# Climate 21 Program

## Tackling the Challenge of the 21st Century Together

THE BEST RUN **SAP**

# Climate 21: We Can Still Fix This

Fighting climate change is rapidly moving up on the business agenda. The motivation of industry leaders goes beyond a heartfelt obligation to leave a livable planet to their children and grandchildren.

To safeguard their "license to operate" and to be a viable investment on capital markets, leading enterprises are making their business model, product portfolio, operations, and supply chains compatible with customer and investor preferences – and resilient to expanding climate-related regulation.

SAP has launched the Climate 21 program to build analytical and transactional capabilities into our enterprise applications that can help our customers understand and minimize the greenhouse gas (GHG) footprint of their products and operations along their value chains. Our motivation is to support them in pursuing their climate-related objectives of the 21st century.

## Momentum Is Building

Large insurers have announced to stop insuring coal-fired power plants and to withdraw from investments in carbon-intensive businesses.

Big players in the transportation and logistics industry have announced that they target a carbon-neutral fleet by 2050.

Retailers are looking into the $CO_2$ footprint of the products on their shelves.

## Engaging Employees and the Public

Actively connecting to the public and sharing the road map toward a low-carbon future builds trust and acceptance.

We have also found that working on purpose-driven projects for companies that credibly fight climate change fosters employee motivation and engagement.

# Partnership for a Low-Carbon Future

We believe that it's our role to engage with you and jointly chart the way into a low-carbon economy.
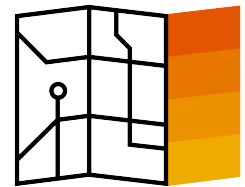
The climate change challenge won't go away anytime soon. But taking effective action will go a long way toward protecting the climate – and toward protecting our business from regulation that makes life more difficult without making a relevant difference.
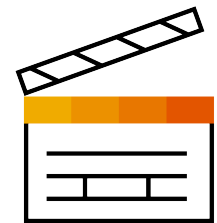
We'd like to team up with business leaders across industries to define the business capabilities they need on their journey to a low-carbon economy.

We plan to build those capabilities into our product road maps for analytical and transactional applications. They'll contribute to our vision of Intelligent ERP that optimizes the resources not only of an individual enterprise but also of entire value chains – and ultimately, of our planet.
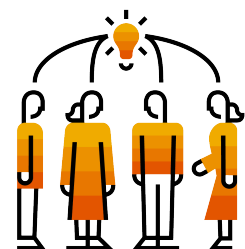
## Teaming Up Across Industries

Optimizing the $CO_2$ footprint of the products and services that are ultimately reaching the end consumer requires collaboration along value chains – from raw materials and energy to retailers and logistics services providers.

So we are looking to business leaders from industries that are tied into complex value chains and value networks to define the "next practices" that will make a difference for our planet.

## With Heads, Hearts, and Hands

We have a great team of experts in and across all industries, technologies, and lines of business – and we have a leadership team that takes our purpose to help the world run better and improve people's lives seriously.

SAP is the right partner to take on the greatest challenge of the 21st century and to leave a better-run planet to the next generations.

# Understand Your CO$_2$ Footprint

Fighting climate begins with understanding the CO$_2$ footprint of a business. GHG emissions don't just happen; they are the result of many distributed business decisions at all levels of the enterprise.

Businesses that want to minimize their CO$_2$ footprint need the tools to analyze the impact of production, transportation, and logistics. They also need to understand how their procured materials, components, and energy contribute to the overall GHG balance of services and finished goods.
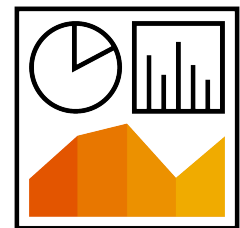
Dynamic, transparent, and real-time insight lays the foundation for minimizing GHG emissions in day-to-day operations. It enables companies to analyze business performance, negotiate with suppliers, and communicate with customers and, ultimately, consumers.

