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CTO forum

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Growth & Sustainability Playbook

Squaring the Circle

Science Group CTO Forum

Amcor Global Flexibles | Bayer Crop Science | Mars Incorporated | PepsiCo Inc. |
Shell Global Solutions International BV | Solvay SA | Stepan Company | The Procter and Gamble Company |

Science Group is a science and technology business providing consultancy and systems to an international client base.

Science Group's CTO Forum tackles issues of material interest to R&D leadership with the goal of sharing insights and of developing actionable tools and methods that can be put to practice within the R&D function and so help companies tackle key challenges ahead.

To create these outputs, Science Group participates in (and facilitates) the Forum, regularly consulting with senior executives of the participating companies, drawing on its own wide base of knowledge and experience, and undertaking its own research.

Science Group is grateful for the cooperation, support and insight provided by the members of the CTO Forum:

- **Jason Keiper** – Vice President and Chief Technology and Sustainability Officer, Stepan Company
- **Nici Bush** – Vice President Innovation, Science and Technology, Mars, Incorporated.
- **Nicolas Cudré-Mauroux** – Former Chief Research & Innovation Officer at Solvay
- **René Lammers** – Executive Vice President & Chief Science Officer, PepsiCo Inc.
- **Robert Reiter** – Head of Research & Development, Crop Science Division, Bayer
- **Victor Aguilar** – Chief Research, Development and Innovation Officer, The Procter and Gamble Company
- **William Jackson** – Chief Technology Officer, Amcor Global Flexibles
- **Yuri Sebregts** – Executive Vice President Technology and Chief Technology Officer, Shell Global Solutions International BV

Science Group is represented by:

- Dan Edwards – Group Managing Director, Science Group Plc
- Michael Zeitlyn – President Advisory Service, Science Group Plc

Using this Playbook

This Playbook is designed primarily for those leading R&D, innovation and other business functions that share the goal of realizing progress on sustainability whilst not compromising business growth.

The Playbook builds on work undertaken by Science Group's CTO Forum in 2022 which resulted in publication of the **Net Zero Playbook**. This new Playbook looks beyond net zero to consider the wider sustainability agenda. Sustainability encompasses a range of different but interrelated themes. It brings together thoughts on planet, people and profit, and considers the social, human, economic and environmental implications of our actions. Companies will have their nuanced view on the definition and scope of sustainability but the definition advanced in 1987 by the United Nations Brundtland Commission still resonates.

> *"Meeting the needs of the present without compromising the ability of future generations to meet their own needs."*

The discussion in this Playbook views sustainability exclusively through the lens of environmental goals. This is not to ignore or diminish the importance of other sustainability themes, but to provide sufficient focus to this work to make the recommendations specific and actionable.

The content is organized into three Plays:

Play 1: **Delivering growth and sustainability** – looking at the tension between these objectives and laying out principles that help companies navigate this challenge

Play 2: **Making choices when sustainability conflicts with Itself** – exploring the interdependence between different sustainability outcomes and providing principles that will help companies make decisions

Play 3: **Working with suppliers, customers, and partners to deliver sustainable outcomes** – addressing the challenge of systems leadership and identifying principles that will help companies succeed on this journey

We believe the Playbook will serve as a useful tool both within the organization and beyond the organization, as a framework for discussion and interaction with supply chain partners who must be engaged to make material advances towards more sustainable business.

Each Play describes the changes in mindset and practice that can help companies as they act on sustainability. Case studies and tools are used to illustrate and guide understanding.

Under each Play you will find 4 elements:

- Observations - reflections on the current situation
- Principles - key learnings and guidance that relate to the Play
- Tools - to help the organization conceptualize or put the principles into practice
- Case studies – examples that illustrate the experience of our Forum members

The Playbook concludes with a some closing remarks and provides references to some of the documents mentioned in the narrative.

Opening Remarks

As leaders of large corporations, we are accountable for taking actions to make our businesses more sustainable.

This is more than good corporate citizenship, it is fast becoming a commercial imperative. We already see signs that brands leveraging sustainability claims grow faster[1]. As we reduce demand for critical resources like water and energy, we are likely to improve efficiency, mitigate risk, and protect our right to operate. And as we look at attracting the talent that will guide our business in coming years, we know many of the brightest and best are choosing to work for companies with purpose. There is an explicit and compelling business case for being sustainable.

Yet although Environmental, Social and Governance (ESG) performance has started to influence business valuation, growth and returns remain the primary drivers. Today, the relationship between ESG and value is neither simple nor linear. Work done by Korean researchers[2] suggests ESG performance amplifies the reading of traditional financial indicators. A company performing well against conventional metrics may expect to see their value enhanced with ESG-successes, whereas a poorly performing company may see ESG advocacy further discount value. Expect the significance of ESG (and sustainability specifically), to grow but as larger market leading companies we should also expect to take the lead and consider how our decisions sit with our ESG agenda.

Notwithstanding the prominence of sustainability in the public eye, consumer behavior, customer choice, and the practices of business and other private and public sector organizations don't always align with the values of sustainability. We still see investment behaviors that prioritize financial performance metrics in full knowledge of indifferent ESG performance and customers unwilling to pay more for sustainable solutions. The question of 'who pays' for sustainability remains in many quarters unanswered.

