





THE EXPONENTIAL BUSINESS PLAYBOOK

For companies wanting to align with the 1.5°C climate ambition



Version 4.1

The Exponential Business Playbook is supported by some of the world's most influential and innovative companies.

Companies in our ecosystem have a combined annual revenue of over \$1 trillion and around 2 million employees.

EXPONENTIAL ROADMAP INITIATIVE





www.exponentialroadmap.org

INTRODUCTION

2023 was the hottest year on record at 1.48°C above preindustrial temperatures.^{1,2} Scientists are deeply concerned by the sudden jump in temperature. 2024 is likely to set another record and is projected to reach or pass 1.5°C.^{3,4} Scientific evidence shows that humanity is taking grave risks with the stability of Earth's life-support systems if the global average temperature continues to rise. A sustained rise in temperature is likely to trigger tipping points across the world – from rainforests and ice sheets to ocean circulations.⁵

A crucial goal for humanity, then, is to stabilise the global cllimate as close to 1.5°C above preindustrial levels as possible. To achieve this, global greenhouse gas (GHG) emissions^{*} should be halved by 2030 from a 2020 baseline, and reach near zero by 2050. At the same time, natural carbon sinks and carbon removal technologies must be scaled up rapidly.

The world must undergo the fastest economic transition in history in order to secure a liveable planet. Now is the time for exponential climate action. The Exponential Business Playbook provides a strategic framework to deliver this.

It is critical to mobilise the entire business sector in order to achieve the 1.5°C ambition to halve global emissions by 2030. Businesses must contribute in four ways: first, by rapidly reducing their own emissions; second, by reducing emissions in their value chains; third, by developing and providing climate solutions. Finally, they must accelerate climate action in society by helping to protect and restore nature, investing in carbon removals and influencing policy.



^{*} GHG emissions are also referred to as "emissions" in the Exponential Business Playbook.

ABOUT THIS PLAYBOOK

The Exponential Business Playbook is a handbook for CEOs, business managers and employees who want to take part in and accelerate the fastest economic transition in history. It is developed by the Exponential Roadmap Initiative, a collaborative initiative grounded in science and based on the practices and experiences of companies and experts who lead worldwide. It provides a strategic framework for business target setting, transition planning, implementation and disclosure. The Playbook emphasises simplicity and speed and is compatible with existing standards and criteria.^{*}

The first version of the Exponential Business Playbook was developed by experts from a number of contributing and supporting organisations. It launched in 2020 and is regularly updated to reflect the latest science, updated standards and user feedback.

Key updates in this 4.0 version include the incorporation of net zero value chains, new recommendations on carbon removals, updated key performance indicators (KPIs) and climate solutions sections, and a list of other recommended online resources for further guidance on implementing the Business Playbook action points.

All companies and organisations are encouraged to use the Playbook. We welcome their feedback and endorsement in order to advance scaling. The Playbook is now supported by companies representing over \$1tn in yearly revenue and around 2 million employees.[†]

CARBON LAW

The world needs to halve carbon emissions by 2030, and halve them again and again by 2040 and 2050 to reduce the risk of dangerous climate change.* This trajectory is called the Carbon Law.⁶

The Carbon Law is a simple rule of thumb or heuristic that can be applied at all scales: the company, the city, the nation and the citizen. If we all follow this trajectory, then together emissions can fall 50% in under a decade. However, we should remember the Carbon Law is a global average. This means it must be viewed as a minimum ambition and the wealthiest countries. companies and citizens must go faster. Therefore, companies acting in line with the 1.5°C ambition should strive to halve carbon emissions by 2030 and reach net zero by 2040 at the latest. They must also acknowledge that the actions they take will be intermediate

steps on the way towards absolute zero and net negative emissions.

Meanwhile, the world needs to follow a similar carbon law for nature. Emissions from farming, deforestation and other land use must reach zero by 2030, and our land systems must increasingly become greater stores of carbon decade by decade.⁷

Carbon emissions have continued to rise since 2020 (Figure 1). The key intermediate milestone is therefore to bend the emissions curve – that is, to rapidly start reducing emissions towards the first halving in order to limit the 1.5°C overshoot and to come back to a safe operating space for humanity in the long term.

^{*} Such as those developed by the High-Level Climate Champions' Race to Zero campaign, the GHG Protocol, the Science Based Targets Initiative, the EU, the International Sustainability Standards Board, the UN Secretary-General's High-Level Expert Group on net zero commitments (HLEG), the CDP and Mission Innovation.
Figures are as of December 2023 and calculated based on public information.

^{*} The same rationale applies for other GHGs, such as methane.

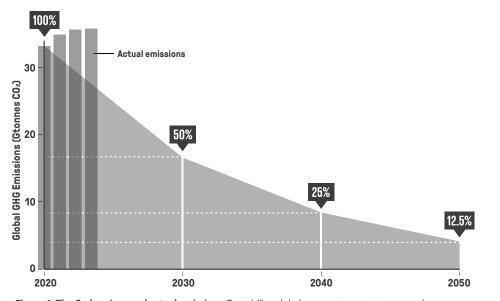


Figure 1. The Carbon Law and actual emissions. To stabilise global average temperature around 1.5°C, emissions need to halve every decade – a trajectory called the Carbon Law. In 2023, global GHG emissions reached the level of 35.8 Gt CO₂, which was slightly higher than the 2022 values. The 2023 emissions depleted the remaining carbon budget to limit warming to 1.5°C by at least 10%.⁸ Reductions during the remaining years of this decade need to exceed about 15% per year in order to keep within the required carbon budget.

Definition of net zero for organisations: A net zero organisation^{*} is one that has either reduced its emissions (scopes 1, 2 and 3) by following a science-based pathway to zero or has reduced its emissions to a level[†] consistent with reaching net zero emissions at the global level via a 1.5°C-aligned pathway, with any remaining emissions being neutralised by permanent CO₂ removals exclusively claimed by that organisation.

