the context of a global economy in an urgent transition to genuinely sustainable development.

Signalling a new approach to competitiveness

From 'orthodox competitiveness'



Orthodox economic thinking treating sustainability as an awkward externality



Uses a GDP metric without incorporating financial value of sustainable investments



Focuses on productivity, assuming welfare benefit of GDP without defining purpose of innovation



Embeds an outdated, failing and unsustainable economic development model



Short-term competitive advantage maximises performance in one dimension to the disadvantage of others and collective benefit

To 'competitive sustainability'



New economic thinking integrating global transition frameworks and dynamics



Uses GDP and also incorporates financial value of sustainable investments



Focuses on productivity of purposeful innovation for social benefit within planetary boundaries



Drives transition to a new, holistic and sustainable economic development model



Strategic competitive advantage will maximise performance over all dimensions as well as collaborative action for system change



The EU's real challenge is to excel at competitive sustainability

Competitive sustainability is a forward-looking lens through which the performance of economies can be compared across multiple pillars in terms of how they deliver long-term benefits to their citizens.

The components of the Competitive Sustainability Index provide policymakers with a set of levers they can address to improve the likelihood of delivering the future they promise. Relative and absolute scores in each of the pillars of this index provide a new and underexplored way for policymakers to address the underlying drivers of long-term competitiveness. This is within the guardrails provided by planetary boundaries and the democratic, social and environmental standards proven to support prosperous and fulfilled societies.

Following Commission President Ursula von der Leyen's announcement on 27th November 2024 that she would be proposing a new 'competitiveness compass', we believe that the CSI can provide a strategic compass for the EU, as it considers how to define competitiveness and roll out an effective and ambitious Prosperity Plan and Clean Industrial Deal, and tackle the enormous challenges that European countries, society and businesses are facing. It showcases where the EU is leading and how it can improve its competitiveness in the future. This report provides insights into the updated and extended second edition of the Competitive Sustainability Index.

Why is this such an important debate? Firstly, in the two years since the first edition, the EU has not only emerged from the Covid crisis, but has also responded to the energy shock triggered by Russia's invasion of Ukraine, high inflation and then also the US's adoption of a US\$738 billion investment via the Inflation Reduction Act. The increasingly clear impacts of a long-standing and assertive Chinese industrial strategy are visible in key growth markets of cleantech, especially in the energy and mobility value chains. Finally, a second term for President

Trump has profound implications for the EU across all of these issues and more.

EU competitiveness has therefore become the critical priority in the EU's Strategic Agenda and is the central subject of the Letta and Draghi reports. At the same time, global efforts to achieve sustainability are inadequate, leading to increasing social, economic and environmental risks for our societies. The destructive impacts of climate change and degradation are increasingly affecting people and reducing the margin for economies to tackle economic change.

All this, for the EU, must be attempted at the same time as defending and advancing the principles of a values-based democracy and universal human rights, on which the United Nations (UN) Sustainable Development Goals have been developed. The only realistic approach to the economic challenge of competitiveness in such circumstances must be by addressing these transition and transformation imperatives together.

The EU has therefore commissioned a series of reports tackling the range of issues. The Draghi report¹ focuses on the need for decarbonisation and cleantech development, while the Letta report² places importance on the need for a Circular Single Market, and the Niinistö report³ places climate risks alongside military ones for the EU to focus on, all in support of a distinct European social, economic and political model.

A crucial question for these reports is how they define and measure competitiveness in the context of the shocks and challenges of this more unstable geopolitical context. The EU's underlying interests and long-standing strategy of promoting an effective rules-based international order and open, social market-based economies is itself under threat.

However, despite its prominence and strategic importance, 'competitiveness' still lacks a single, agreed EU definition, remains open to different interpretations and continues to be addressed without transition imperatives. Beyond this, current approaches do not always make the necessary links between sustainability and innovation or questions around growth, productivity, prosperity and wellbeing. This is critical in order to have an integrated and future-proof approach to both analysis and strategy development on competitiveness.

For example, the development of thinking on sustainable development has contributed to new approaches to economic development.

This broadens its scope to acknowledge planetary environmental limits, incorporating the notion of climate neutrality, and reflects the importance of social issues, 'well-being' or 'prosperity', for economic policies, along with traditional metrics such as gross domestic product (GDP) and productivity growth. However, this evolution in economic thinking is still not captured by mainstream competitiveness assessments other than as marginal considerations.

In addition, the latest thinking on purposeful or mission-oriented innovation and the role of innovation ecosystems (value chains and geographical

clusters) is not systematically integrated in the competitiveness assessments or associated data gathering for it. Innovation is considered central – but typically it is assessed using a technology focus alone, not purposeful or mission-oriented thinking.

Policymakers have tended to take more of an orthodox approach, adding sustainability thinking into economics rather than putting economic thinking into sustainability. But the consequence tends then to be the over-allocation of value to investments and innovation that may offer short-term competitive advantage at the expense of the sustainability transition, or the under-allocation of those that have greater longer-term benefit, which results in what might be called 'competitive unsustainability'.

For an economy overall, the balance between short- and long-term benefits and externalities should be reflected in an overall assessment of its competitiveness, but is typically not, especially if the paramount consideration and strategic competitiveness goal, such as that in the Draghi report, is exclusively one of (labour) productivity improvement.

The data gained through the Competitive
Sustainability Index shows how improving metrics
beyond GDP and productivity also in fact mean
achieving higher levels of competitiveness.
Investing in social welfare, in governance systems
and environment are a precondition to a competitively
sustainable Europe.



Establishing metrics for Competitive Sustainability 2.0

This second (2024) edition of the Competitive Sustainability Index (CSI) is an updated and extended analysis which uses the same overarching framework and approach as for the first edition in 2022. The CSI addresses the need for a new definition and performance measurement tool to address the flaws or inconsistencies with other approaches. It is also now strengthened notably through an international benchmarking with 12 major economies, including the US, China and the UK.