Two motivations are in play amongst corporate actors in respect to sustainability. In many industries it is business risk that is more likely to drive action, from risks associated with the transition to a low carbon economy, physical threats to business operations, through to the threat of regulation, and concerns about reputational damage. But for leading companies with a vision of their long-term future, there is increasing recognition of the advantages of delivering planet positive outcomes.

Economic propositions such as those of Kate Raworth[3] on 'doughnut economics' go as far as to say we must ditch growth and accept economic decline in order to return to a sustainable economy which operates within the boundaries of our planet's limited resources. We do not go that far but Raworth's thesis brings focus on the inherent conflict between economic growth and sustainability.

As we reduce demand for critical resources, we are likely to improve efficiency

As we work towards more sustainable products, services and solutions, we will not always land on ideal outcomes. Sustainability is wrought by complications and contradictions (e.g. an innovation supporting plastic reduction may inadvertently increase greenhouse gas emissions). In navigating these challenges we will face decisions and trade-offs. We must be transparent on such but should not hold back on action which after analysis in-the-round moves us forward.

To advance the cause of sustainability companies need to work in concert. Much of what needs to be achieved requires the commitment and action of several actors in a system – competitors, suppliers, customers and the many public and private sector organizations that form our business ecosystems. There is little to be gained in introducing a recyclable material if there is no actor further down the value chain ready to recycle it. System-wide change is difficult to achieve (unilateral action is far more straightforward), but progress requires finding ways to make this happen.

The observations and principles (plus tools and case studies) which follow, distilled from the experiences of our CTO Forum participants, seek to strike an informed and pragmatic tone.

> In navigating these challenges we will face decisions and trade-offs. We must be transparent on these but should not hold back on action which after analysis in-the-round moves us forward

CASE STUDY

A new perspective on innovation and growth

As innovation and R&D leaders our work helps to fuel the growth of our businesses and to that end, we manage our investments and project portfolio to deliver the business strategy. Success rests on the decisions we make as to which projects to pursue and which we terminate. The selection criteria we apply are therefore critical, affecting both what the organization does and how the organization delivers. Whereas in the past these were framed on familiar and well understood metrics, today our markets and our stakeholders expect sustainability to be as much a part of the conversation as is growth. In response we have made a conscious effort to elevate sustainability so that it is an essential consideration in our decision processes.

We have had to learn a new language, becoming more nuanced about the different aspects of sustainability, climate, nature, circularity, social impact along the full lifecycle of the products, and the various trade-offs that might be encountered. It has been a journey but by embedding clear and measurable sustainability and circularity metrics we have generated a permanent change in mindset and practice. It drives project teams to explore and assess alternatives during the entire project execution process, all the way from ideation to product launch. It impacts all aspects of an innovation project including product formulation, manufacturing processes, packaging, selection of manufacturing locations, contractors, and much more.

Nicolas Cudré-Mauroux,
former Chief Research & Innovation Officer at Solvay

Summary of 10 principles

Ten key principles across the three plays

Play 1 - Delivering growth and sustainability

1. Stay ahead of sustainability standards - recognize the risk that market changes linked to sustainability may curb your growth.
2. Make sustainability a source of value creation – expect it to enable future growth not to constrain it.
3. Decouple revenue growth from increases in volume and consumption - or find ways to directly mitigate the impact.

Play 2 - Making choices when different sustainability objectives conflict with each other

4. Set your company's unique agenda as to which sustainability outcomes will be prioritized and expect to manage unavoidable trade-offs.
5. Ground your reasoning on sustainability in science but prepare to navigate an irrational game.
6. Expect the goal posts to move and exposure to increase – consider how your actions will be viewed 10 years hence.

Play 3 - Working with suppliers, customers, and partners to deliver sustainable outcomes

7. Step up when your influence and power unlock the opportunity and empower others to step in to share the burden.
8. Galvanize partners with influence beyond your direct reach.
9. Stage gate your commitment and build the momentum needed to activate change.
10. De-risk transition and set standards to maintain the change.

Play 1. Delivering growth and sustainability

In our pursuit of growth today we must acknowledge the biophysical limits of our planet and act accordingly. We must reconcile the sustainability agenda with the growth imperative. These are not mutually exclusive objectives, and we can and must deliver both. Sustainability can unlock growth, and in time it will be a pre-requisite for it. By developing integrated and coherent growth and sustainability agenda we can confidently plan for our future.

An emerging theme in corporations is the link between ESG performance and talent management. Attracting and retaining the best talent remains key to business success. Research studies highlight that employees are actively choosing to work for companies that have strong ESG credentials, and indeed choosing against those that don't. We should expect the very best STEM candidates to be looking at our growth intent and if we are to win the battle for talent our growth strategy must withstand scrutiny.

Equally whilst we look to growth we must also account for risk. Although capital investment in sustainable technology itself carries risk, that of being underutilized or being eclipsed by competitive options, our business will suffer if capital assets become stranded as sustainability concerns drive new regulations, standards and practices. Our margins will be squeezed and operations constrained if our practices are deemed insufficiently sustainable and we are held to account. Our investment streams will be constrained and funding diverted if investors consider the longevity of certain industry segments limited and look to others which offer greater security.

Play 1 Observations

The importance of integrating growth and sustainability strategy.

Sustainability for some is now becoming an essential part of how to plan to achieve growth. Until recently it has been common practice to identify growth and sustainability initiatives independently. There is now limited tolerance for growth at the cost of the environment which is making leading companies develop their sustainability and growth strategies in tandem.