ALL SOLUTIONS TO HALVE EMISSIONS BY 2030 EXIST TODAY AND MUST SCALE EXPONENTIALLY

In 2022, the Intergovernmental Panel on Climate Change concluded that it was economically and technically feasible to halve emissions by 2030.¹⁰

Affordable, market-ready solutions that can be scaled rapidly exist in all economic sectors." Clean energy is a great example of solutions that have grown exponentially over the past few years. From 2019 to 2023, the deployment of clean energy technologies was twice as large as that of fossil fuels. As global capacity increases, costs of these technologies have fallen sharply. Solar photovoltaic costs have fallen by 90% in the last decade, onshore wind by 70% and batteries by more than 90%.^{11,12}

These solutions also provide an opportunity for businesses to reduce costs and increase performance and profitability. Thus, transitioning towards net zero is challenging but also opens up outstanding opportunities for companies to innovate, scale up solutions and be on the front line.

^{*} Definition based on Race to Zero Criteria 3.0, ISO Net Zero Guidelines (IWA 42:2022) and SBTi Corporate Net-Zero Standard.

[†] A widely applied guideline is that emissions reductions targets for net zero at the organisational level should be at least 90% of baseline emissions. GHG reductions of 90-95% are proposed in EU legislation, with possible exceptions where sectoral variations in line with recognised sectoral pathways can be justified. Science-based levels of emissions per unit that are compatible with reaching net zero at the global level via 1.5°C-aligned pathways have been established for activities in some sectors (eg energy and steel production). The target level of emissions for net zero at the organisational level should be as close as possible to the level at which all technically feasible GHG reduction actions have been taken.

^{*} See the <u>Exponential Roadmap report</u> which highlights 36 solutions with exponential scaling potential to halve global GHG emissions by 2030.

EXPONENTIAL ROADMAP

Energy Figure 2. Exponential emission reduction pathways to limit global warming to 1.5°C. Emissions reduction pathways for different sectors, following the Carbon Law. The pathways on the positive y-axis indicate emissions avoidance, whereas on the negative y-axis they indicate ramping up natural sinks for GHG sequestration. According to this scenario, net zero GHG emissions is achieved in 2039, and after that, GHG sequestration is greater than emissions. Note that emissions Industry related to the use of energy have been allocated to the particular sector - industry, buildings, transport, food or nature-based sources - using that energy.9 **Buildings** Transport Food **Nature-based sources** Long-term storage of carbon

2040

2030

GHG Emissions (Gtonnes CO2e)

50

40

30

20 -

10

0

-10

-20

2020

2050

SETTING A FOUR-PILLAR STRATEGY

This guide describes the four pillars of climate action that need to be integrated into companies' business strategies for them to align with the 1.5° C ambition.

Pillar 1 focuses on the actions a company takes to reduce its own emissions and impact on nature, in line with the Carbon Law.*

Pillar 2 centres on the actions a company takes to reduce its value chain emissions and impact on nature, in line with the Carbon Law.[†]

Pillar 3 focuses on the company's development and scaling of climate solutions.

Pillar 4 describes how to contribute to the 1.5°C and net zero ambition in society, beyond the company's own business.

The pillars should be integrated into a company's transition planning cycle. The cycle begins by understanding and analysing the business's current impact. Companies can then start taking action while getting targets and formal plans in place. The first cycle is complete when results have been analysed and disclosed, corrective actions taken and the strategy re-evaluated.

To be aligned with the 1.5°C ambition, companies are expected to set targets and strategy, develop transition plans and take action, and report progress and communicate actions for each pillar. Depending on the sector and value chain, the optimal focus in order to maximise the positive global mitigation impact will differ. However, all companies are expected to provide a minimal performance on all pillars in order to be 1.5°C aligned.



Figure 3. The four pillars. Visual design by TND: Christina Rüegg Grässli and Jakob Trollbäck (designer of the Sustainable Development Goals).

 ^{*} Own emissions in this context include direct emissions from own activities (scope 1) and indirect emissions from purchased energy (scope 2) as described in the GHG Protocol.
 † Value chain emissions are described as scope 3 emissions in the GHG Protocol standards; they include both upstream and downstream emissions.

	PILLAR	PILLAR	PILLAR	PILLAR	
		2	3	4	
\bigcap	Reduce your own emissions	Reduce your value chain emissions	Provide and scale solutions	Accelerate climate action in society	\bigcap
◆ SET TARGETS — AND STRATEGY	Target net zero by 2040 and first halving of own emissions before 2030. Measure, set strategy and assign resources.	Target net zero by 2040 and first halving of value chain emissions by 2030. Measure, set strategy and assign resources.	Set targets to shift your portfolio towards solutions that help avoid and reduce emissions. Integrate climate into your vision, mission, strategies, products, services and R&D roadmaps.	Set targets and strategy to contribute to the global 1.5°C and net zero ambition in society beyond your value chain.	◆ SET TARGETS AND STRATEGY
DEVELOP TRANSITION DEVELOP TRANSITION DEVELOP TRANSITION	Plan and take action to reduce own emissions from facilities, vehicles, production processes, electricity, steam, cooling and heating (scope 1 and 2).	Plan and take action to collaboratively reduce value chain emissions from purchased products and services, transport and product use. Request suppliers and customers to take action in line with the 1.5°C and net zero ambition (scope 3).	Plan and take action to avoid emissions in society by shifting your portfolio towards solu- tions that can deliver on human needs in sustainable ways. Explore business models that support efficient and circular flows of resources, and promote sustainable lifestyles.	Influence policy and industry organisations, support business model and technology innovation, and scale best practices through collaboration with other industry leaders. Fund protection and restoration of nature, carbon removals and climate solutions.	◆ DEVELOP TRANSITION ● PLAN AND TAKE ACTION
	Assess and analyse scope 1 and 2 emissions and results of reductions. Publicly report on your results. Communicate responsibly.	Assess and analyse scope 3 emissions and results of reductions. Publicly report on your results. Communicate responsibly.	Assess and publicly disclose the climate and sustainability impact of your solutions portfolio and how it is evolving, using robust methodologies. Communicate responsibly.	Assess and publicly disclose your impact on society and nature. Communicate responsibly.	
	communicate responsibly.	Communicate responsibly.			REP

Figure 4. The four pillar framework. Strategic framework for companies to align with the 1.5°C ambition.

TRANSITION PLANS FOR TRANSFORMATION TOWARDS NET ZERO

Climate transition plans should be integral to companies' business plans and should align the overall business strategy with climate and nature targets, provide clarity on roles and responsibilities, and identify key opportunities for business growth.