This provides a clear picture of the competitive context in which the EU is operating that helps situate and assess the relative performance of EU Member States as they face up to the strategic challenge of designing a 'New European Competitiveness Deal'. It offers insights that go 'beyond Draghi', supporting many of the conclusions of his report on the 'Future of European Competitiveness', but giving both nuance

and emphasis in areas that are crucial to the EU's ability to successfully design its competitiveness agenda to support climate action and its wider sustainable development goals.

The CSI's redefinition and new approach to performance measurement of competitiveness remains ground-breaking in its conception, tested and endorsed as high quality by the Joint Research Centre (JRC),⁴ but is even more pertinent and important for policymakers, businesses and other stakeholders than before given the developments that have occurred in the two years since its first edition. It is also now integral to CISL's wider activities focused on competitive sustainability as a new way for companies to drive rapid, systemic change through market competition as well as active policy engagement and public–private partnerships to shape the playing fields for a successful transition.⁵

The CSI is innovative and still 'one of a kind'



Embeds **purposeful innovation-related indicators** and latest thinking in economic development at the core of the approach to properly reflect the wider sustainability transition dynamic.



Applies a holistic industrial economic ecosystem approach such that overlap and double-counting is avoided, while being relevant to the overall economy and key areas most relevant to climate neutrality.



Incorporates EU Taxonomy to ensure economic ecosystem boundaries, and tracking of value-add reflects transition to climate neutrality – and helps avoid economic progress at expense of other priorities.



Considers the economic dimension within a whole economy framework that **recognises known planetary boundaries, and incorporates governance and social dimensions**, which mirrors the Commission's own approach to competitive sustainability and is also **similar to ESG sustainable investment** approaches.



Uses an input–output–outcome logic relevant for decision-makers at policy level and key for identifying potential opportunities for collaboration between EU countries.



Resulting competitive sustainability indicators and index therefore reflect wider competitive context of sustainable development, and agreed medium and longer-term transition goals, international collaborative frameworks for these, and core investor needs and incentives in these.



The approach, data and resulting Index have also been statistically assessed and approved by the JRC.

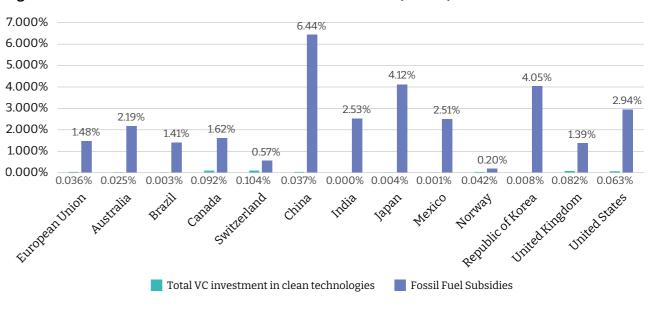
Do orthodox competitiveness approaches lead to 'competitive unsustainability'?

This report reveals a wide divergence in performance between the EU and key international competitors. Cleantech VC investment, although only a small part of total investment in clean technologies, is an indicator showing progress and commitment towards decarbonising the economy. On the other hand, fossil fuel subsidies are a public expenditure in support of activities that directly contribute to climate change and represent a barrier for the sustainability transition. Both can be argued to promote competitiveness, but only one is genuinely driving towards sustainability. When these two variables are confronted, in most cases, the result (see graph below) is an uncomfortable truth for all countries, but more so for Asia and the US than European ones.

All countries analysed dedicate a much larger budget to fossil fuel subsidies than they invest in clean technologies. The comparison between the two figures reveals in all cases a significant imbalance between investments in the solutions that will deliver the transition to a low carbon economy and expenses in preserving the flawed status quo. Notably, despite China's new dominant position on some key net-zero value chains, it is by far the country providing the largest support to fossil fuels and the one with the biggest gap between the two.

The EU can no longer be complacent about this. Fossil fuel subsidies remain a clear barrier to the sustainability transition and renewables still are only a small part of the energy mix in Europe (23 per cent). Twelve EU countries obtained less than 20 per cent of their energy from renewable sources in 2022 whereas only four Member States reached a share above 40 per cent.⁶ On the fossil fuels side, only seven European countries spend less than 1 per cent of their GDP subsidising fossil fuels, while Poland, Hungary, Bulgaria and Luxembourg spend between 2.7 per cent and 4 per cent of their respective GDPs on this.⁷

Figure 2: Cleantech VC investment vs. Fossil fuels subsidies (% GDP)



Source: Cleantech Group for cleantech VC investment and International Monetary Fund for Fossil fuel subsidies

Overall findings of the CSI that confirm the Draghi report

Over the last two years, there have not been dramatic changes to the overall CSI results, but there are weaker performances overall and particularly in the economic and social dimensions in Europe. These may be in part a reflection of the specific implications for the EU of the lingering effects of the Covid crisis and higher inflation, the ongoing impacts of the energy shock provoked by Russia's invasion of Ukraine and its longer-term impacts in demands for increased expenditure on defence. But they are also consistent with the Draghi report's findings that the EU is **declining in its competitiveness**, especially in relation to its major competitors and rivals in key areas of its economy. This poses an enormous and urgent challenge to the EU's strategy, both in the short term and over the medium to long term.

Among the specific findings in the 2024 edition which further underline this predicament and support conclusions in the Draghi report are:

• The EU's main weakness when it comes to Taxonomy-related research and innovation (R&I) performance is in the final stages of the innovation process, especially commercialisation and scaling. The European 'innovation paradox' is evident in the key economic activities driving the way to a low carbon future, and in particular the low relative score in 'entrepreneurial culture' against international competitors, which somehow evidences the lack of entrepreneurial spirit that is required to be able to lead the next technological revolution.

