Reduce your carbon footprint by redirecting your product mix using data science and sustainable marketing optimization

How Marketing Mix Modeling can become a powerful tool for sustainable business performance

Foreword

Can marketing reconcile business performance and sustainability goals?? Our answer is "yes."

The climate crisis is disrupting "business as usual" — that's a fact. The energy transition requires organizations to transform themselves in depth. Whether they are driven to do so by regulations or by sincere commitment, most are now thinking about

"We don't believe in green marketing. We believe in marketing for green."

their sustainable development and decarbonization strategy. Marketing is no exception, and today people are talking more and more about "green marketing." In fact, despite brand goodwill, the actions implemented are often more akin to greenwashing than to a real sustainable marketing strategy. Indeed, sustainability seems to go against the very nature of traditional marketing, which is focused on the quest for profits. If the mission of tomorrow's marketing should logically turn toward promotion of more and more responsible products, can marketing really reinvent itself that much? Can two seemingly irreconcilable objectives — the search for business performance and sustainability goals — be pursued at the same time?

At Ekimetrics, we don't believe in "green marketing", but we believe in "marketing for green," and this nuance changes everything: Sustainability becomes a full business strategy, and Marketing Mix Modeling¹ becomes an invaluable lever.

Because we believe that the sustainable transformation of organizations is the revolution of the next 10 years — in the same way that digital technology was for the past decade — we want to re-imagine a Marketing Mix Optimization capability to accompany a change that is profoundly shaking up our clients. While marketing has been one of the cornerstones of our activities, we no longer see it only as a promotional tool: We are firmly convinced of its immense potential to change the game on decarbonization.

What's "green marketing"?

It is the set of measures taken by an organization to reduce the carbon footprint of its marketing activities — such as the CO_2 emissions linked to its advertising, its events, its communication. In practice, this means, things like abandoning the use of illuminated billboards.

¹ See the box "Measure, predict, optimize: that's what MMM is about", page 6.

Why your marketing investments need to be sustainable from now on

The market is decarbonizing. Products are decarbonizing. So is your marketing.

Why your marketing investments need to be sustainable from now on

1. Toward a decarbonized market: adapt or die

New carbon taxes² that are tightening existing regulations (both on European soil and for companies in other countries); consumers increasingly demanding responsible products³; the COVID-19 crisis and pandemic; and new brands entering the market whose business model is entirely based on sustainability... do we need to convince you that the planet's problems — climate, pollution, health, biodiversity, etc. — are becoming very real business issues? That these new forces are already shaping the economy?

The increasingly tangible urgency of climate change will sooner or later force the global market to align itself with the decarbonization objectives of the Paris Agreements. Consider just one example: The ban on internal combustion engines announced in Europe for 2035 is forcing carmakers to completely rethink their most traditional products, with all that this implies in terms of investment, skills, strategy, and design time. The risk here would be to become a new Kodak⁴: a company that did not anticipate the profound changes and that in fact did not know how to adapt to the new realities. The future belongs to those who anticipate this market evolution to perpetuate their business model's very *raison d'être*. Otherwise, they risk obsolescence or extinction.

Another example: fast food. Remember Burger King's slogan in 2020 "Since we are part of the problem, we are looking to be part of the solution"? This slogan drew attention to global warming, and in particular, to the methane produced by cows at the very top of the hamburger production chain. Could the restaurant chain possibly get away with not reassessing its previous offerings, and not pushing alternatives to meals that emit less CO₂? So far they're getting away with it.

There aren't any truly innovative sustainability initiatives in the fast-food sector. Pressure from consumers or competitors for veggie/vegan alternatives has probably given brands the right insight into their sector, but it's a safe bet that they won't really move until the day a carbon tax on beef⁵ is introduced.

"Comfort is not the objective in a visionary company. Indeed, visionary companies install powerful mechanisms to create discomfort — to obliterate complacency — and thereby stimulate change and improvement before the external world demands it." This is what Jim Collins and Jerry Porras write in their book "Built to Last: Successful Habits of Visionary Companies." In other words, organizations that think, invest for the long term and anticipate change are the winners of systemic change. Something to think about.