A transition plan sets out the actions an organisation will take across all four pillars of climate action: decarbonising its operations and value chain, scaling solutions which are positive for climate and nature, and contributing to climate action in wider society. The Race to Zero campaign and legislation in several regions of the world require companies to develop and publish plans (eg the <u>EU's CSRD</u>). Exponential Roadmap Initiative's template for a company transition plan is <u>here</u>.

A good place to start when developing a transition plan is to undertake a double materiality assessment^{*} to evaluate the company's impacts on people and the planet and how those impacts intersect with the financial wellbeing of the company. As well as outlining stepwise emissions reductions towards GHG targets, leaders should set the vision for the future of their value chain and business in a net zero world in order to secure business resilience and take advantage of opportunities to grow.

In a net zero world all value chains should be providing products and services that serve human needs, both basic survival needs and the needs that make a flourishing society possible. For the delivery of products and services to satisfy these needs, four conditions should be met: all business operations should be circular, optimised, renewable and regenerative.[†] These conditions are derived from pathways to net zero laid out by the IPCC and research by others on the breakthroughs required.

† For further explanation on the four conditions, see Exponential Roadmap's paper on the <u>net zero operating space for</u> business.

SET TARGETS AND STRATEGY

As a foundation the company needs to acknowledge the planetary crisis and publicly commit to align the company with 1.5°C and the net zero ambition. Strategy and targets both for the long- and short-term should be set, and the resources needed to reach climate goals should be allocated to the designated activities. This requires committed leadership from management at all levels.

Commitment also involves democratising climate work to ensure that employees throughout the organisation can contribute. A clear and positive long-term vision should be set, and climate leaders across the organisation should be identified and empowered.

A	CTIONS – COMMIT	\Rightarrow = Link to Action Guide		
•	Commit publicly, at the board level, to do your utmost to ha emissions across your operations and your entire value chain 2030 or earlier.			
•	Commit publicly, at the board level, to reach net zero or absolute zero emissions by 2040, preferably sooner.*			
•	Set a science-based pathway for reducing emissions toward net zero, with interim targets along the way.	s \Rightarrow		
•	Set the trajectory for increasing carbon removals year by year within and beyond the value chain, with interim commitme along the way. [†]			
	Commit to targets for phasing out the use of fossil fuels in own operations and the value chain for all energy use and			

^{*} See definition of a net zero organisation on page 6.

processes.*

^{*} See <u>EFRAG IG 1 Materiality Assessment</u> for further guidance on double materiality assessments.

[†] Investments in removals should be considered and reported separately from progress towards emissions reduction goals. Within the value chain, removals cannot count towards both net emissions targets and removals targets.

Including electricity, heating, steam, cooling, transportation and manufacturing processes.

- Update your company's vision and mission statements to reflect your commitment to contributing to the global 1.5°C ambition, including protecting and restoring nature and ecosystems.
- Assess climate-related risks and business opportunities and incorporate the assessment into strategic planning processes.
- Assess your company's impact on nature and natural ecosystems (eg using the ESRS standards in the EU or the TNFD framework in other regions) and incorporate the assessment into strategic planning processes.



- Integrate climate action into the company's articles of association and shareholder agreements.
- Ensure the company board has sufficient competence to drive a 1.5°C-aligned strategy, which includes managing climate risks and ensuring the integration of the climate transition plan into the business strategy and long-term planning.
- Assign responsibilities, mandates and resources for implementing the climate transition plan across the organisation, with a direct line of governance to the top leadership and board.
- Make protection of climate and nature integral to your financial decisions by incorporating a carbon price.

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- Establish KPIs for climate and report on them alongside financial indicators.*
- Connect remuneration for executive management and employees with relevant decision-making authority to climaterelated KPIs.
- Join the Race to Zero campaign through one or several of its partner initiatives.

Race To Zero

<u>Race to Zero</u> is the largest ever alliance committed to achieving net zero carbon emissions by 2050 at the latest. This global campaign rallies non-state actors – including companies; cities; regions; and financial, educational and healthcare institutions – to take rigorous and immediate action to halve global emissions by 2030 and to deliver a healthier, fairer zero carbon world.

Over 14,000 members have joined Race to Zero's Partners, representing over 11,000 companies, 650 financial institutions, and 1,200 cities and regions, among other organisations.

Exponential Roadmap Initiative

The Exponential Roadmap Initiative is a global climate initiative that brings together innovators, disruptors and transformers taking action in line with 1.5°C. The Exponential Roadmap Initiative is the leading advocate of the Global Carbon Law: halving emissions each decade while protecting and restoring nature.

The Exponential Roadmap Initiative gathers companies and organisations representing over \$1tn in yearly revenue and around 2 million employees. Its purpose is to accelerate exponential climate action and solutions through groundbreaking innovation projects, with the mission to contribute to halving GHG emissions by 2030.

SME Climate Hub

The <u>SME Climate Hub</u> is a global initiative that empowers small and mediumsized enterprises (SMEs) to take climate action and build resilient businesses for the future. The SME Climate Hub provides SMEs with access to free tools and resources to support their net zero journeys.

With tools for climate education, emissions calculations and reporting, SMEs can make strategic and impactful reductions, track their progress and demonstrate climate leadership. Funded by the We Mean Business Coalition, Exponential Roadmap Initiative and the Race to Zero campaign, the SME Climate Hub is the largest Race to Zero partner initiative in terms of the number of companies, with over 8,000 committed SMEs.

^{*} See list of proposed KPIs on page <u>38</u>. Third-party auditing of climate KPIs is recommended.

PILLAR 1. REDUCE YOUR OWN EMISSIONS



To be aligned with the 1.5°C ambition, a minimum requirement is to halve your own emissions at least every decade from 2020. These emissions are referred to as scope 1 and 2 emissions in the GHG Protocol <u>Corporate Standard</u>. They include direct emissions from

include direct emissions from owned facilities, vehicles and internal production processes, as well as emissions from purchased electricity, cooling, heating and steam.

Scope 1 and 2 emissions may represent only a small proportion of your company's total GHG footprint, but these emissions are usually the easiest to reduce. For many companies a 90% reduction in scope 1 and 2 emissions can be achieved by 2030. Successfully reducing scope 1 and 2 emissions often reduces costs and can build momentum for addressing more challenging areas.

Since global temperature rise is dependent on cumulative emissions, reductions must start today. Action towards interim targets should be "front-loaded" by reductions, preferably following an exponential downward trajectory.