Who pays for sustainability?

If growth and sustainability are both to be served, sustainability must be made a mainstay of 'business as usual' innovation. The environmental footprint of products and services must be front and center as innovators conceive, design and develop solutions.

A central challenge to this mindset is that sustainability often adds cost. Though in the mid-term the cost of manufacture may reduce as demand scales and the transitional costs are absorbed, in the short-term there is often a premium to pay. In markets where sustainability has intrinsic value, customers will pay a premium and in select market segments we are seeing an openness to higher price points. More commonly though, sustainability is at best a point of difference, and often no more than a tertiary factor with no material impact on purchase decision. Companies are rightly wary of customers who declare a willingness to pay a sustainability-premium but come the purchase action opt for a cheaper alternative. This is a dilemma for growth minded business. There is worry that without formal regulations or standards, their better-for-the-planet solutions may limit or reduce market share and growth, but also concern that any delay in taking action could itself cost the business.

> Sustainability has become table stakes for growth

Looking to the long-term there may be some business areas or product lines that can't transform either at all or sufficiently to measure up to the sustainability standards society and stakeholders demand. Companies facing these types of challenge will need do what they can to make their current business as sustainable as possible and consider what will form the core of their future business.

Industry standards and regulations will change the game and make growth and sustainability more achievable.

In some markets regulations and standards are already kicking in to push the needle towards more sustainable product and service offerings. This gives some justification to transfer the added cost of a more sustainable solution to the end customers. However, in absence of these mandates, bigger companies and those aspiring to be seen as industry-leaders are expected to lead the charge on sustainability, even if the market is reluctant to pay. This gives good reason for companies to work with industry peers, supply chain partners, and customers to promote and establish common standards and/or advocate regulation to help level the playing field and catalyze change. In a suitably regulated environment more sustainable solutions can come to market.

Inconsistent regulation is a constraint on driving global sustainability initiatives.

Although regulation can be the catalyst that makes sustainability a prerequisite for growth, inconsistency, divergence and even conflict between how sustainability is viewed and regulated in different geographies makes it harder for companies to implement positive change on a global scale. The challenge is made more difficult by its dynamic nature. Even in a single region the priorities of environmental regulation will change over time, sometimes in response to new science but also heavily influenced by other less scientific influences that shift society's attitudes. Change is not always easy to predict and in such an environment it is often hard to make big bets, decide when to pivot to accommodate change, and find the 'no regret' moves.

Sustainability can be more than just a compliance play, it can create new growth opportunities for business.

Sustainability presents opportunity too, both in existing and new markets. We can expect the number of customers seeking more sustainable offerings to increase and that these market segments will provide some opportunity to protect and develop market position and fuel growth. New product and service categories will emerge too, stemming from the 'industry of sustainability'. For example, Shell has leveraged the assets of its conventional lubricants business to grow a new 'E-Fluids' business that serves the specific needs of electric vehicles. These solutions don't require a material change to the business model and so are a comfortable fit for the business. Other companies are choosing to carve out entirely new types of business. The carbon credit market is one such example. Bayer Crop Science has built competence in carbon measurement and accounting, and is building services around this capability.

Environmental performance will impact how we value businesses and influence decisions on company acquisitions.

Many companies have used an M&A strategy to deliver growth. With companies committing to a 'planet positive' agenda, the environmental performance of an acquired business, product or technology will likely influence its future value.

Some companies are already building this into their due diligence process and are altering their financial models to account for the costs of managing and improving the footprint of the acquired business.

> So what can we do to square our ambition for growth and value with our need to reduce our sustainability impact?

CASE STUDY

Getting ahead on water

We are acutely aware of the need to conserve water. Making and selling product all over the world, means that sometimes we manufacture in water stressed regions – often the same markets which drive growth. We believe our right to grow is contingent on achieving sustainable water security for both our own business, and for local communities and the natural environment. If we fail to take steps to protect and preserve water resources, then we risk losing our right to operate and therefore risk our growth.

To reconcile growth and water conservation, we have pledged to be net water positive by 2030 – reducing absolute water use and replenishing back into the local watershed more than 100% of the water used at company-owned and third-party sites in high-water-risk areas. Investment in technology and innovation is required to achieve this goal. To put the ambition into tangible terms – by 2030 we expect to draw 1.2 liters of water for every liter of beverage we manufacture, and 0.4 liters of water for every kilogram of food or snacks we make. This is a material shift and requires investment in innovation and capital. For example, one R&D led project will allow us to capture and condense water vapor from potato frying that would otherwise be wasted and treats it for reuse - reducing the water usage of a typical potato chip line by 50% and saving approximately ~60MM litres of water per year. Separately in our beverages manufacturing, one unwanted consequence of having a more water efficient plant, is the wastewater becomes more concentrated. To mitigate we have piloted a proprietary microbial fuel cell technology at a beverage manufacturing site that nearly eliminates the waste sludge streams. In the pilot, this technology also delivered a GHG reduction of about 100 tons a month and a cost savings of about 30% per month.

It is only by taking actions such as these, we can responsibly grow our business. These are multifaceted challenges with complex solutions, often with implications for capital spend. A wait and see attitude won't cut it, we must start work today - getting on the front foot so that we can, pilot and implement solutions and demonstrate what can be achieved. If we don't get ahead of the curve on issues like water, we will likely face bigger challenges down the track.