² Since 2021, the European CAFE regulation imposes on car manufacturers an average CO₂/km emission threshold that must not be exceeded. If they do not meet this threshold, the manufacturer will be subject to severe financial penalties. And in December 2022, the European Union adopted a new border carbon tax that aims to limit climate-damaging foreign industrial imports. It will come into effect between 2026 and 2027. This tax is intended to force companies from non-EU countries to comply with the European climate standards already in force (EU Emissions Trading System).

³ We think of organic cosmetics, vegan and/or locally produced food, second-hand approaches, etc., which informed, demanding, attentive consumers are coming to expect.

⁴ A leader in the photo industry since its founding in 1880, Kodak did not take the digital turn — which meant rethinking its business model — thinking it was a fad. The company went bankrupt in 2012 and became a textbook case.

⁵ The idea of a meat tax has already been considered by agriculture ministers in countries such as Germany and the Netherlands. It is also being studied by NGOs and universities.

⁶ This book studies the characteristics of American "visionary" companies (case studies of IBM, Boeing, McDonald's, Walt Disney, etc.), businesses that endure and succeed even long after the death of their founder.

2. Balancing business and sustainability goals: the new normal

The marketing trade-off today is to rethink investments both to get the best of today's products — which no longer correspond to tomorrow's needs — and to promote the most responsible products in the long term.

If this constraint seems a contradiction in terms to you — the search for traditional business performance versus "sustainable" business performance — it is no longer a question of knowing *if* you should do it, but *how* you *will* do it. By calling into question entire sectors of certain companies' activity — here we give the examples of the internal combustion engine, which is on the verge of disappearing in favor of electric vehicles, or vegan cosmetics, which are disrupting the beauty market — the energy transition is forcing companies to rethink their previous offerings and consequently calls for a profound, inescapable transformation of traditional business models.

In concrete terms, what does this mean for a marketing department? It means a need to be proactive in the change to accompany the new decarbonization strategy that your company will surely implement. Where to start?

- Assess your new mission. You need to make a profound paradigm shift and change your vision: It is no longer a matter of implementing "green" actions but of making sustainability a business strategy in its own right by integrating decarbonization into your decisions. This paradigm shift can be formalized as follows:
 - Step 1: Move from "green marketing" (reducing your media's emissions) to "marketing for green" (reducing your company's emissions)
 - Step 2: Move from "marketing for green" to "sustainable business performance" (be an actor in the transformation of your company's business model)
- Steer the change. You are now supposed to have a clear vision of your mission and objectives. Implementing them, however, will require you to combine two (seemingly) contradictory demands: On the one hand, you will be expected to preserve the historical business, since it underpins your entire current economy. On the other hand, you will be asked to move away from it in order to prepare the economy and business model of tomorrow. This is a balancing act that requires very fine-tuned operational steering at several speeds: in the short term, so as not to lose your customers; in the medium and long term, to respond to climate change and reorient your business model. In other words, you will be asked to answer this question: What media plan should be put in place to redirect demand toward more virtuous, low-carbon products, while continuing to perform well on iconic products? Your investment trade-off will therefore involve getting the best out of today's products which no longer correspond to tomorrow's needs and at the same time promoting the most responsible products in the long term.

And your strategy will have to question this very notion of "responsible products": It's not just a matter of directing your marketing efforts toward more "sustainable" products, it's a matter of refocusing them on "essential" products, with the slightest obsolescence, even if it means probably selling less, and, also, promoting new models and/or services such as the circular economy.

Reset your capabilities. As sustainability becomes an operational steering issue, you'll need
to infuse it into all areas of your business. And embarking your whole organization on a new project,
transformative by nature, is probably your most important challenge. It's all about upgrading your
capabilities: training your teams, adapting your tools.