PLAN

- Map your company's emissions.* Identify the main sources of emissions your hotspots – and make sure your plans focus on how to mitigate these.
- Decide on your base year. A base year will be used for comparison to measure progress towards emissions reduction goals.
 - $^{\scriptscriptstyle >}$ The base year is normally the earliest year for which good enough $^{\scriptscriptstyle +}$ emissions data is available. $^{\scriptscriptstyle \pm}$
 - » The Carbon Law is based on emissions reductions starting in 2020. If the base year is later than 2020, halving baseline emissions by 2030 is still required.
 - » Reductions achieved prior to the base year deserve acknowledgement and can be highlighted, but they cannot be counted towards the next halving of emissions.
- Set your reduction targets, both short-term and long-term, including a net zero target by 2040 at the latest, and interim targets not more than five years apart.
 - The minimum pace of reductions should be a halving of absolute emissions every decade. Halving in 10 years means a 7% year-on-year reduction. Halving in five years means a 13% year-on-year reduction.
- Decide the timelines for reducing emissions from different sources and develop a transition plan on how to reach your targets.
 - » Start immediately with the "low-hanging fruit" that is, economically attractive changes which bring other co-benefits, such as energy efficiency, and optimising office space and transportation.
 - » Set specific targets and KPIs for your emissions hotspots, such as "100% renewable energy by 2025" or "halving business travel emissions in three years".
- Disclose your company's scope 1, 2 and 3 emissions, targets and reduction plans as part of your annual public reporting. Clearly explain if emissions are being reduced at a slower rate than half every decade.[§]
- Evaluate results, take corrective actions and update your plan on a yearly basis.

^{*} The mapping should include emissions associated with subsidiary companies

^{† &}quot;Good enough" in terms of both coverage (eg all categories of scope 3 emissions) and quality (including good enough estimates).

In case of fluctuations that make such a base year non-representative (eg during the pandemic), companies may use the year before or a representative average over several years.

[§] Companies that provide climate solutions may apply intensity targets. See page 36 for further guidance.

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- Improve energy efficiency in own buildings, eg through retrofitting, insulation and digital automation.
- Improve energy efficiency in factory production processes and machines, eg by investing in new technology and digital automation.
- Install new on-site renewable energy production and storage^{*} for own processes and owned buildings wherever possible.
- When buying renewable energy enter into power purchase agreements to ensure additionality and to contribute to expanding production. If renewable electricity is not available in a particular market, work with other stakeholders to increase supply.
- Monitor and match supply and consumption of renewable energy, by both geography and time.
- Require low-energy buildings, whether owned or leased, when expanding operations or establishing new businesses or new locations.
- Optimise the use of building space in all operations to reduce emissions and costs.
- Work systematically to reduce use of resources, materials, chemicals and water in all operations.
- Move towards a low-emission vehicle fleet by requiring 100% electric or other low-emission owned and leased vehicles and optimise use of your fleet.
- Implement a plan to halve methane emissions by 2030 at the latest.
- Implement plans to phase out fluorinated GHGs⁺ at the earliest opportunity.
- * For all energy uses namely, electricity, cooling, heating, steam, and ventilation.
- † Eg hydrofluorocarbon refrigerants, which should be phased out by 2030 at the latest, and process gases in the semiconductor industry.



PILLAR 2. REDUCE YOUR VALUE CHAIN EMISSIONS



Value chain emissions are all emissions "outside the company walls", which often represent the largest share of a company's total footprint.

Value chain emissions arise from upstream and downstream activities associated with the reporting company; they are referred to as scope 3 emissions by the <u>GHG Protocol Corporate</u> <u>Standard</u>. Upstream activities stretch all the way from raw material extraction to the company's gate and downstream activities include customer final use and end-of-life. The largest sources of value chain emissions are often purchased goods and services and the use of sold products, but proportions vary between sectors and companies.

Reducing value chain emissions will require the deepening of partnerships with suppliers and customers. Options for doing so include: introducing procurement guidelines and supplier code-of-conduct criteria, changing product design, initiating projects and co-investments with suppliers and customers, and developing new business models and investments.*

* See the <u>Supplier Engagement Guide</u>, a practical guidance for setting 1.5°C-aligned targets and action throughout global supply chains.

PLAN

- Map the emissions associated with your value chain to understand which are the most significant and start tracking them systematically. Quantify or estimate (if good data is not available) all scope 3 emissions categories.
- Set a target for the first halving of absolute value chain emissions by 2030^{*} and a target to reach net zero by 2040, and preferably earlier.
- Assess which emissions can be eliminated in the near-term and work out how the necessary investments will be financed. For longer-term reductions, set up research, development and innovation projects.
- Develop a plan⁺ for how to reach emissions reduction targets and removals commitments. Break down the near-term plan into yearly targets and milestones.
- Disclose value chain emissions, targets and reduction plans as part of your annual public reporting. Clearly explain if the pace of reductions is happening more slowly than halving each decade.
- Evaluate results and update your plans if reductions are not on track or if new opportunities for reductions arise.

^{*} Companies that provide climate solutions may apply intensity targets. See page 36 for further guidance.

[†] Integrated into the overall climate transition and business plan.

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- Integrate climate action into sourcing and purchasing functions to facilitate halving of supplier emissions by 2030. For example, encourage your suppliers to join the Race to Zero campaign, and include evaluation of suppliers' climate targets and performance in your procurement criteria.*
- Reduce emissions in your supply chain by reducing purchases and use of materials, and by shifting to recycled and low-carbon materials, products and services. You should specifically target:
 - » Materials such as steel, concrete, aluminium and plastics.
 - » Transport of goods.
 - » IT equipment.
 - » Food, agricultural and forest commodities.
- Ask your professional services providers to assess and report on the alignment of their customers and projects with the 1.5°C ambition, for example by using the Professional Services Matrix.
- Identify opportunities to increase carbon removals within your value chain and invest in these.
- Take action to eliminate all deforestation and land degradation in your value chain by 2025 at the latest.
- Set targets and take action towards regenerative agriculture and sustainable forest practices throughout your value chain.[†]
- Invest in projects to support your suppliers in switching to renewable energy (eg by supporting installation of new renewable energy generation capacity).
- * The SME Climate Hub can be used to help with this step.
- † Mainly relevant for food, land and agriculture sectors.