## Greenhouse Gases or CO$_2$?

The term greenhouse gases refers to all gases that contribute to climate change by absorbing infrared radiation from direct or reflected sunlight. Carbon dioxide (CO$_2$) and methane (CH$_4$) are the most important greenhouse gases. For our purposes, we use agriculture and natural gas extraction, have a significant direct CH$_4$ footprint. The unit of measure is CO$_2$ equivalents (CO$_2$e).

## Empowering Consumers

The need to understand and optimize the CO$_2$ footprint is not limited to enterprises.

Giving every consumer the transparency empowers them to actively minimize their climate impact.

This information needs insight into the full value chain all the way to energy and raw materials.
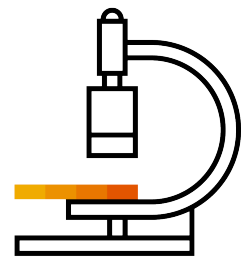
CO$_2$ Pilot

Climate Impact

A+
A
A-
B
C
D
E

A-

14.5 kg CO$_2$e

# Macroscope or Microscope?

To report GHG emissions on a corporate level, aggregates based on ex-post metrics are adequate to get an initial understanding of an enterprise's GHG footprint.
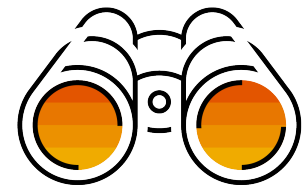
To understand how their business and operations decisions could impact the GHG footprint of their area of responsibility, operational decision-makers need detailed GHG information on product, location, and execution level.

For operational decision-makers to actually minimize the $CO_2$ footprint in their daily work, they need real-time "$CO_2$ pilots" that show the impact of their decisions in simulations and after the fact.
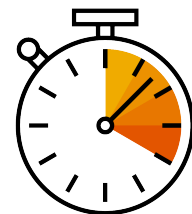
We believe that greenhouse gases need to be tracked on the transactional level, along with other information about products and services such as cost, time, quality, and origin.

## Reality Check

Modern cost accounting captures cost on a granular level, enabling sophisticated cost analysis and optimization methods.

We don't see a fundamental difference between methods for minimizing cost and for minimizing the emission of greenhouse gases if an enterprise's systems enable the capturing of the needed information on a transactional level.

## Just Another Dimension?

Every business simultaneously optimizes for multiple, competing objectives every day: batch or lot size versus inventory cost and risk; transportation cost versus speed; supply quality versus cost, customer satisfaction versus service cost; investment risk versus opportunity.

Optimizing business activities for greenhouse gas emissions is just another objective to aim for based on regulation and corporate governance, informed by best practices and peer benchmarks.

# Minimize Your CO$_2$ Footprint

To optimize the GHG footprint of its operations, the best starting point for an enterprise is the end product.

The end product accumulates all the GHG emissions generated by all suppliers and all emissions by the enterprise itself, in much the same way that an end product accumulates all costs to calculate profitability.

That's why the methods used to analyze and optimize the GHG footprint of end products and services can be directly adapted from cost controlling.

We envision a "sustainability ledger" that supports multiple sustainability-related attributes of products and services is the right approach for understanding and then optimizing the GHG footprint of products and services.
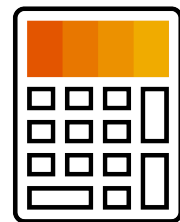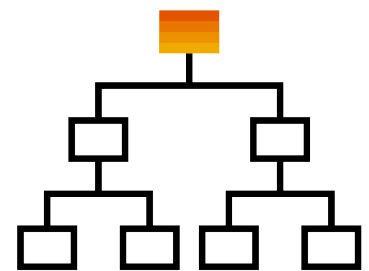
## Get the Incentives Right

Ask product managers to minimize direct emissions related to their products and they will start to outsource emissions-intensive activities and production steps to suppliers and service providers. Great for the sustainability report – useless for the planet.