It seems to us that there is perhaps a tool that you were not expecting in the field of sustainable performance management: Marketing Mix Modeling (MMM). Often used by marketing departments to simply evaluate the efficiency of media investments⁷, this method has only begun to show its potential. And this potential seems to us to be immense: Until now, MMM was only the hub for steering marketing resources; as a champion of optimization, its holistic capacity to aggregate multiple objectives, multiple constraints, multiple granularities, through its optimization capabilities will make it the new hub for steering a sustainable strategy. That's why we have evolved our own MMM platform — we have twisted, redesigned, reinvented its original use to adapt it to the challenges of sustainability: Each of its marketing mix optimization functionalities can now be integrated and applied in your business decisions regarding environmental constraints. A gamechanging approach to reconciling business performance and sustainability goals.

Before going into the details of a more sustainable business strategy, we propose an analysis of your marketing investments' full scope of impact. Understanding how you will have to measure them is a prerequisite to making them levers of sustainable business performance.

Measure, predict, optimize: that's what MMM is about

Marketing Mix Modeling (MMM) is a method of data analysis that makes it possible to define the effectiveness of marketing investments. It measures the ROist contribution of marketing actions on sales volumes and revenues of a brand or a product line, according to the different levers of the marketing mix: TV, digital, price, promotion, product launch, trade marketing, etc. Objective? Improve additional business performance by better forecasting media investments (on- and offline) and optimizing allocation of marketing budgets.

⁷ See the box "Measure, predict, optimize: that's what MMM is about," page 6

Understand your real marketing carbon footprint to crack sustainable business

From measuring impact to true decarbonization: how to understand the carbon drivers of your marketing mix

Understand your real marketing carbon footprint to crack sustainable business performance

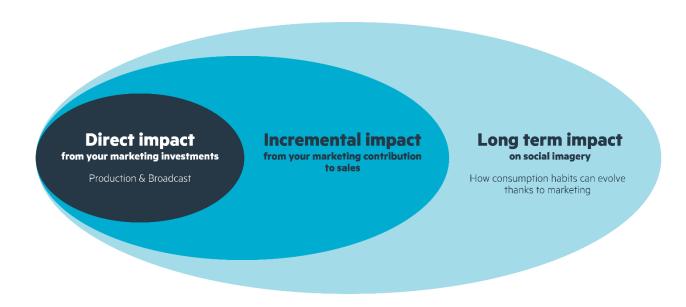
From measuring impact to true decarbonization: how to understand the carbon drivers of your marketing mix.

1. How to see the bigger picture

What are we talking about when we bring up the carbon footprint of marketing? It refers to any marketing action and/or investment that directly or indirectly contributes to generating greenhouse gas emissions. The only way to have a good vision is to look at them holistically.



Indeed, advertisers usually only look at the carbon footprint of their marketing channels, especially their digital and offline media plans. The scope of carbon impacts is actually much broader. It includes three types of impacts: direct, indirect and a longer-term impact that extends to consumer habits.



Direct impact from your marketing investments

60 Megatons

or the total CO₂ emissions from online advertising worldwide in 2016. This is the equivalent of 60 million round trips from Paris to New York by plane.

Source: Environmental impact assessment of online advertising (November 2018)

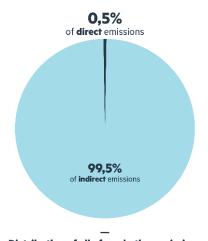
Advertising production and broadcasting, mobile data consumption and device usage... you already know: Your campaigns generate CO₂ emissions. In terms of content production, for example, shooting a commercial involves transporting people and equipment by plane and car, a fossil fuel-intensive job. In the case of a digital campaign, it is distribution of the content that will consume electricity both to host the media (to store it on servers, in data centers) but also because the terminals used for consumption of this same media (televisions, smartphones, digital screens) by the end users consume additional electricity.

These are all aspects taken into account to calculate the direct impact of your marketing investments.

Incremental impact from your marketing contribution to sales

Unfortunately, the CO₂ from your marketing investments' emissions does not stop at this scope of "Advertising production and broadcasting, mobile data consumption and device usage."