 Put circularity at the heart of all your innovation and development processes in order to extend product lifespans, reduce material use, switch to low-carbon materials and secure end-of-life material recycling. 	
 Act to reduce emissions from business travel, eg by shifting to low-carbon alternatives and reducing emissions from flights. 	
Reduce emissions from commuting by promoting and sponsoring low-carbon travel and enabling employees to work from local green office hubs or at home.	
Evaluate and take action to reduce the footprint of your financial assets – your cash, investments and pension funds – and ensure their management is 1.5°C aligned.	Ð
 Map, quantify, set targets and disclose your air pollution impact – ie short-lived climate pollutants (SLCPs) throughout your value chain and take action to reduce them. 	€

PILLAR 3. PROVIDE AND SCALE SOLUTIONS

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Companies must contribute to reaching global net zero by shifting the focus from only reducing operational emissions (Pillar 1 and 2) to providing and scaling climate solutions that meet human needs. This shift requires the alignment of the company's mission, strategy, R&D, marketing, value proposition and customer offerings with the 1.5°C ambition. It requires shifting the portfolio of offerings towards products and services that will radically reduce others' emissions, and phasing out products with high climate impacts that cannot be mitigated.

Scaling of climate solutions is a prerequisite for achieving a net zero world. Solutions that transform systems, value chains and society and allow everyone to thrive must scale exponentially.

This means plant-based healthy diets and regenerative agriculture. It means sharing vehicles, space and things. It means new low-carbon materials. And it means cutting material consumption, especially among those who have the biggest material and GHG footprints. For us to stay within the planetary boundaries,¹³ businesses need to focus on meeting human needs. They need to flip business models from ownership to usership, from products to services and from linear to circular.

The company's business proposition is the biggest factor determining its compatibility with a 1.5°C-aligned pathway to a net zero world. Company growth can come from actively creating the future. Using fossil-free materials, developing renewable energy solutions and providing electric vehicle sharing services, for example, can help shift consumer behaviour and purchasing patterns by making sustainable and low-carbon choices the default.

If a company provides professional services – e-commerce platforms, media, advertising, outdoor companies, travel agencies, conference organisers, data gathering companies, auditors and management consultants – it can become a planetary steward by nudging customers to make decisions that are positive for the climate.^{*} As a company, you will want to be at the forefront of this change to safeguard your competitive advantage. This may

require transforming your company's product portfolio and business model.

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- Integrate climate and nature into company strategy, business development, product management and R&D functions.
- Educate and empower your employees to integrate climate and nature into all processes and decisions in their daily work.
- Make qualitative and quantitative assessments of the full climate impact of your solutions. This should be done in a structured and transparent way following robust frameworks and assessment principles.
- Develop a plan for making your business models, products and services compatible with a net zero world.
- Develop a plan for reinventing your value chain through radical collaboration.
- Set measurable goals (KPIs) for accelerating the development and scaling of climate solutions.
- Start transforming your portfolio of products and services towards climate solutions* or climate services compatible with a net zero world.
- If your company manufactures or sells products, start transforming your business into one that is circular and/or service based.
- Evaluate and improve the energy efficiency of your own products and services in use.
- Encourage sustainable lifestyles and enable purchasing decisions by consumers that are in line with the 1.5°C ambition (eg by sharing educational materials and making sustainable and low-carbon choices the default).

^{*} See <u>Professional Services Matrix (PSM)</u>, a tool for professional services providers to assess client and project portfolios against climate criteria.

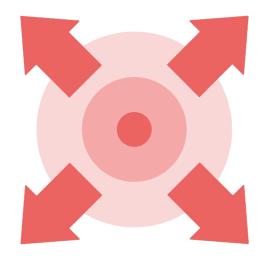
^{*} See page 36 for detailed guidance on climate solutions.

PILLAR 4. ACCELERATE CLIMATE ACTION IN SOCIETY



Being a climate leader involves using your network and wider sphere of influence to support and accelerate exponential climate action and solutions beyond your own business and value chain. Efforts should include:

- Demanding policy changes to align with the 1.5°C ambition.
- Collaborating with suppliers, peers, investors, government, cities, research organisations and NGOs to accelerate ambition, action, best practices and solutions.
- Contributing to the climate awareness of customers and employees.
- Contributing to the development of climate solutions.
- Funding projects that protect and restore nature, avoid emissions from energy and land use, and scale carbon removal technologies.



AC	TIONS – PILLAR 4		k to Actio	n Guide
e	Evaluate how your organisation can contribute most effectively to accelerating climate action in the wider s beyond your own value chain, and decide on strategy.		(J)	Ð
	ntegrate a 1.5°C climate commitment into the public activities of your company.	affairs		
i T k	obby for 1.5°C-aligned policies [*] at the local, national anternational levels, including a stop to all fossil subsid This can be done by your company alone but preferab be done in collaboration with other organisations (eg to associations) for maximum impact.	ies. Iy will		
	Publicly support the inclusion of ecocide in legislation evels (global, regional, national, local).	at all	3	Ð
У	Ensure that all the trade and business associations of w rou are a member are working in alignment with the 1 Imbition, or leave them.		€	€
t	ihare expertise, best practices, tools and roadmaps wi o accelerate climate action taken by others, beyond yo company's value chain.			
t	inable development and scaling of key climate solutic hrough funding of innovations and advance market commitments.	ons†		
	nvest in the protection and restoration of natural ecosystems on land and in oceans, beyond your value	chain.		
a s k	Encourage and help your employees, management and owners to halve their own emissions and to adopt ustainable lifestyles (eg through supportive policies a by sharing educational materials and personal climate calculators).	nd		

INTEGRATING CARBON REMOVALS INTO CORPORATE ACTION

While reducing emissions is the top priority, removing carbon dioxide from the atmosphere is also essential for keeping warming within 1.5°C, and companies have a vital role to play.

Removals can be within the company's value chain, beyond it, or both. Companies should set and publicly disclose targets for annual removals, and these should remain separate from reduction targets. Removals commitments should be included in transition plans, with interim milestones. A company's long-term removals commitment should correspond, at a minimum, to the level of emissions in its net zero target.