- Significant drops in investment in education (measured as share of GDP since 2020) show across EU countries.⁸ This will likely have negative consequences on the EU's competitiveness in the mid-term unless corrective measures are taken in the coming years.
- Average EU countries' performance on the innovation ecosystems that should lead the way to a low carbon European economy is slightly weaker than in 2022 on four out of six ecosystems (Energy, Industry, Buildings and Digital), reflecting the impact of the economic and geopolitical instability derived from recent crises. Public R&I efforts have diverted towards other political priorities whereas economic uncertainty also seems to have retracted private R&I investment ambition.
- In all six ecosystems analysed there is a relevant group of EU countries that are performing strongly and are leading the way on the R&I solutions that will decarbonise these critical ecosystems. This highlights a risk of having a two-speed Europe with some countries driving the sustainability transition while others lag behind. Thus, the challenge remains how to improve performance across all EU countries, leveraging on the experience and lessons learned from those EU Member States outperforming their peers.

Figure 3: Performance of countries on the CSI and its dimensions in 2024 and 2022

	Overall CSI Ec			Eco	Economy/Prosperity			Society/Fairness			Governance/Stability				Environment/Greenness				
	2024	2022	Change (+/-)		2024	2022	Change (+/-)		2024	2022	Change (+/-)		2024	2022	Change (+/-)		2024	2022	Change (+/-)
SE	73	74	-1	FI	74	72	2	SE	81	87	-6	DK	87	79	8	SE	71	69	2
FI	72	73	-2	NL	65	67	-1	BE	77	68	9	SE	82	81	1	DK	65	65	-0
DK	69	70	-1	AT	61	60	2	DK	75	85	-10	NL	81	82	-1	PT	62	59	4
NL	67	70	-4	SE	57	58	-2	NL	73	84	-11	FI	80	81	-1	HR	62	53	8
AT	62	65	-3	DE	55	64	-8	FI	73	81	-8	LU	75	79	-4	LV	61	55	6
LU	61	64	-3	SI	54	50	4	LU	72	74	-2	EE	71	64	7	FI	60	60	0
DE	61	63	-3	IE	53	53	0	SI	69	78	-9	DE	71	67	4	EL	59	50	10
IE	60	64	-4	EE	52	52	0	AT	69	74	-6	IE	65	62	3	IE	59	68	-9
BE	59	54	5	BE	51	50	1	DE	66	68	-3	BE	64	54	10	FR	58	57	1
FR	58	58	0	LU	51	45	6	FR	65	70	-5	AT	64	66	-2	LT	57	53	5
EE	57	56	1	DK	50	52	-2	IE	65	75	-10	FR	59	56	3	SI	57	55	2
SI	57	59	-2	FR	49	47	2	SK	58	51	7	LT	53	47	6	IT	57	55	2
PT	51	52	-0	LT	47	41	6	ES	57	68	-11	LV	50	42	9	AT	56	61	-5
LT	51	46	5	CZ	42	48	-6	CZ	54	72	-18	CZ	49	47	2	ES	54	52	2
LV	49	43	6	PT	42	42	1	PT	54	60	-5	ES	49	47	1	MT	54	28	26
ES	48	49	-1	CY	41	40	1	EE	54	62	-8	PT	47	48	-1	DE	52	55	-3
CZ	47	52	-5	IT	38	44	-6	PL	51	57	-6	SI	47	52	-5	EE	50	45	5
IT	47	44	3	LV	37	33	4	IT	51	45	6	IT	42	33	8	RO	48	49	-1
SK	45	41	4	SK	33	32	2	HU	50	54	-5	SK	41	39	3	NL	47	49	-1
MT	44	43	2	PL	33	34	-1	MT	49	66	-16	MT	41	45	-3	LU	46	56	-10
HR	43	41	2	MT	33	32	1	LV	49	44	5	CY	36	30	6	SK	45	42	3
PL	40	44	-3	HR	32	35	-3	LT	47	45	2	PL	35	45	-10	HU	45	43	2
CY	39	44	-4	ES	32	29	3	HR	47	43	4	HR	31	32	-1	CZ	44	43	1
EL	39	36	3	HU	31	39	-8	CY	47	70	-23	EL	25	29	-5	BE	44	45	-1
HU	37	42	-5	BG	31	31	-1	EL	40	36	4	RO	24	27	-3	PL	42	39	3
BG	31	27	4	EL	30	28	2	BG	32	27	5	HU	23	33	-10	BG	39	30	9
RO	26	31	-5	RO	19	21	-2	RO	14	28	-14	BG	22	19	3	CY	33	34	-1
EU-27	52.18	53.14	-0.96	EU-27	43.94	46.14	-2.19	EU-27	58.13	62.07	-3.94	EU-27	53.48	51.89	1.60	EU-27	53.15	52.46	0.69

Source: Competitive Sustainability Index

Score legend:

"Leader' [70-100];

'Strong performer' [55-69];

'Moderate performer' [45-54];

'Weak performer' [30-44];

'Laggard' [0-29].

Figure 4: Results for innovation ecosystems

Energy		Indust	ry	Mobili	ty	Buildin	ıgs	LandU & AgriFo	se od*	Digital		
	2024 2024			2024		2024		2024		2024		
FI	73	FI	73	FI	81	FI	72	NL	87	SE	67	
AT	63	NL	66	NL	77	SI	68	LT	75	FI	67	
SI	63	СУ	60	BE	65	DE	65	IE	75	NL	63	
DE	63	BE	58	AT	60	BE	58	LV	70	AT	63	
NL	59	IE	54	SI	54	NL	55	EL	58	DE	59	
LU	57	AT	51	CY	53	LU	54	EE	58	CY	58	
IE	56	EE	51	EE	52	IE	49	CZ	57	SI	57	
BE	55	LT	47	FR	52	LT	49	DK	55	LT	55	
LT	51	DK	47	SE	49	SE	47	BE	54	LU	52	
EE	50	FR	46	DE	46	IT	46	RO	52	MT	52	
DK	47	EL	45	EL	46	EL	45	IT	50	IT	51	
EL	44	PT	43	IE	45	FR	44	BG	50	IE	51	
IT	44	IT	42	CZ	42	AT	43	SI	48	PT	50	
SE	43	CZ	41	DK	39	DK	43	LU	47	EE	48	
CY	41	SI	41	LT	38	CZ	41	СУ	47	BE	47	
CZ	39	HR	35	IT	37	EE	41	PL	44	EL	47	
ВG	36	DE	35	LU	36	CY	38	DE	42	CZ	47	
MT	36	SE	34	PT	35	PT	36	SE	41	FR	40	
FR	36	LU	32	HR	34	MT	35	AT	38	BG	39	
PT	35	BG	32	ES	33	BG	35	FI	36	HU	38	
LV	32	ES	31	LV	32	HR	33	FR	36	SK	36	
PL	30	SK	29	BG	29	LV	32	HU	34	HR	32	
HR	28	HU	27	PL	28	SK	30	SK	34	ES	32	
SK	26	LV	25	SK	27	PL	27	PT	28	PL	31	
ES	24	PL	25	RO	26	ES	25	ES	25	DK	31	
HU	21	MT	24	HU	22	HU	20	MT	17	LV	29	
RO	12	RO	21	MT	22	RO	11	HR	15	RO	24	
EU-27 2024	42.16	EU-27 2024	39.20	EU-27 2024	42.87	EU-27 2024	43.46	EU-27 2024	43.83	EU-27 2024	45.84	
EU-27 2022	50.39	EU-27 2022	45.28	EU-27 2022	36.05	EU-27 2022	46.79	EU-27 2022	36.05	EU-27 2022	50.74	
Change (+/-)	-8.23	Change (+/-)	-6.08	Change (+/-)	6.82	Change (+/-)	-3.33	Change (+/-)	7.77	Change (+/-)	-4.91	