Let's look at the big picture. The core of your business is making incremental sales. As a result of your effective marketing investments, more "carbon-intensive" manufactured products and services are sold regarding the usual organic sales; this "additional" volume indirectly generates additional CO_2 emissions from marketing. That's why you need to consider the carbon footprint of these products today, from their design to their end of life. You will discover that their impact is far greater than the first scope.



Distribution of all of marketing emissions

Taking the automotive sector as an example, we compared the carbon footprint of a media plan (direct impact) with the carbon footprint of the additional vehicles sold as a result of the same media plan (indirect impact). The effect of the media is 0.5% in the first case compared to 99.5% for the effect produced in the second case. The indirect effects of the media in relation to the product's carbon impact therefore go far beyond the production and distribution of a campaign.

0.5 % **vs. 99.5%:** these numbers are dizzying, but they help us understand the true nature of the carbon footprint of marketing investments. It is these indirect impacts — the additional product sales generated by advertising — that you should now focus on. Why? If they are not included in a holistic calculation highlighting direct and indirect carbon effects — even though it is by far the most CO₂ emitting item — any "green" initiative you may take in media will always appear anecdotal and will be akin to greenwashing.

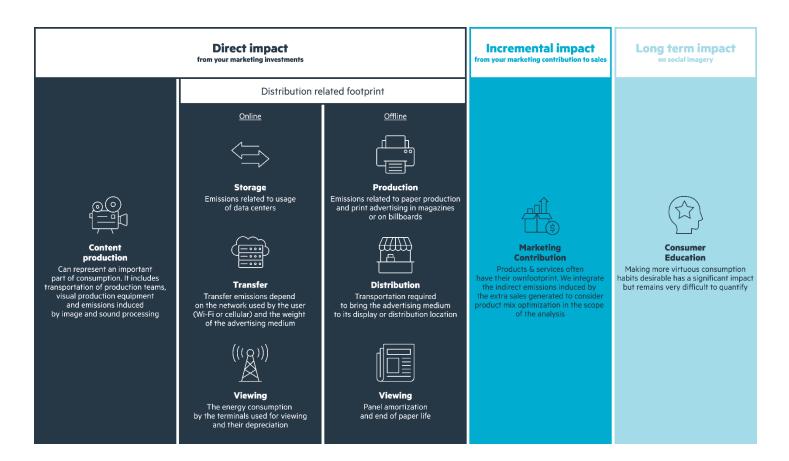
These figures also suggest an interesting avenue to work on for marketing strategy: From now on, you will have to play on the complementarity of your media mix AND your product mix. We will come back to this.

Long term impact on social imagery

We have talked about the direct and indirect impacts of marketing investments. There is a third one, which is clearly outside the scope of data, of MMM, but which no one can ignore: It concerns the role of marketing on collective imaginations. In the end, doesn't marketing sell dreams? When advertisements praise the adventure of driving a comfortable SUV, they are pushing consumers to buy a vehicle with high carbon content. Tomorrow, the exercise will involve calling for desirable (and profitable) restraint. Will we go so far as to say that this is a social issue and that the entire sector bears a collective responsibility for it? The debate is open.

However, this scope is more difficult to quantify, so we have not included it in this report.

Understand all your carbon footprint at a glance



In view of these different types of impacts, the question comes down to "marketing for green," i.e., how to implement an efficient marketing strategy in a context of carbon constraints.

This is where data and Marketing Mix Modeling come into their own. We have adapted our approach and our MMM platform to analyze in depth the direct (i.e. broadcasting-related) and indirect (i.e., incremental sales-related) CO₂ emissions of each marketing and media channel. For the first time, **MMM sheds light on the relationship between the efficiency of marketing investments and their carbon cost**.

2. How MMM can help you to distribute the carbon impact of your marketing investments and product mix

As we said earlier in this issue, we are thinking about the best strategies for integrating decarbonization into your business decisions. For this, we believe that the MMM tool is a given. For more than 20 years, it has proven itself to be the best tool to measure the business relevance of your marketing investments. Multiconstrained, multi-KPI and multi-stakeholder, this methodology highlights thousands of indicators like no other. We have evolved it to adapt it to the current challenges: Our platform now integrates new environmental indicators that allow dual financial and non-financial management. And still, we may not have reached the bounds of what MMM is capable of measuring.