René Lammers,
PepsiCo Inc.

CASE STUDY

Finding the sweet spot where sustainability unlocks an opportunity to delight the consumer

For Fabric Care, up to 60% of GHGs come from the use phase, that is, from the energy used to heat the water when consumers wash their clothes. If there is one thing to positively impact the environment, it is reducing wash temperatures. Today only one of two loads in the US are done in cold water, what if we could make that 3 out of 4 by 2030? In Europe, the average wash temperature is 42°C, what if we could lower it 5°C by 2025? We estimate these changes could reduce emissions by over 30 million tons every year.

Consumers want to protect the environment, but not at the expense of dirty clothes. Further, they need a reason to change their habits – a tangible upside. We focused on creating a product that delivers irresistibly better laundry than their current solution, particularly in cold water. Washing in cold water saves time, keeps clothes looking new for longer, and saves money. Our calculations suggested that we could save a typical US household $150 per year, in Europe we might reduce the energy bill for laundry by over a half. We looked at how chemistry could unlock this opportunity. We leveraged our core chemistry competences and in partnership with suppliers, taking inspiration from how nature uses enzymes to overcome barriers and accelerate reactions, we found a solution that could deliver the cleaning performance we wanted at much lower temperatures. The challenge didn't stop there, with the solution formulated into product, we still had to educate consumers. In the 12 months after the initiative started, household penetration of Ariel is up double digits with organic sales up mid-single digits, whilst the category grew mid-single digits.

It's common for sustainability to be viewed as a constraint, but that mindset is limiting and risks missing material opportunity. Do the full LCA, including the total requirements to complete the job, set your sights on what needs to be true for the product to be more sustainable, and work out how making that change can create new value for your customer and drive your own growth. As leaders we need to demand the 'and' not the 'or' and we must expect our innovators and partners to search for the value in sustainability.

Victor Aguilar,
The Procter and Gamble Company

Play 1 Principles

1 **Stay ahead of sustainability standards - recognize the risk that market changes linked to sustainability may curb your growth.**

Companies that fail to meet standards in sustainability take the risk that their business is left behind and ultimately becomes extinct. Expect standards to rise and regulation to emerge such that companies failing to improve their sustainability performance see their addressable market reduced.

Non-compliance risks the 'green cut-off' in the face of green tariffs and other fiscal penalties. In some market scenarios organizations may even lose the right to operate. Maintaining or staying ahead of the 'sustainability standard' protects 'future share' or may even enable growth at the cost of less diligent competitors. Modelling future share in a way which accounts for the risk of green-cut-off may tip the balance of a business case analysis in favor of taking a more sustainable solution even where additional investment is required.

Policy, standards, and regulations are in flux, customers and markets set new expectations, and competitors are adapting to this new world. We must be ready to act as authorities and other stakeholders incentivize or mandate change. In making decisions today, we must set our sights on standards that will be expected of our business and our products tomorrow. What's more we should step in and take an active part in shaping the standards and regulation so that they are science based and will be effective at driving positive change.

> We must set our sights today on standards that will be expected of our business and our products tomorrow

2 Make sustainability a source of value creation and expect it to enable future growth not to constrain it.

Sustainability has intrinsic value to certain customers. Although at present these are often niche market segments, we can still realize value and will capitalize as more customers attribute value to sustainability. In the short-term larger companies may drive growth by acquiring sustainable products developed by smaller companies and start-ups. Bigger companies are often better able to maximize the realizable value through economies of scale in manufacture and distribution.

In markets where mainstream customers place less value on sustainability, innovators will need to find the opportunities where advancing sustainability coincides with gains in performance, quality, and/or price. Recent examples of these innovation sweet spots may have been a product of serendipity - a fortunate outcome recognized in hindsight - but companies can systematically look for these 'flywheel' innovations that deliver 'sustainability by stealth' (for more information on 'flywheel innovation' refer to principle 9 in play 3 of the Net Zero Playbook).

> Companies can systematically have intrinsic value to certain customers, we still realize value and will capitalize as more customers attribute sustainability by stealth.

3 Decouple revenue growth from increases in volume and consumption - or find ways to directly mitigate the impact.

In absence of true circularity, 'business as usual' revenue growth often equates to selling more product and leads to a proportionate scaling of resource utilization and consumption. For sustainable growth we must decouple this relationship. In some scenarios this will likely require us to consider game changing innovation and even the adoption of new business models. Compelling business opportunity will merit this level of change and even disruption, but we can't expect companies to entirely reinvent themselves across the entirety of their businesses.