Investments in removals need to start now. Every company should develop a portfolio of high-quality^{*} carbon removals, following the principles below. The investments should include high-durability carbon removal projects, so the supply of affordable and effective carbon removals is financially supported and scaled. We call this the "removals track".

Principles for removals track

- Companies should start investing in carbon removals now,[†] and the volume should rise each year to reach the level required to counterbalance any remaining emissions from the company's net zero year; interim milestones should be set along the way.[‡]
- Initially companies can invest in a mix of different types of removals,[§] each with its own range of expected time to drawdown, storage duration and risk of reversal.

- Carbon storage durability levels in portfolios overall should rise over time so that residual emissions at net zero are counterbalanced appropriately and the net zero balance is maintained.**
- All removals should be quantified according to robust methodologies, and companies should have robust mechanisms for monitoring their removal portfolio and managing reversal risk.[‡]

^{*} To qualify as "high quality", a project must be additional, be implemented in suitable locations, contribute to SDGs, include safeguards for communities and biodiversity, and be monitored rigorously, and the impacts must be quantified robustly.

A minimum starting point for removals in the first year could be, for instance, 1% of unabated emissions. Further work on defining best practice with regard to the starting volume will follow.

As recommended in the <u>Race to Zero 2022 Leadership</u> <u>Practices</u> – Pledge.

[§] Carbon removals include afforestation, reforestation and restoration; soil carbon; biochar removal; enhanced rock weathering; bioCCS; direct air capture; ocean alkalinity enhancement; and other removal technologies or hybrid approaches in development.

^{*} From the start, a share of the removals portfolio should be higher durability removals, with durability measured in thousands of years. Maintaining the net zero balance will require counterbalancing durable emissions with removals of equally durable storage.

The Oxford Principles for Net Zero Aligned Carbon Offsetting (Revised 2024) outline the need for removals that have storage with a low risk of reversal and high durability over the long term (centuries to millennia) to maintain a net zero balance for any ongoing residual fossil emissions.¹⁴
 Different types of removals and storage have different risks of reversal which can also vary within type depending on environmental and governance factors. See Oxford Principles for Net Zero Aligned Carbon Offsetting (ibid).

Companies should publicly report the types, drawdown dates, expected durability, potential reversal risks, any co-benefits and retirement dates of the removals they invest in.

Companies should be recognised and celebrated for their extra commitment if they invest in more removals than required on this separate track; front load investment to secure access to earlier removals; or use long-term offtake agreements to support carbon removal scale-up.

FUNDING CLIMATE AND NATURE PROJECTS BEYOND THE VALUE CHAIN

Natural climate solutions are costeffective mitigation options, but they are critically under-funded. Businesses should take responsibility for their present emissions and contribute to protecting climate and nature by investing in projects.

Funding of climate projects beyond the value chain should complement the reduction of value chain emissions in line with the Carbon Law and not serve as a substitute for reductions. Companies are encouraged to create financial mechanisms to support climate projects, for example, by using internal carbon pricing schemes to gather funds.

Purchasing high-quality carbon credits^{*} is one way of supporting climate projects. Other options include funding NGOs and grassroots organisations, and supporting research and development into new carbon removal methods.

Projects to which investments are directed must be rights-based, contribute to local livelihoods and SDGs, conserve or enhance biodiversity and other ecosystem services, and recognise the rights of indigenous peoples and local communities. Moreover, measures must be taken to safeguard projects' lasting effects.

Companies should disclose details of external climate projects supported, annual spending in relation to revenue, and volumes of carbon credits purchased in relation to unabated value chain emissions.



It should be noted that many credits issued in the past have been shown to be ineffective. See the relevant note on page 27 for a definition of "high quality". Ratings agencies and organisations, such as the ICVCM and CORSIA, are reporting on quality.

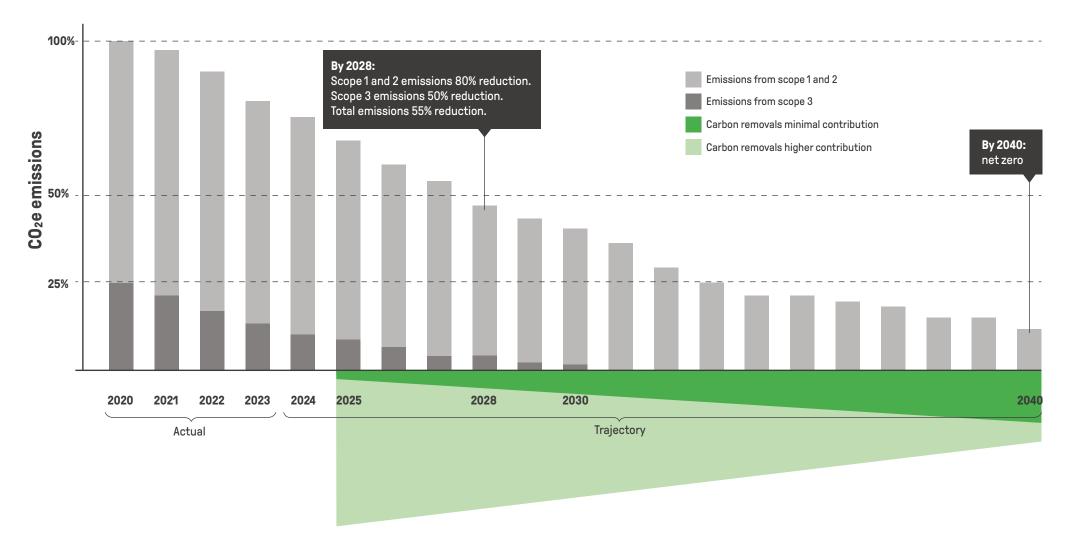


Figure 5. Company example. The diagram presents the pathway of a fictional example company which has applied 2020 as a base year. It shows actual emissions, near-term and net zero emissions targets, target trajectory and carbon removals. Two examples of scaling of carbon removals are depicted: the minimum recommended level and a higher level (light green), matching the unabated scope 1-3 emissions from 2025 onwards. Within a portfolio of removals, durable removals are expected to be scaled up over time.

CLIMATE SOLUTIONS CRITERIA

Developing and scaling climate solutions is central to any company's action in Pillar 3. Also, in Pillars 2 and 4, companies should be contributing to the scaling of climate solutions that are being provided by others while transforming their value chains towards net zero.