Ask product managers to minimize the full footprint of their products – and they will scrutinize and optimize all the activities along the supply chain that incur CO$_2$ emissions..

## Understand "CO" and You'll Understand CO$_2$

There's a plethora of cost accounting methods out there: single transaction costing, product costing, marginal costing, activity-based costing, cost center accounting, standard cost accounting, and so on.

Replace "cost" (CO) with carbon dioxide (CO$_2$), and you'll find that all those methods can be directly applied to minimizing greenhouse gas emissions.

# Apples and Oranges? Benchmarking

If you want to optimize your GHG footprint, the first question to ask is: how do we perform compared with our competitors or peers – and how do our suppliers perform compared with other similar suppliers?

Answering this simple question is hard. We conducted a cursory metasurvey of companies across multiple industries to see how their reported GHG footprints correlate with other business metrics. We found huge variances that can't be explained away with a different $CO_2$ footprint of comparable activities.

A useful benchmarking database will go a long way toward helping our customers in specific industries compare their $CO_2$ footprint to that of their peers. However, our analysis shows that this is not a simple thing to do and that we need to collaborate on benchmarking methods that are worthwhile.
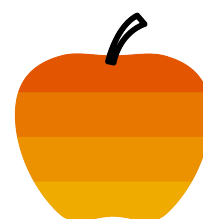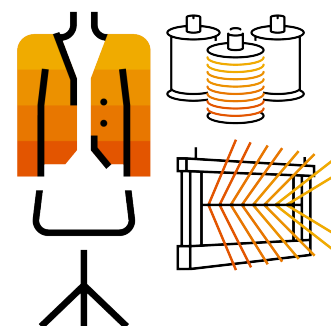
## Running Shoes in the Desert

You probably know that old joke: Two guys go on a safari, one packs his running shoes. His friend challenges him: "You'll hardly outrun a lion in those shoes." "No, but I'll outrun you!"

Understanding where you are relative to your peers goes a long way in analyzing and optimizing your product portfolio for any metric – and greenhouse gases are no different in this regard.

## Variance – Unexplained

It looks like an innocent and simple enough idea: The $CO_2$ footprint for a specific amount of revenue should tell us something about the GHG intensity of a business.

What we've found is rather sobering: Apparently we've compared apples with oranges because the $CO_2$ footprint of apparently similar companies in the same industry varies by an order of magnitude.

Conclusion: More research is needed here.

# Sustain Long-Term Business Viability

If a portfolio analysis indicates that a product, a plant, a supplier, a piece of equipment, or a business unit has been consistently underperforming, then you will find a way to fix it or close it.

There is no fundamental difference between cost, revenue, and GHG performance: If an entity becomes a liability it makes sense to do something about it.

We can't make those hard decisions on your behalf. But we can give you the tools to analyze your business portfolio and identify the things that need attention.
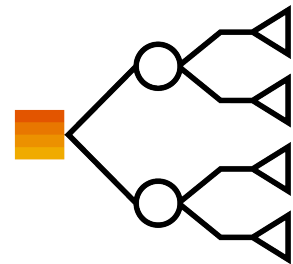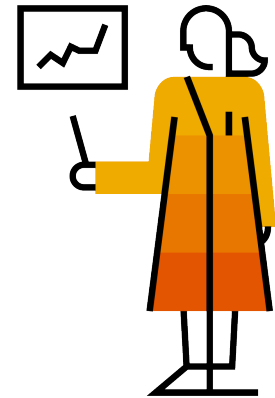
## Bang for the Buck

We are talking textbook stuff here. If you find that a product or plant or piece of equipment under-performs relative to some important metric such as cost, revenue, quality, or risk – then you start thinking about corrective action.

Imagine that your analysis includes the $CO_2$ footprint of these elements; now you "just" have to calibrate the importance of the GHG footprint relative to the other business metrics to make your well established tools work again.

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