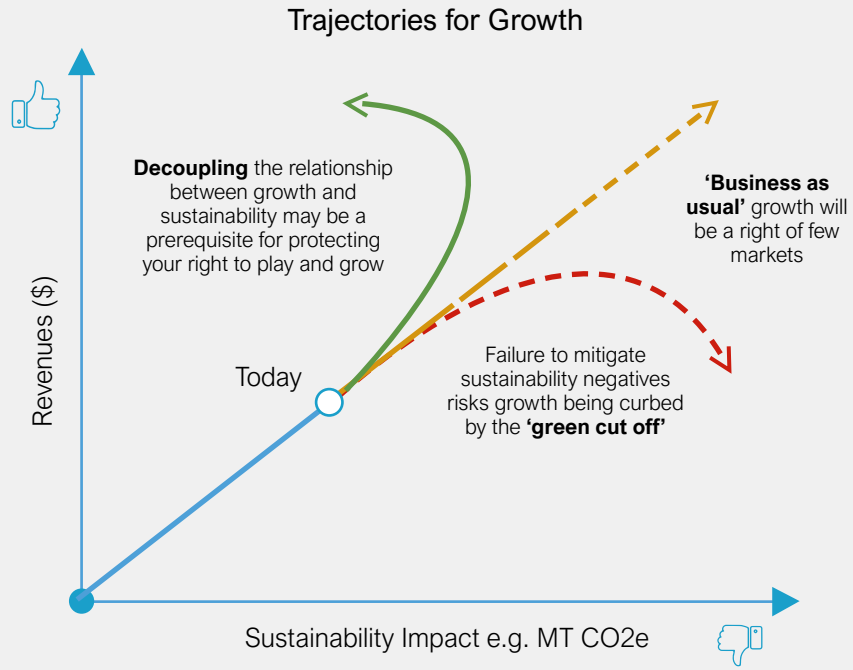
Although in the short or medium terms we may not be able to entirely break this relationship, we must act to improve on the status quo and find ways to reduce or eliminate unwanted consequences – reducing the resource intensity, inside and outside the organization. Internally, sustainability gains may be found from switching to more sustainable raw materials, ingredients, or components, adapting manufacturing and operations, or by adopting new technology. Externally we can look to abate the impact of sustainability by working with our supply chain and wider networks to find the opportunities to materially reduce the consumption of natural resources or consequential impact on the environment. Working with and supporting our partners in reducing their impact can provide the necessary buffer to offset the consequence of growth in the market.

> Working with and supporting our partners in reducing their impact can provide the necessary buffer to offset the consequence of growth in the market.

Play 1: Trajectories for Growth

Pre-empting the green cut-off

Decide what trajectory your business should anticipate - expect that needle to move in favor of sustainability with time.

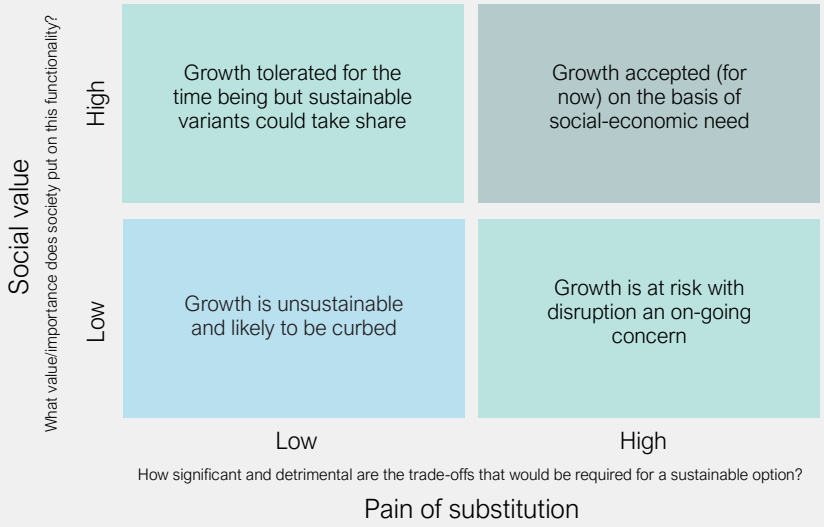


Business as usual growth may suffice in the short-term, but decoupling growth from negative impacts on the environment is judged by Forum members to be trajectory companies must follow, the question that needs to be solved is timing. This will be influenced by the nature and level of challenge for each business, especially in respect to driving system wide change.

Avoiding the 'green cut off'

Find where you are most exposed and consider how you can mitigate and uncouple growth from negative sustainability impacts.

1. Identify the products and services that carry significant sustainability negatives – perceived or actual.
2. Plot them on 'Social Value / Pain of Substitution' matrix (see example below).



- Expect less valued benefits to face greater demands for action
- Assume the lower the trade-offs that are required for sustainability the lower tolerance for inaction.

3. Where you run the risk of a green cut-off on growth consider mitigations.
   - Redesigned product, alternate raw materials, or mode of manufacture.
   - Reinvented value proposition or business model.
   - Reimagined supply chain partners or system wide changes in practices and standards.
4. Consider the bigger picture; can you buffer the sustainability impact of one part of the business by making more stringent and aggressive advances in another?

Play 2. Making choices when different sustainability objectives conflict with each other

The United Nations' 17 Sustainable Development Goals (SDGs) provide a frame against which companies can commit action. The goals prompt focus on a broad base of issues that touch on economic, social and environmental themes. But even though the SDGs are broad themes, experts acknowledge that action taken to make progress on one SDG can often be detrimental to another[4] and these trade-offs need to be considered as decisions are made.

Environmental sustainability is one thread of the sustainable development agenda, and when we speak of improving sustainability we risk understating the challenge that comes with the complexity of this domain. 'Sustainability' is a catch-all term for a topic which encompasses inter-related and inter-dependent environmental outcomes. A single action intended to improve one facet of sustainability such as enabling circularity, may have unintended direct and consequential impacts on another such as greenhouse gas emissions. These tensions or trade-offs challenge us to make difficult choices – 'Norway will not 'shy away' from green transition dilemmas, says PM'[5] a headline in the Financial Times highlighting the conflict between GHG reduction and protecting nature. For companies the decision may be less attention grabbing but none the less important e.g. is there merit in transporting lightweight high volume polymer materials over long distances so that they can be recycled, or not?