Climate solutions contribute to emissions reductions at a global level by producing significantly lower emissions than current market options. Production and consumption of climate solutions is compatible with the global 1.5°C ambition and will accelerate the transition towards a net zero carbon economy. The Exponential Roadmap Initiative and Oxford Net Zero have developed a framework for qualifying physical products and services as climate solutions.

The <u>Climate Solutions Framework</u> applies the following criteria to qualify products and services as climate solutions:

Having a carbon footprint per functional unit that is at least 50% lower than the relevant market-weighted average footprint of the products/services being replaced.*

AND/OR

Already fulfilling a credible intensity threshold per functional unit for a net zero world, as set out in a robust taxonomy or other science-based paper.

In addition the product or service must meet the following safeguarding criteria:

- It must not contribute to extending the life of technologies that depend solely on fossil fuels.
- It must not have a significant impact on the following:
 - » The sustainable use and protection of water and marine resources.
 - » Pollution prevention and control of the use and presence of chemicals.
 - » The protection and restoration of biodiversity and ecosystems.

The framework defines a climate solutions company as one that:

- Derives at least 90% of total revenue from selling products and services that fulfil the climate solutions criteria above.
- Has public interim and net zero targets covering all emissions, a transition plan and annual disclosure of progress.
- Is working more broadly to transform its sector.

To enable exponential scaling of climate solutions, carbon intensity targets can be applied for such solutions instead of absolut targets.

For companies that have not yet reached the 90% sales income threshold, targets for raising the percentage of revenue from climate solutions, applying emissions intensity targets for climate solutions, should be used to drive the scaling of the climate solutions parts of their business.

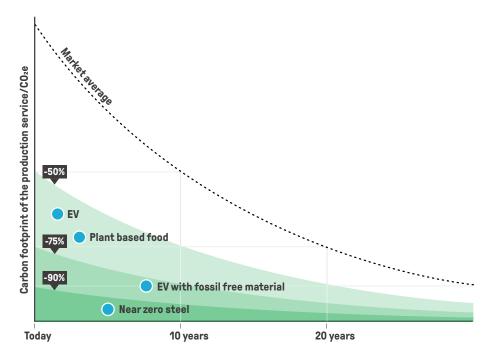


Figure 6. Climate Solutions. Example of climate solutions and thresholds over time for qualifying climate solutions.

^{*} The threshold of a 50% lower carbon footprint means that climate solutions can be considered ahead of the Carbon Law by at least 10 years. Ideally, the carbon footprints of climate solutions are at least 90% lower than the relevant market comparisons.

KEY PERFORMANCE INDICATORS

To align with the 1.5°C ambition, organisations must implement and disclose forward-looking key performance indicators (KPIs) across their operations. These KPIs should be integrated into core business management, alongside financial and other strategic metrics. By tracking and reporting KPIs in a standardised format, companies can enhance investor decision-making in line with 1.5°C-aligned pathways. Table 1 categorises selected KPIs by their influence within the organisation and provides measurement examples. Tailoring KPIs to specific sectors and value chains is crucial for effective implementation.

KPI focus	A	Pillars		
KPI focus	As measured by (examples)	1	2	3 4
Overarching/business transform	nation (C-suite)			
Total GHG emissions	% absolute reduction in total CO2e			
Organisational emissions intensity	tCO2e per US dollar revenue			
Functional emissions intensity	Emissions per unit (eg per product or service sold)			
Climate solutions transformation [*]	% of revenue from climate solutions			
Organisation memberships aligned with the 1.5°C ambition	% of associations and organisations that are aligned with $1.5^\circ C$			
Category level (head of busines	s category)			
Category energy efficiency	Avg of all category products; avg kWh usage in product lifetime			
Category durability	Avg number of meaningful uses across all products			
End-of-life takeback	% of material/component/product that is bought back or recollected from customers/consumers			
Products designed for circularity	% of sales revenue or weight from products that fulfil circular design principles			
Customers' alignment with the 1.5°C ambition	$\%$ customers by revenue that are aligned with 1.5°C			
Customer projects' alignment with the 1.5°C ambition	% customer projects by revenue that are aligned with $1.5^\circ C$			
Rate of marketing promoting sustainable lifestyles	% of marketing & sales budget used to support sustaina- ble lifestyles integrating circularity			
Product level (procurement, pro	oduct development)			
Product & service emission intensity	kgCO2e per functional unit			

* In addition to climate solutions revenue, the percentage of revenue aligned with the EU taxonomy for sustainable activities may serve as a measure for portfolio transformation.

KPI focus	As measured by (examples)	Pillars		
Kriiotus	As measured by (examples)		2 3	3 4
Product durability	No. of meaningful uses (eg wears/hours/years)			
Product material use	Weight/volume of raw material use per product			
Fossil-free material use	% of product from near-zero or non-fossil-based materials by weight or volume			
Circular material use	% of circular material use (eg recycled, reused, and secon- dary materials and components which are recyclable) by weight/volume			
Product energy efficiency	Avg product-lifetime kWh usage			T
Regeneration of materials 🏶	% of material recirculated or safely returned to nature at end-of-life			
Climate solutions R&D and CAPEX	R&D spending on climate solutions as % of CAPEX			
Energy (operation)				
Total energy use	Annual total energy consumption			
Own generation	% of annual energy from own generation			
Purchased renewable energy [*]	% renewable energy by kWh			
Phase out coal in purchased energy	% electricity purchased from grids producing <5% of total electricity from coal			
Supply chain (procurement)				
Suppliers' alignment with the 1.5°C ambition	$\%$ of suppliers/emissions/spend from companies that are aligned with 1.5 $^\circ\mathrm{C}$			
Impact from material extraction	GHG emissions per kilo material purchased; no. of hectares of virgin landscape converted for extraction; deforestation (hectares) per material unit			
Suppliers' use of renewable energy	% of suppliers' energy that is renewable by kWh/number of suppliers; % of value chain energy from renewable electricity			
Zero deforestation in supply chain 🏟	Commodity deforestation exposure measure			+
Sustainable forestry in supply chain 🕸	% hectares forest sustainably managed	Π		T
Regenerative agriculture in pro- duct's supply chain 🕏	% of agricultural product tonnage produced regenerati- vely; % of total purchased agricultural commodity weight produced on farms implementing regenerative agriculture according to science-defined criteria			
Zero-emission logistics	tCO2e per ton km			T
Value chain collaboration	% of value chain partners, by spend/sales, engaged in collaborative sustainability or equity initiatives			
Finance (operation)				
Emissions intensity of cash deposits	tCO2e per US dollar	\square		Τ
Green financing	% of new financing portfolio that is green or sustainable			
Funding of projects to protect and restore nature and store carbon beyond value chains 🏟	% unabated emissions matched with project funding at \$100 per tCO2e			

* When purchasing renewable energy, prioritise additionality by using long-term contracts such as PPAs or VPPAs.