On the three emission scopes we have defined, we now give MMM the new task of measuring and screening all the direct impacts of your media (whether on- or offline) as well as the indirect impacts linked to the contribution of marketing to additional sales (*see the diagram below*).

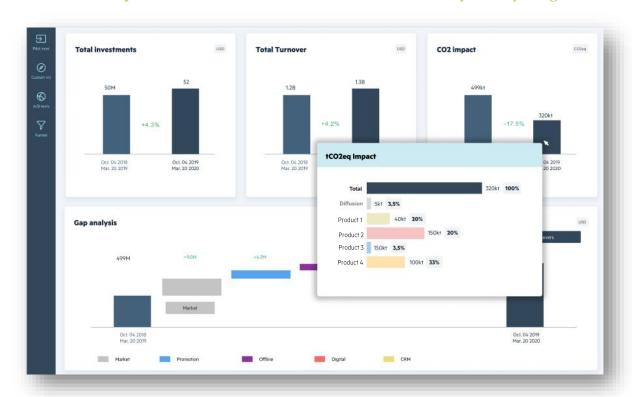
Direct media footprint Indirect impact <u>Offline</u> **Online Production** Emissions related to usage Emissions related to paper production of data centers and print advertising in magazines or on billboards Contribution Products & services often have their ownfootprint. We integrate **Transfer Distribution** the indirect emissions induced by Transfer emissions depend Transportation required the extra sales generated to consider product mix optimization in the scope on the network used by the user to bring the advertising medium (Wi-Fi or cellular) and the weight to its display or distribution location of the analysis of the advertising medium **Viewing** Viewina The energy consumption Panel amortization by the terminals used for viewing and end of paper life and their depreciation

What MMM can measure

By introducing the carbon footprint as a new marketing performance indicator (as a constraint to be kept or as a target to be reached), the new-generation MMM is a real strategic asset: It provides the key to allocating

your investment efforts between carbon footprint, media mix and product mix. It helps you to manage change both in the short term (your current challenges) and in the long term (preparing redirection of your product mix in a reasoned, gradual way; we will come back to this).

Our MMM platform combines both business and sustainability KPIs by design



How do we calculate your direct and indirect greenhouse gas emissions?

Behind an equation that may seem quite complicated, there are in fact elements that are by nature already mastered by MMM. Explanations:

$$CO_2e_{total} = CO_2e_{direct} + CO_2e_{indirect}$$

$$= EF_{direct} \times Invests + EF_{indirect} \times Contrib$$

$$In CO_2e/\in_{invest} \qquad In CO_2e/\in_{sales}$$

$$Calculated by our media carbon impact calculator8 Calculated from customer data or based on carbon footprint estimation methods$$

- Your total carbon impact (CO₂e_{total}) is logically understood as the sum of your direct and indirect emissions.
- Your direct emissions are calculated on the basis of your direct emission factors (EFdirect), which are read through the prism of the volume of CO₂ generated for each euro invested. Ekimetrics has its own carbon calculator⁸.
- Your indirect emissions are calculated based on your indirect emissions factors (EFindirect), which are read through the prism of the volume of CO₂ generated per euro of additional sales. This figure is calculated from customer data or data from LCAs.⁹
- Historically, MMM analyzes marketing investments and their contribution to the sales performance of your organization. Today, its use is extended and enriched to measure the carbon impact of your marketing levers and products.

It is clear that a greenhouse gas emissions report cannot be absolute. It is an order of magnitude and a starting point for monitoring actions and progress over time. At Ekimetrics, we believe that the challenge is not to have the most efficient calculator — even if it must be as optimized as possible — but to question the redirection of its investments and probably its product mix.