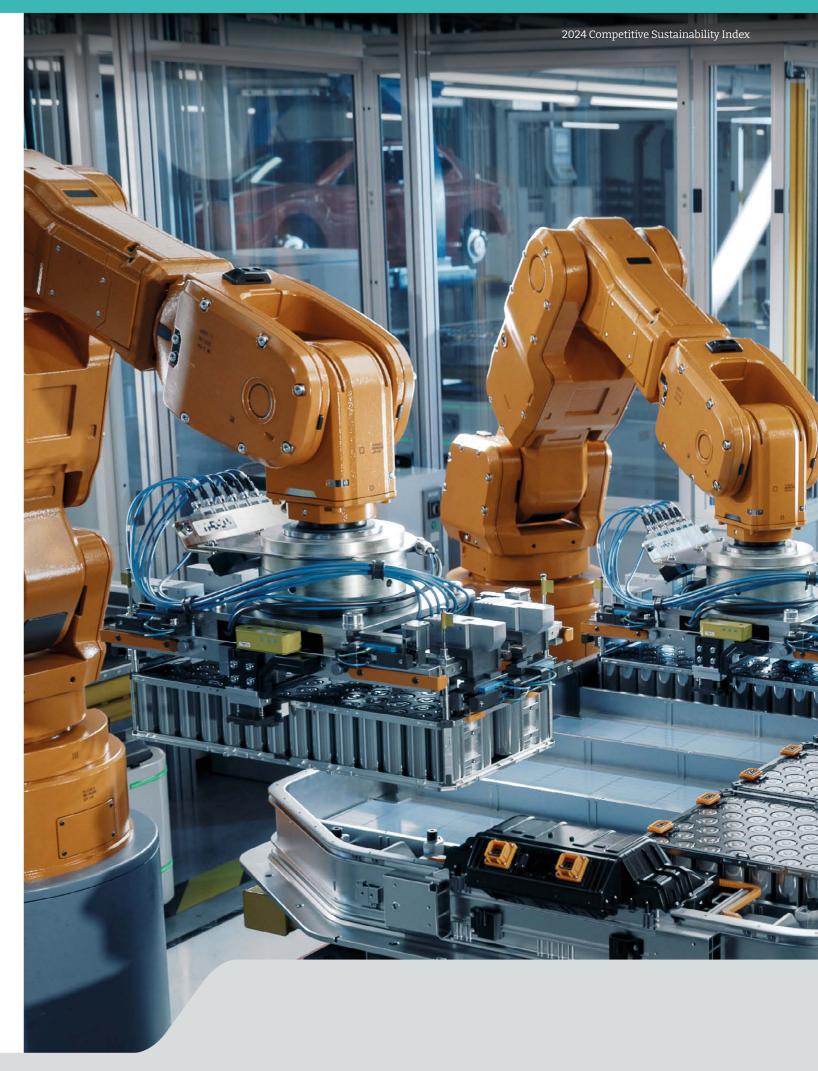
Source: Competitive Sustainability Index

*Limited data availability

Score legend:

Score legend:

'Leader' [70-100]; Strong performer' [55-69]; Moderate performer' [45-54]; Weak performer' [30-44]; Laggard' [0-29].



Findings in the CSI that go 'beyond Draghi'

While these findings confirm the Draghi analysis and conclusions, the CSI analysis offers important additional perspectives that are also relevant to the design and implementation of the EU's policy response, and which build on the findings from the first edition. These are:

- Out of the 24 CSI indicators with available data for the US, China and the UK, the EU's best performer is also global best-in-class in 21 cases (see Figure 5). This means that when considering competitive performance across the 27 Member States, if the EU as a whole is able to converge towards its best performers and achieve scale as well as quality, this could ensure it is highly competitive internationally. The competitive sustainability challenge for the EU is far from lost, if it responds urgently with sufficient collective ambition and commitment.
- Yet in 15 of these indicators the EU's worst performer underperforms all its non-EU competitors. This highlights the uneven competitive sustainability performance across EU Member States and reveals the risks of fragmentation, as well as the enormous need for

- and benefit from collective improvement through enhanced cohesion within the EU.
- The breakdown shows that the EU's top performer manages to outperform international benchmarks in four out of five economic metrics, the only two social indicators available, nine out of ten governance measures and six out of seven environmental metrics. Conversely, the weakness in both the US and China in areas of environmental, social and governance performance suggests competitive disadvantage that will need to be addressed in due course.
- The EU situation on the global cleantech venture capital (VC) market is much more positive than in other economic areas (such as biotech or digital technologies), since despite being currently third in the global cleantech VC race, it is closely disputing second place to China and although distant, it is within reach of the US (see Figure 6). Moreover, the EU has some global champions on cleantech investment in GDP terms. Thus, if other European countries would follow suit, the EU could seamlessly become global leader in cleantech VC investment.
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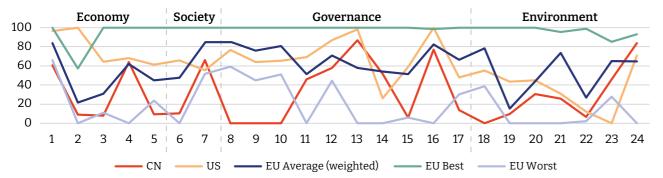