Against an analysis of contradictory outcomes we need to know our own agenda and be aware of the full impact of the choices we might make.

Play 2 Observations

Sustainability encompasses separate but interrelated environmental outcomes, we must consider our impact across these different outcomes.

People frequently use ‘sustainability’ as an undifferentiated catch-all term, (sometimes encompassing ESG issues beyond environmental). Insufficient clarity or specificity in the articulation of sustainability presents risk, as too does a lack of awareness of the range of environmental outcomes on the agenda today. Our actions intended to advance the cause of sustainability, may backfire if we allow ourselves to be blindsided and as a result cause an unconsidered environmental outcome.

Sustainability-related pledges and goals made by business are often tied to outcomes such as plastic reduction, waste minimization, carbon reduction. They are also necessarily specific with different industries and even companies within an industry needing to prioritize environmental outcomes that are material to the business. Whilst advocating action to progress towards one goal companies must get better at seeing the bigger picture and mitigating consequences that counteract progress on another sustainability goal.

Inconsistent use of language can hamper our ability to pre-empt risks.

Discussion on sustainability can be hampered by the use of inconsistent or imprecise language. Communication sometimes blends the language of policy and academia (e.g., the UN’s 17 SDGs or the Stockholm Resilience Centre’s nine planetary boundaries[6]) with the vernacular of ‘impacts’ (e.g., water, plastic, GHGs). This can lead to a disconnect between the corporate ambition and the day-to-day practice of the business. No taxonomy is wrong, but without consistency and a means of translating high-level ambitions into specific actionable goals (applicable at the level of product and process) we risk not realizing opportunity and potentially overlooking significant unwanted trade-offs.

> Whilst advocating action to progress towards one goal companies must get better at seeing the bigger picture and mitigating consequences that counteract progress on another sustainability goal.

Expect to trade-off between different sustainability goals.

We cannot expect to avoid trade-offs between different sustainability outcomes. There will be exceptions but in most instances these conflicts are inevitable. But companies are looking for ways to avoid being blindsided to these trade-offs; approaches that pre-empt unintended compromise and make conscious decisions as to what are and are not acceptable trade-offs.

With many companies committed to a portfolio of different sustainability pledges those that take actions that appear at odds with a specific pledge can expect to be scrutinized by external stakeholders. This makes it all the more important for companies to be precise as they explain and reason the sustainability of products and services - other-wise their actions will be unpicked, and company reputations will suffer.

> So what can we do to make better choices that are coherent and reinforcing and less likely to be conflicting and damaging?

CASE STUDY

Equipping the team to see the bigger picture on sustainability

Stepan's products are used in many different applications, from surfactants in shampoos to polymers in building insulation. Each market has specific sustainability challenges and each customer specific sustainability requirements and goals. As we solve for our customers' sustainability agenda, we also must consider our own impact on the environment - we too have made sustainability commitments which we are set on delivering. Serving this array of different and sometime conflicting requirements presents challenge, sometimes requiring us to consider what trade-offs we should and shouldn't make.

With hundreds of innovation and development projects in the pipeline, looking at the sustainability of every product change is a tall order. We need the capability to make swift assessments on how change in a product could impact one of many sustainability parameters. With that information in hand our technical and commercial teams can make informed and scientifically reasoned decisions on what is and isn't a reasonable trade-off.

Our approach has been to develop a framework which will allow us to assess our products on a portfolio of sustainability parameters. With this in place we will actively consider what a small or large change to the product would mean to each of our sustainability parameters. For instance, we can assess the comparative use of bio- versus petro-based ingredients in applications such as cold-water cleaning of fabrics, assessing which and how much of the different raw materials, with their varying product carbon footprints, may provide better performance. Formulators can face the choice of using "less sustainable' products to elicit more sustainable outcomes, in this case energy savings from cold water cleaning.

A data-based approach is critical, we must expect our decisions to fare well under scrutiny, and to meet requirements of existing and emerging mandates. Rigor and consistency are also important and our decisions should make sense when viewed together as much as they do in isolation. We must be pragmatic; the quality of the available data will vary, and we mustn't let this constrain us from doing what we can to consider the bigger picture. The decisions we reach will combine our understanding of the sustainability impact, along with other commercial and technical factors. It's seldom a simple answer, but tools like the one we have been developing will allow us to progress our own and our customers' sustainability agendas.

Jason Keiper,
Stepan Company

CASE STUDY

Rethinking packaging

Across our Petcare, Snacking and Food & Nutrition businesses our diverse and expanding portfolio delights millions of people and supports more than 425 million pets. We produce some of the world's best loved brands and packaging plays many important roles in ensuring our products are accessible, safe, and delicious. However, packaging waste is a global problem and doesn't align with our vision for a world where the planet is healthy and packaging material is reused, recycled, or composted.

Today, hundreds of millions of dollars are being invested to transform our packaging and more than 12,000 packing components (half our portfolio) are being redesigned. As we do this, we must take a holistic view that considers potential sustainability impacts, both through the lens of today and how it could look in the near future. Our approach has two workstreams - increasing circularity and reducing carbon – and many changes we are making drive improvements in both. This includes eliminating unnecessary packaging, moving to mono materials to improve recyclability, incorporating recycled content, and shifting to reusable delivery models.