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 $^{^{\}rm 8}$ mmm_carbon_calculator included in our MMM platform

⁹ Life Cycle Assessment (LCA) is a tool for global evaluation of environmental impacts. This standardized method (ISO certification) makes it possible to measure the quantifiable effects of products or services on the environment over their entire life cycle, from the extraction of the raw materials necessary for their manufacture/design to their treatment at the end of their life, including the phases of use, maintenance and transport. Here, we aggregate data from several LCAs done by ADEME, INSERM, RTE, ARCEP, the European Commission, the EEA, etc., authoritative public data.

How to leverage MMM practices toward more sustainable performance

How MMM is reinventing itself to bridge the gap between your marketing and environmental constraints

How to leverage MMM practices toward more sustainable performance

How MMM reinvents itself to bridge your marketing and environmental constraints

Introduce new performance indicators

MMM knows how to "optimize": your marketing mix levers, your channels, value creation, investment strategies based on "classic" business indicators. Today, it is about optimizing your decarbonization. This is one of the major changes we have made to our MMM platform and methodology. We can now integrate a €/carbon cost ratio into your scenarios¹o. The goal: to reach more quickly the objectives set in the regulatory constraints (CAFE¹¹ or SBTi regulations, for example) or in your company's own strategic roadmap (which aims at carbon neutrality).

If your company has not yet adopted a sustainable strategy, it is also possible to **set optimization objectives, both for the margin and the carbon mix of the product**, which can be monitored at the same time as the other traditional MMM indicators.

In this perspective, different scenarios can be considered to simulate possible trajectories to reconcile short-term business obligations and long-term climate ambitions.

	Current Scenario	Business first Scenario	Redirection first Scenario	Scenario with double ambition : Business + Carbon
% in marketing profit		77	=	7
% reduction in CO ₂ footprint of marketing		77	אא	ĸ

This is how we reconcile management of traditional marketing performance indicators with the impact of the marketing mix, a "new generation" indicator.

How the modern MMM reinvents the steering of your marketing mix

In the past, MMM has demonstrated its ability to develop and measure the impact of brands and products:

- by taking into account the differences in positioning and strategic objectives,
- without destroying the more established and profitable brands and products,
- by continuing to optimize margins.

¹⁰ By the end of 2023, this €/carbon cost ratio will be integrated into the platform's basic modules

¹¹ See footnote, page 4

The same mechanism can be applied today with sustainable and less sustainable product lines. MMM can be used to guide, make reliable and operate a transition from the less responsible products (old products) to the more responsible ones (new products), such as promoting electric vehicles instead of internal combustion ones, promoting second-hand in the clothing sector, making people prefer poultry or vegan products to beef, etc.

What does this mean in practice? The new equation of your media/product mix will probably be to promote an iconic product (which will probably remain more carbon intensive at first) in the short and medium term, while ramping up communication on a sensible and profitable alternative product (low or no carbon) in the long term — until the old product is fully replaced by the new one and the new business model is in place.

We can draw a parallel with the example of Kodak mentioned earlier: Its direct competitor, Fuji, also had to face and adapt to the disruption of digital technology. Rather than trying to save its film photography business at all costs, the Japanese film giant refocused its entire strategy on its core business, specialty chemicals. The process began with a new strategic plan, which lasted five years and saw the company undertake structural reforms to target its new growth areas, including healthcare. More than 20 years later, the company is still here and thriving, with a different business model.

It is this transition that MMM could accelerate by pushing the campaigns on the new, more responsible offers and the new business model.

Ultimately, this new product portfolio management makes it possible to simulate product mix trajectories by year and therefore to gradually push the offering toward more and more responsible products, while respecting margin, revenue and profitability issues.

We are talking about supporting a change in business model: a major, fundamental transition that will not happen overnight. For you, as marketers, this long-distance race implies working on both the short term (sales, channel arbitration, reduction of the carbon footprint on the direct effects of marketing) and the long term (evolution of the product strategy, evolution of the brand promise, or the business model).

MMMxCRM

To go further in management of the product mix, it is even possible to imagine crossing the MMM with CRM data, to identify the customer segments most likely to be "converted" to responsible products first and — why not? — to become their influencers. In other words: it would be a matter of steering the entire mix in a targeted way to bring consumer preference and responsible products together.