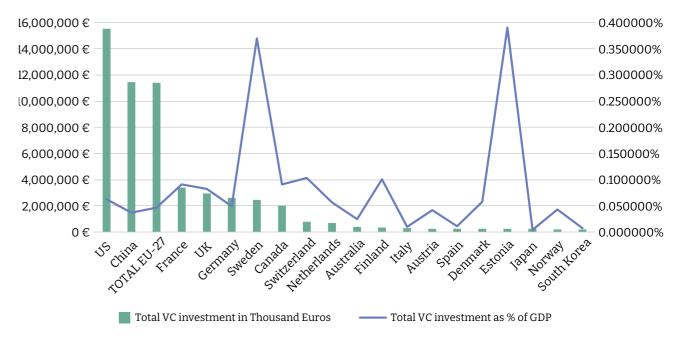
Figure 5: International benchmark on CSI indicators available for international comparison

Source: Competitive Sustainability Index

Note: The list of the 24 indicators used in the comparison can be found in Annex I. Indicators available for international comparison have been normalised (0-100) for comparability purposes considering the scores of EU-27 countries plus EU average, India, China, US and UK although not every country's normalised score is presented.

 There is a positive correlation between a strong performance by EU countries in the framework conditions and enablers¹⁰ in environmental, social and governance dimensions in 2022 and strong economic outcomes performance in 2024,¹¹ which proves there is no negative trade-off involved and indicates that conversely, for example, investing in improved environmental performance is positively related to economic competitiveness. This would also be true for social and governance performance. The CSI data indicates that renewable energy deployment capacity, climate action commitment and protection of natural resources are positively related to positive economic outcomes and thus adds to evidence that there is no negative trade-off between the economy performing competitively and the environment being addressed too (see Figure 7).

Figure 6: Top countries on VC investment in absolute (thousand Euros) and relative terms (% GDP)



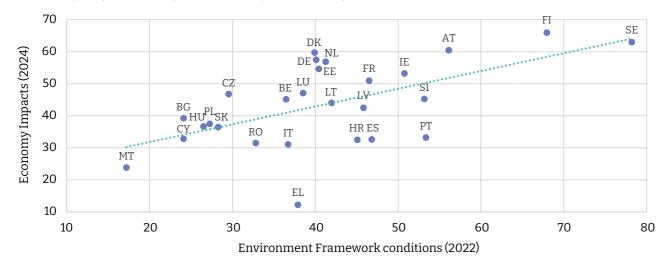
Source: Cleantech Group (data from 2023)



- In a positive sign for the future, the improvement in the environment dimension in the 2024 CSI is especially pronounced in the 'climate action commitment' component, which is likely related to the EU's adoption of the European Green Deal, Fit for 55 and related policies, which strengthen investors' confidence in the public policy driving market transformation in the EU. Moreover, the share of the EU economy which is now considered 'Taxonomy eligible' has risen from 26 per cent to 36 per cent, indicative of the growing potential market for companies providing the products and services which align to this, and greater incentives to supply this.
- In key economic ecosystems for Taxonomy-eligible activities, notably buildings and energy, the EU has a significant trade surplus (see Figure 8). Given the leading European companies in these sectors that are best-in-class performers in terms of their sustainability-related innovation and product offer, the potential for the EU to be a global leader in these areas is clear. Conversely, the deficit in mobility and digital ecosystems is a cause for concern, highlighted by the immediate difficulties being faced by the European car industry as well as Draghi's concerns about the lack of EU digital champions.
- The EU's performance with respect to its material footprint is substantially better than its major competitors (see Figure 9). As **resource efficiency**

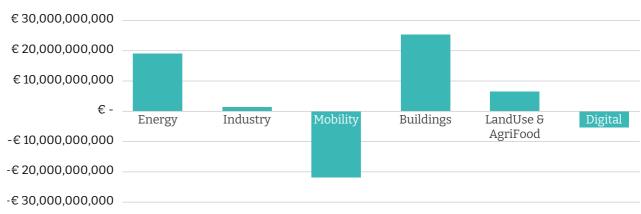
- becomes a more important guide to competitive sustainability than labour productivity, its early-stage competitive advantage in many circular economy technologies¹² offers enormous potential within its domestic market as well as internationally if scaled and produced in the EU. If the 'digital transition' offers labour productivity improvement, the 'green transition' must offer it in particular for resource productivity so that it and improvements towards a specific target of per capita material footprint (such as the 8 Tn/capita referenced by the International Resource Panel) gradually become the primary indicator of competitiveness.
- The increasing need to value biodiversity and the growing extent to which economic activity will respond to this is reflected in the performance captured by the CSI, but entirely omitted from that by Draghi. The EU is again at the forefront of international efforts to incorporate the value of nature into its accounting, as illustrated by the European Central Bank's recent report.¹³
 The EU has a competitive advantage if it can lead in policy and benefit from this as an early mover economically too.
- When smart regulation is in place, society's perception of the quality of policymaking performance improves and better performance on government effectiveness is strongly related to higher levels of economic outcome (GDP per capita) (see Figure 10).