Paper packaging is one pathway, but it's not a silver bullet. At the current stage of development, more paper is needed to do the same job as plastic – resulting in more carbon. We are partnering with our suppliers and expect improvements in barrier properties to allow us to reduce the amount of paper required such that paper packs will have a lower carbon footprint than plastic – demonstrating how innovation, science and technology can unlock challenges and fuel sustainable solutions.

Compared to plastic, paper can be recycled fewer times and with growing demand for paper and other forest-derived products, this puts pressure on our forests. Through our Pulp & Paper Action Plan, we set a policy to source paper-based packaging that is free from deforestation and degradation.

Where mono-material plastics and paper are not viable solutions, our scientists are researching compostable natural polymers such as PHA (polyhydroxy alkanoate). These materials can be made using renewable bio-based sources or waste organics, such as used cooking oil, reducing pressure on our planet's resources. Initial studies indicate that these materials are significantly less carbon intensive than paper, can be recycled using composting waste infrastructure, and have inherent biodegradability. Composting infrastructure is also growing in many regions of the world, and compostable packaging provides an alternative to keep packaging out of the environment.

Industry must make smart choices and prioritise progress over perfection being mindful of the diverse range of solutions across the world. By investing in the latest innovation, science & technology we can rethink packaging to be reusable, recyclable or compostable and reduce carbon.

Nici Bush,
Vice President Innovation, Science and Technology, Mars, Incorporated

Play 2 Principles

4 **Set your company's unique agenda as to which sustainability outcomes will be prioritized and expect to manage unavoidable trade-offs.**

With trade-offs between different sustainability outcomes almost an inevitability, we must know our priorities. The resonance of an issue in market and across society is dynamic, we must do our best to see through that volatility and hold fast to the priorities we feel will serve the long-term. Few companies face a single dominating sustainability issue, most have a small (though likely expanding) number for which they are held accountable. Companies must focus on addressing the sustainability issues that are at the top of their agenda, whilst minimizing the consequential trade-offs as far as is practical. To help to make these choices, guiding principles are required to inform which sustainability-on-sustainability trade-offs can be made.

As we scrutinize our options, we must be consistent in how we evaluate impact. Each company must decide what is appropriate, but consideration needs to be given not only to the impact but also timeframe, reversibility, and potential to compensate.

There are few fixed 'exchange rates' for the interplay between different sustainability outcomes but there are some rules of thumb to prompt reflection (e.g. "that in moving from plastic to paper packaging we should expect to use more volume of material for the same functional performance"). The tacit knowledge of how a company's products and processes affect the environment should be made accessible and ideally codified. Where possible knowledge within supply chain partners should also be leveraged. Tools are needed to structure discussion and systematically unpick and test assumptions. As scrutiny increases, companies will need to develop data driven tools to 'democratize' the capability to discern and pre-empt conflicts/tensions.

> Companies must focus on addressing the sustainability issues that are at the top of their agenda, whilst minimizing the consequential trade-offs as far as is practical.

5 Ground your reasoning on sustainability in science but prepare to navigate an irrational game.

Trade-off decisions will be scrutinized, and furthermore we have to anticipate that the argument may move beyond the science. Scientific reasoning may be met with strong counter argument, especially where the issues provoke emotional response. For example, the following qualities can be especially influential:

- Visible and tangible– evidencing the relevance and presence of the harm.
- Emotive – imagery or story that captures the imagination, engages people, and provokes response.
- Personally relevant – having impacts that are 'locally' experienced and/or feel directly relevant.
- Immediately relevant – when the consequences of inaction impact the current generation.

Although decisions will not be based on scientific logic alone, R&D leaders should champion science-based reasoning and highlight the contradictions and tensions that may be less evident to others. By voicing the scientific argument, we are more likely to land better decisions and encourage intelligent regulation and standards.

As we communicate (internally and externally) we must champion precision and transparency. We must be able to articulate and demonstrate the logic of decisions, otherwise we risk others misconstruing and miscommunicating what has been achieved.

6 Expect the goal posts to move and exposure to increase – consider how your actions will be viewed 10 years hence.

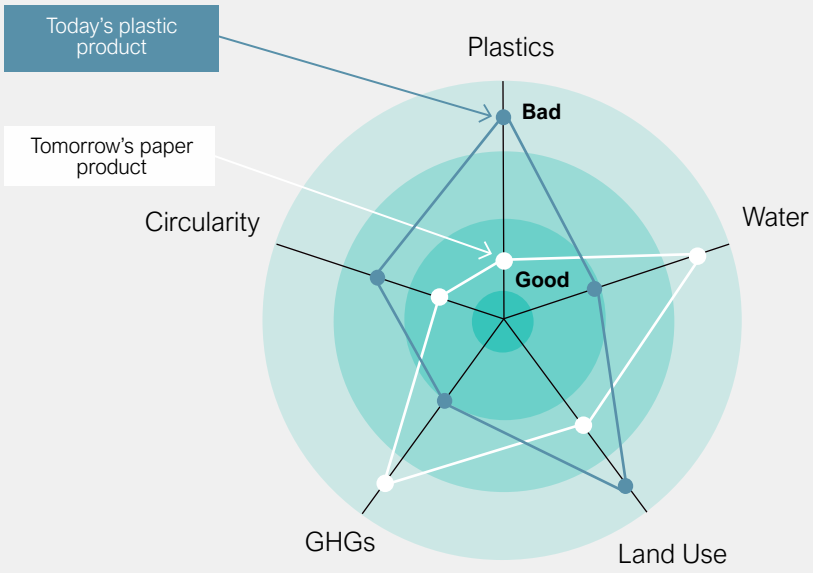
The science of sustainability is maturing, and attitudes will evolve. Although decisions are made in good faith, we must expect to be held accountable tomorrow for issues that appear less important to us today. Failure to seriously consider sustainability impact will create material future business risk. The growth in environmentally related claims against business is well documented [7,8]. Furthermore, there is uncertainty as to whether future penalties will acknowledge the inevitable trade-offs companies have had to make and may focus on single issues rather than considering sustainability holistically. A trade-off made on one sustainability outcome to benefit another may not be sufficient justification or defense. Companies will need to be more rigorous about how they decide which trade-offs to make and be able to show their reasoning.