Identify risks and opportunities

MMM's predictive capability will help identify the risks and opportunities — from scenario adaptation — that your marketing and products face in a carbon-constrained environment. This is especially true for organizations that are exposed to extreme events, those with significant transportation and supply costs. (Remember the impact of the Icelandic volcano eruption in 2010 on global air traffic? Or the current semiconductor crisis?) MMM can help you optimize cost structure and predict extreme scenarios.

In summary

We are convinced: Because analyzing performance is its nature, Marketing Mix Modeling is a powerful tool for steering your marketing strategy in a context of carbon constraints — environmental performance becoming a new indicator of overall performance. Just as you need to achieve business objectives today, MMM will also help you to build up your sustainable development marketing strategy in parallel.

And to reinforce your brand strategy: By working on a product mix already oriented toward "sustainable performance", you also work on the legitimacy and attractiveness of your brand, and in the long term to align it with market expectations.

But more than that, marketing is called upon to take on a new role, that of "responsible" influencer. Doesn't it already play a considerable role in society, by influencing consumers' purchasing decisions? A formidable lever for change, it now has its part to play in reorienting behavior (from the "disposable" and "carbon-based" culture to the responsible decarbonized one) and the collective imagination (by creating a desirable future).

If we place MMM on more concrete ground, that of the regulatory constraint, we consider it only a matter of time before measurement of environmental performance becomes mandatory¹². In the same way that management controls are mandatory in companies, it is likely that non-financial controls will be introduced in the near future.

But there is no longer any need to demonstrate that the world belongs to those who understand the profound changes that move society. The examples of Kodak and Fuji have inspired us a lot in the writing of this white paper. These companies made a strategic choice that profoundly impacted their business model, leading to the disappearance of the first company and the rise of the second. In the second case, Fuji understood the changes as soon as they came to its door. Sustainability is now knocking loudly on every door: As we said in the introduction, it is the major challenge of the next decade. To implement this essential sustainable transformation, marketing departments will have to seize on the issue and think of this strategy as ever more businesslike and ever more decarbonized. Those who are the most visionary will turn it to a competitive advantage. In this context, we are deeply convinced that MMM — through its ability to link ROI/performance/sustainability — could be a prime instrument of change, one of the tools to decipher KPIs, whether financial or not.

¹² The CSRD (Corporate Sustainability Reporting Directive) adopted by the European Union in December 2022 is a step in this direction. It requires European companies to report ESG data in the most demanding way (from 2024-2025). We imagine that organizations will eventually integrate ESG data into their data lake.

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About us

Ekimetrics is a **leader in data science and Al-powered solutions**. For over 16 years, we've pioneered the use of AI and advanced data science applied to unified marketing measurement, holistic business optimization and broad-ranging **sustainability goals**.

We help companies **rethink the way they operate**, so they can **reconcile financial KPIs with non-financial** goals.

Ekimetrics is an independent firm maintaining offices on 3 continents. Since 2006, we have led more than a thousand data science projects in over 50 countries, generating more than €1bn in profit for our customers.

Our approach to data for sustainability

We support our clients with MMM experts to ensure high-impact optimizations through our solution (the combination of a platform and services). Because our teams are trained for sustainability, we also help them adapt their media habits and optimize to the new constraints.

Our squads include data scientists trained in carbon footprint assessment and sustainability methodologies such as SBTi. Several are carbon footprint certified and master the sustainability frameworks (Bilan Carbone®, GHG Protocol, CSRD, TCFD). Everybody without exception at Ekimetrics is also trained in climate change awareness (via Climate Fresk, Digital Fresk and internal upskilling programs.)

This gives us unique perspectives into the long-term issues of even those projects that are not specifically sustainability focused. It also means that we can provide a more sustainable long-term perspective to other optimization projects.

The company has its own sustainability journey. To learn more about it, see: https://ekimetrics.com/who-we-are/

Contact

Ready to talk or simply curious to learn more? Reach out to our experts to understand how your operational efficiency challenges can be tackled through data science.

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