Figure 7: Environmental input (Environment Framework conditions) – Economic outcomes (Economy Impacts) analysis with two-year time lag (2022–24)



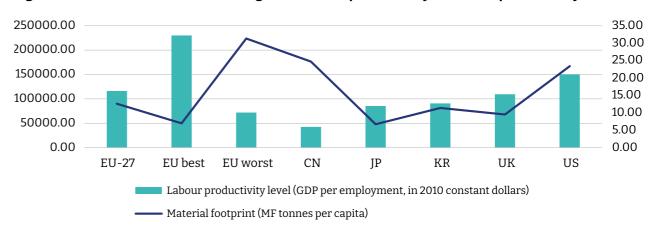
Source: Competitive Sustainability Index

Figure 8: Trade balance of products from Taxonomy-eligible activities by ecosystem (Euros)



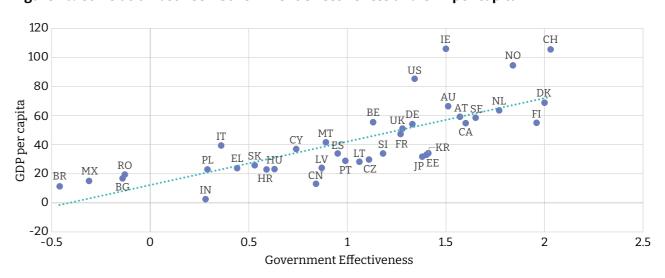
Source: Competitive Sustainability Index

Figure 9: International benchmarking on resource productivity vs labour productivity



Source: Authors based on data from UN Global Material Flows Database for Material footprint and World Bank for Labour productivity

Figure 10: Correlation between Government effectiveness and GDP per capita



Source: Authors based on data from World Bank for government effectiveness and International Monetary Fund for GDP

UK snapshot: Identifying potential for joint EU–UK competitively sustainable leadership

Our analysis suggests that the UK is only best-in-class globally in one indicator, but that when compared with the EU average, its performance is remarkably similar. Faced with global competitors in China and the US, its ability to compete will depend on how it defines its relationship with the EU, and where it can collaborate to jointly compete in scale with them. To a lesser extent this is also true of the EU, but the mutual advantage of collaborative efforts is evident in some areas at least.

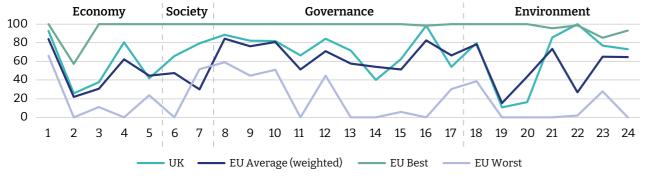
For example, the US has a clear dominance when it comes to cleantech VC investment in absolute terms (total Euros), while EU-27 countries combined only manage to compete with China for second place. While the EU is close to US figures and ahead of China on early-stage investment (seed and series A), the enormous gap in late-stage (series B and growth equity) funds allocation with respect to its two pursuers affirms the US as undisputed leader

in overall cleantech VC investment. However, if EU and UK VC investments were combined, it would be competitive with the US, and ahead of China.

In any case, despite the UK's cleantech investment being stronger in late-stage ventures, the addition of UK funds would still fail to meet the gap between the EU and the US in late-stage cleantech funding, which is Europe's main barrier to conquer global leadership in this field.

Indeed, the EU situation in the global cleantech VC market is much more positive than in other economic areas (such as biotech or digital technologies), since despite being currently third in the global cleantech VC race, it is close to overtaking Chine for second place and although distant, is within reach of the US. If UK funds were to be added to EU-27, the resulting bloc would be fighting for the cleantech VC top spot.

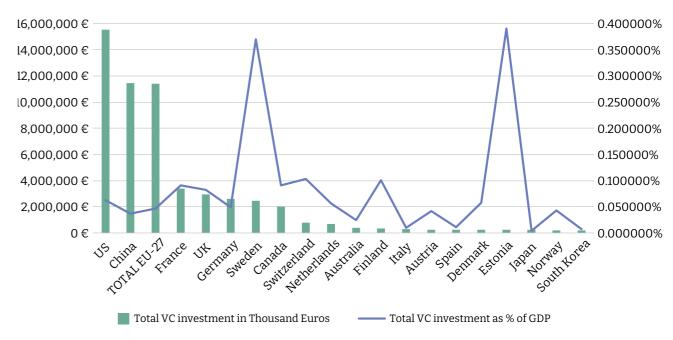
Figure 11: EU-UK benchmark on CSI indicators available for international comparison



Source: Competitive Sustainability Index

Note: The list of the 24 indicators used in the comparison can be found in Annex I. Indicators available for international comparison have been normalised (0–100) for comparability purposes considering data from EU-27 countries plus EU average, India, China, US and UK although not every country's normalised score is presented.

Figure 12: Top countries on VC investment in absolute (thousand Euros) and relative terms (% GDP)



Source: Authors based on data from Cleantech Group (2023 data)



Policy implications: a new European model for a new European competitiveness deal?

At a time when not only Draghi but also many others have called for radical thinking and bold changes, there is an opportunity through this to design a new unique European model and approach to a successful competitive sustainability transition. It was clear from the findings of the 2022 CSI that the EU needed to adopt a much more ambitious EU-level, supply-side industrial strategy to complement the more Single Market focused approach it has followed to date – and to support that with stronger tools and financing than has historically been the case. This remains a major challenge which Draghi identifies and challenges EU Member States to overcome in order to be able to compete effectively against its major competitors and rivals, who have already embarked on such a course.

The 2024 findings suggest that when the European Council promotes a 'New European Competitiveness **Deal**' or when the European Commission proposes its 'Clean Industrial Deal', 'Circular Economy Act' and next EU Budget (Multiannual Financial Framework (MFF)), among other measures as part of its strategy for the development of the European Semester, there are several key priorities it should incorporate. Many of these are consistent and aligned with both the Draghi and Letta reports, as well as the many studies and recommendations that have been published since then which focus on how to build on the European Green Deal and the EU's wider economic strategy such that it: delivers not just material wealth, technological progress and labour productivity improvements, but also greater resilience and security; addresses social and regional issues within the EU; and defends the EU's fundamental values, but to frame them all and distinctively.

Given the distinctive social market democratic model on which the EU has been based, its institutional capabilities and track record of leadership in the development of globally competitively sustainable development, the opportunity for it is to build a new model of competitiveness. That could represent a distinctive 'European way' between the models being developed by the US and China, each of which has strategic weaknesses in terms of longer-term competitive sustainability, whatever their apparent shorter-term strengths.