KPIs to accelerate towards Net zero value chains

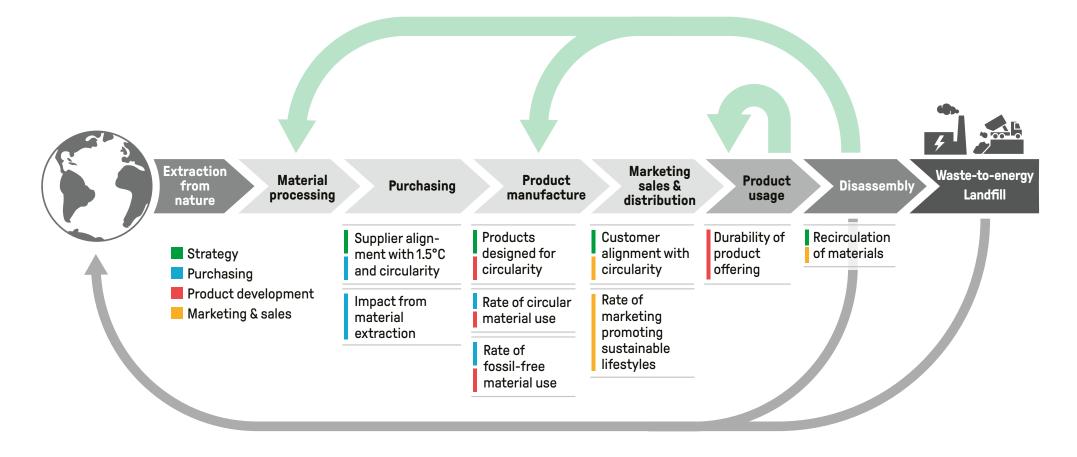


Figure 7. Circular Strategies. Example of key functional responsibilities and key performance indicators that drive towards a circular value chain, from a linear value chain (at the bottom of the picture).

REPORT AND COMMUNICATE

Reporting publicly – on your targets and progress across all four pillars of climate action – is an integral part of your company's contribution to the 1.5°C ambition and net zero. Public reporting is required by customers, investors, and increasingly by governments and other regulatory bodies, and it will help to position your company to be a relevant and serious climate leader.

Communicate your direction, effort, progress and challenges to society as a whole – to customers, suppliers, employees and investors, as well as to other stakeholders. Communication about your company's climate action should be honest, truthful, transparent, representative and based on the latest science. Companies should not only highlight their successes but also communicate about challenges and barriers in order to inspire others and build credibility.

REPORTING AND COMMUNICATION GUIDELINES

- Describe how climate change and the global net zero transformation, the associated opportunities and risks, and necessary mitigation and adaptation affect your organisation.
- Publish your transition plan for achieving your climate targets. Include information about the allocation of responsibilities; how planned actions will be resourced; key challenges, innovation and policy gaps; and when the plan will be updated (at least once every five years).
- Report publicly and annually on your climate impact and progress towards goals, including via open platforms such as CDP.
- When reporting annual emissions and removals, follow the GHG Protocol standards or equivalent. Include all types of emissions, in all scopes, categories (minimum 95% coverage) and jurisdictions. Where primary data or data from suppliers is not available, emissions should be estimated.



 $\widehat{\mathbf{A}}$

When using market-based accounting approaches (eg in reporting scope 2), disclose details of the market instruments being used.

- Disclose estimated emissions for any scope 3 categories that are not yet quantified, and explain how you plan to quantify them more precisely in the future.
- Disclose any gaps between planned emissions trajectories towards targets – in scopes 1, 2, 3 or in total GHG emissions – and annual emissions.
- Report any biogenic emissions, carbon capture and storage, and CO2 removals separately from GHG emissions.
- Have your annual GHG inventory audited by an independent third party.
- In annual reporting, describe how emissions have changed compared to previous years, describe mitigation actions taken, explain any deviations from targets, highlight the hard-to-abate emissions and state the corrective actions you are taking. These reports should prioritise honesty, openness and transparency rather than marketing goals.
- Report on KPIs and actions that have been taken to scale solutions which reduce and avoid emissions* for customers and in society.
- Report annually on your activities to accelerate climate action in wider society and on the impact your actions have had (eg by influencing policy and funding climate projects beyond your value chain).
- Disclose annually your trade and membership association affiliations, their alignment or misalignment with the 1.5°C ambition, and your other actions to ensure 1.5°C alignment across all policy and engagement activities.
- State the percentage of unabated emissions that are addressed by purchases of carbon credits and do not report purchased carbon credits as a deduction from your scope 1-3 emissions or for meeting reduction targets.
- Report on your company's adverse environmental impacts on nature, aside from GHG emissions – eg pollution of land, air and water; soil degradation; biodiversity loss – and on how you plan to reduce and eliminate these.

^{*} Any calculations of avoided emissions must be presented separately from scope 1-3 emissions, and the methodology used and all assumptions publicly disclosed.

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"The world needs exponential climate action. At Telia we enable a better future through connectivity and digital solutions that can speed up the transition into a resilient, low-carbon and circular economy. We work to reach zero CO_2 & zero waste by 2030, including the ambition for a climate neutral value chain, and the Business Playbook is an excellent tool when inviting our customers, suppliers and other partners to join us. The knowledge and the necessary technology exist: so let's make the 2020s a decade of action that matches the urgency of the situation."

Allison Kirkby President and CEO, Telia Company

"The science makes clear that we need a fundamental reshaping of business and finance. Every board and every company must show a credible strategy to align with 1.5°C. This Playbook is an excellent guide for the necessary journey to net-zero emissions, to prepare business for the fastest economic transition in history and help them drive it. It's a guide for preserving a more liveable planet for future generations."

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> *María Mendiluce* CEO, We Mean Business Coalition

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