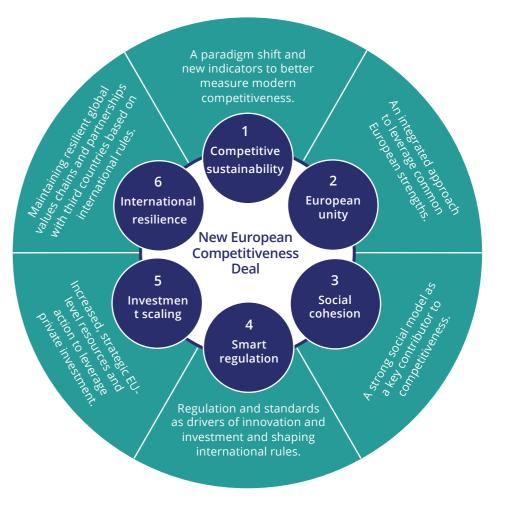
We offer five recommendations that can help achieve these goals: four for policymakers and one for businesses.

Policy Recommendation 1: Define and deploy an agreed new definition of competitiveness for all EU work

Agree a new common definition of competitiveness (in the context of the transition to sustainable development), tools to measure progress on this new approach and an integrated strategic policy development process that can shape the European Semester, industrial strategy and related policies, for example through the competitiveness co-ordination mechanism proposed in the Draghi report.

This would be in line with other recent expert recommendations and further support a key element of what an effective 'New European Competitiveness Deal' should encompass (see Figure 11).¹⁴

Figure 13: Six tests for the New European Competitiveness Deal



Source: Domien Vangenechten et al. (2024)



Policy Recommendation 2: Adopt a competitive sustainability process for greening industrial strategy

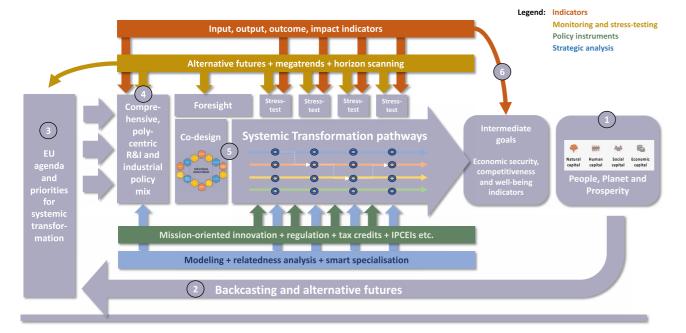
Apply a goal-oriented strategy process as proposed by the Centre for European Policy Studies (CEPS) using the CSI as a compass to develop and agree a genuinely **EU-level 'green' industrial strategy**¹⁵ which would:

- build goals derived from the sustainable development imperatives and interim targets and metrics developed with an integrated approach
- use strategic foresight to ensure it has resilience in the face of longer-term trends and eventualities as well as short-term needs
- establish key priority industrial innovation ecosystems for development based on assessment of current competitive performance and assets, resilience needs and strategic opportunities for global growth using the EU Taxonomy as a core consideration for this
- provide additional mechanisms to de-risk cleantech investment and increase R&I available funding for sustainable solutions in the six key

- economic ecosystems for the transition to climate neutrality, with particular emphasis on growth capital to facilitate the scale-up of successful cleantech ventures
- foster increased integration of social and environmental priorities into competitiveness strategies and policies as a core element for achieving competitive sustainability
- promote smart regulation that leads to competitiveness enhancement and avoids regulatory burden, providing policy certainty and long-term visibility while reducing reporting burden.

In doing these things, the other strategic recommendations made by the Draghi and Letta reports to build on and strengthen the European Green Deal would be pursued through a scrutiny process that would enhance their application and make the chances of their success greater. It would also reduce the risk of misalignment of key strategic goals and activities, as it requires choices and trade-offs between different value chains, segments, technologies and business models, both regionally and geo-strategically. Key aspects of this would concern:

Figure 14: A six-step approach to EU industrial policy



Source: Andrea Renda (2024)

- The rapid scaling of investment capabilities, both public and private, capable of ensuring success at EU level. This could be through a Savings and Investment or Capital Markets Union, increased EU budget and smart sharing of EU debt instruments or other forms of public credit guarantees sufficient to reach necessary scales.
- Development and deployment of an aligned suite of related policy tools – ranging from trade defence and competition to R&I and lead Single Market standards and regulations, to social and environmental goals and binding legislation, to ensure EU production capability and success in identified value chain segments, technologies and business models.

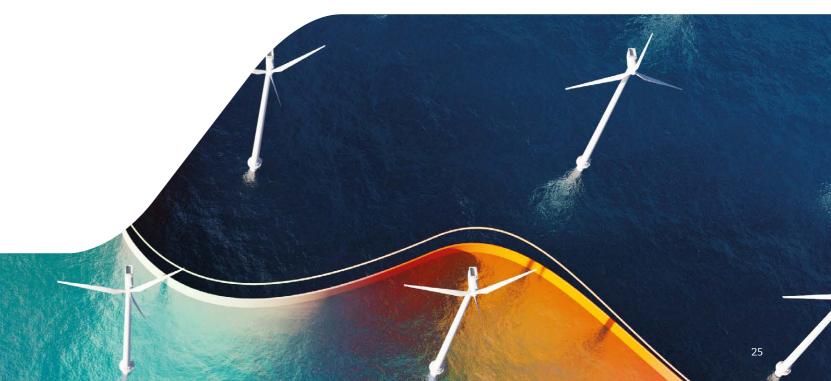
Policy Recommendation 3: Prioritise a more ambitious Circular Economy for Competitive Advantage

Setting an ambitious goal for material use and resource efficiency would drive the design of the Circular Economy Act such that it would represent the core of the new industrial strategy, and move from creating markets for 'waste' to ones for (circular) materials. In line with recommendations already made by others, including the Taskforce for climate neutral and circular materials and products, and the Expert group on the economic and societal impact of research and innovation (ESIR), the competitive advantage the EU could gain from leading this would be strategic, systemic and longer term, not just short-term efficiency related.

Policy Recommendation 4: Keep up the pursuit of international collaboration on economic and environmental issues

- In parallel, a continuation of bilateral and multilateral development partnerships (through an enhanced Global Gateway approach, transatlantic deals, etc) and international framework agreements setting global goals and targets on resources and biodiversity as well as climate.
- The adoption of fossil fuels phase-out as an agreed international commitment is a prerequisite for achieving Paris Agreement goals.

As the urgency and scale of the environmental crisis becomes more evident, along with the current inadequacy of the global response to it, the response to the equally urgent and significant competitiveness challenge for the EU must tackle both at the same time. To minimise and avoid negative trade-offs between them, and between the dimensions of competitive sustainability, policymakers, businesses and other stakeholders can use the CSI as a lens that facilitates the thinking about competitiveness, avoiding siloed and short-term action by addressing the risks and opportunities in a holistic, integrated way.



Business Recommendation 5: Pursue and advocate systemic change through competitive sustainability

In line with CISL's wider approach to competitive sustainability, businesses should support a new competitiveness deal that would transform the economy through a mix of competitive behaviour and collaboration with policymakers and all other stakeholders.

Currently many business groups are advocating for the simplification and often roll back of regulations that are aimed at driving the transition to a more sustainable economy. Whereas streamlining and some simplification would be important to support the scale up of clean technologies, it is time for business to recognise that, irrespective of short term market sentiment, the economic transition is inevitable. Delaying tactics will if anything ensure the future irrelevance of European industry.

On the other hand, the uncomfortable truth for the corporate sustainability world is that there is a very real risk that – with the exception of a few companies – the majority of businesses are contributing to the problem, by creating the impression that we are making good progress, and thereby delaying required radical changes to markets and the policies that frame them. Hero projects, long-term pledges and disclosures are all part of the solution but are not going to move the dial while it remains profitable to damage nature and society.

Hero projects, long-term pledges and disclosures are all part of the solution but are not going to move the dial while it remains profitable to damage nature and society. As we move beyond the environmental, social and governance (ESG) hype bubble it is time for business to recognise that, irrespective of short-term market sentiment, an economic transition is inevitable.

Although the window for action is narrowing, businesses still have the opportunity to protect their long-term viability and success by working to reshape the markets on which they depend. In short, we need to design out the prevailing tension between profitability and sustainability. This can only be addressed by consistent, long-term government commitments and effective delivery plans that drive all businesses to act, creating thriving markets for climate-neutral, nature-positive and circular products, and punishing those who fail to act.

Such ambition, with the policy and regulations needed, will only materialise if a critical mass of business leaders actively demand it. This means precious business resources should be focused on shifting whole markets and sectors so that business can profit from transition. Accordingly, the leadership agenda for business must go beyond setting targets and making commitments for individual company change – and instead focus on a 'whole of economy' transition, with a strategy to compete and win within that transition.

Our conclusion is that, while we are locked into the nearterm consequences of the damage we have done to date, we still have time to avoid the most dangerous scenarios. We remain optimistic that, with the right interventions and strategies by business and strong guidance by policymakers, we can avoid a truly existential crisis and achieve long-term prosperity and resilience. For this to occur:

- Business associations should assess what the long term competitiveness and resilience of their sectors will involve, as well as the impacts on society, rather than advocating delays that would profit the sector in the short term but lead to future lack of competitiveness in the global market.
- Business needs policy to design out the conflict between long-term sustainability and short-term commerciality.
- Corporate leaders need to build social engagement and buy-in for transition.
- Business needs to compete aggressively on superior sustainability performance. It is time to move on from trying to put 'sustainability thinking' into business and instead start putting 'business thinking' into sustainability. We need to shift to an agenda of competitive sustainability.

Businesses have the opportunity to lead this change through purposeful innovation of their own business model, production processes and service offer to compete and drive market change. But they can also do so through active engagement and advocacy to policymakers and other stakeholders for systemic changes and the most dynamic and supportive policy and regulatory frameworks for sustainable development. CLG Europe's agenda¹⁶ for the next five years is a clear example of this sort of leadership and an example others can and should join or follow.



Annex I: List of indicators included in the international benchmark analysis

#	Indicator	Source
1	Individuals using the internet	World Bank
2	Entrepreneurial culture	Global Entrepreneurship Monitor
3	Gross domestic product (GDP) per capita	<u>IMF</u>
4	Economic Complexity Index	The Atlas of Economic Complexity (harvard.edu)
5	Labour productivity level (GDP per employment, in 2010 constant dollars)	World Bank
6	Government expenditure on education (% of GDP)	World Bank
7	Life expectancy at birth	OECD
8	Voice and Accountability Index	World Bank (Worldwide Governance Indicators)
9	Rule of Law	World Bank (Worldwide Governance Indicators)
10	Freedom of Press Index	Reporters Without Borders
11	Government effectiveness	World Bank
12	Government Online Service Index	World Bank
13	Efficiency of legal framework to settle disputes	World Bank
14	General government gross debt (% GDP)	<u>IMF</u>
15	Corruption Perceptions Index	World Bank
16	Global Cybersecurity Index	World Bank
17	Security apparatus	Fund for Peace
18	Fossil fuel subsidies	IMF Climate Change Dashboard
19	Renewable freshwater availability per capita	World Bank
20	Forest area (% of total land)	World Bank
21	Material footprint (MF tonnes per capita)	UN Global Material Flows Database
22	Water productivity (GDP/cubic metre of total fresh water abstraction)	World Development Indicators
23	GHG emissions (tonnes per capita)	EDGAR
24	Pesticides use per area of cropland (kg/a)	FAOSTAT

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- 10. In the design of the CSI, there is a distinction drawn between leading and lagging indicators. Framework conditions and enablers are leading indicators of future success, whereas output indicators are lagging indicators of the results of success.
- 11. Correlation does not imply causality. A positive correlation is a relationship between two variables that tend to move in the same direction.
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