> R&D leaders should inject science-based reasoning and highlight contradictions and tensions that may be less evident to others.

Play 2: Sustainability Trade-off Tool

Avoiding unconscious sustainability trade-offs

Visualize how changes to product, process or business model consequentially impact performance against key sustainability goals.



In the example shown a proposed substitution of plastic by paper can be seen to have both good and bad sustainability outcomes. The paper product helps the company reduce the use of plastics but in this instance the gain comes at the cost of GHGs and water.

Avoid tunnel vision, there will be few occasions when change comes without a trade-off - know what matters most for the business and decide what trade-offs are and aren't merited.

Assessing the sustainability trade-off - a rapid screener

1. **Characterize the performance of the current or reference product against each of the sustainability challenge (e.g., water, GHGs etc.) on the spider diagram.**
   - Data is desirable, but don't let the lack of data derail the process.
   - Where necessary use 'order of magnitude' or qualified assessments.
   - Translate your assessment into a 'score' - that indicates how scrutineers would likely view the product/solution ('good' or 'bad') versus each sustainability challenge.

2. **Consider how the change/innovation will improve or worsen impact for each parameter on the spider diagram (and duplicated in the chart below).**
   - Use the 6-question screener to inform the assessment against each parameter (see example below).

Intended change - e.g. change packaging from plastic to paper	GHGs	Water	Plastics	Circularity	Land Use
1 Is it a positive or negative impact?					
2 Is the change significant?					
3 Over what time frame are the effect seen?					
4 Is there opportunity to eliminate or mitigate?					
5 Is it possible to reverse or repair any negatives?					
6 Over what time frame can negatives be remedied?					

Trade-off Assessment - how the change be viewed in terms of its short, medium, and longer-term impacts?

3. Score the changed product/solution against each of the sustainability challenges – compare the before and after and decide if balance of trade-offs justifies the action.

Play 3. Working with suppliers, customers, and partners to deliver sustainable outcomes

Whilst individual companies are able to make some progress towards their goals by taking independent action, material advances often rely on collective action. Our organizations are actors within complex private-public ecosystems and progress is often dependent on each organization aligning to a common standard or practice.

It is difficult for a single organization to drive system wide change, but larger organizations in particular can play a critical part in making change happen. Progress is often hard won and requires time, commitment and leadership, but without effective collaboration with our upstream and downstream supply chain partners and our customers we are less likely to realize our ambitions in sustainability.

Play 3 Observations

Advancing the cause of sustainability often demands a cohesive and collaborative system wide effort.

Sustainable solutions frequently depend on change being embraced across the full supply chain, upstream and downstream. Rarely can or should one company enforce change on supply chain partners. Without their engagement and commitment progress will be constrained and progress compromised. Sufficient parties across the supply chain must see the merit in change and anticipate that it will yield direct or consequential benefit. Without line of sight to value, whether in the form of direct gain or by eliminating or reducing the threat of value loss, progress will likely be derailed with inertia winning out as companies compute the consequential costs and/or disruption.

Expectation often falls on the shoulders of big players in the supply chain.

Large companies are often expected to take up the mantle as change agents within the supply chain. Their influence and capacity to drive scale provides reason to believe that they are best placed to 'make change happen'. Many large companies are open to championing change and are willing to take a leading role in instigating the transition. However, it has to be a collaborative and joined-up effort and big players need to believe in the cause and that others are willing to play their part too. Change is seldom an overnight affair, often requiring long-term commitment; all the 'actors' must be prepared to commit to the journey for the duration.

Systems leadership roles take different forms and evolve as the change initiative progresses.

What 'systems change leadership' looks like is context-specific. Not least it depends on the dynamics of power and influence within the supply chain, and the number, scale, and distribution of other players. It also depends on the maturity of the change process; the roles and responsibilities in the upstream activity aimed at initiating activity can be very different to those in the establishment and maintenance phases. Early in the journey, systems leadership demands leaders with 'vision', and a commitment to 'champion' action. As interest grows, leaders must serve as 'catalysts' to bring different parties together. Once stakeholders are engaged, and aligned then leaders act as 'pioneers' to show what is possible. Finally, if the transformation is to be cemented and sustained, leaders need be seen as 'collaborators', empowering others to lead the agenda, developing a shared ownership of the ambition and a common commitment to sustaining progress. There are good practices but no absolute rules other than to expect the requirements to change with time and circumstance.

> As we engage with a wider network we have to learn to deal with different perspectives, understand new frames of thinking and develop a shared language.

To progress sustainability we will need to make new connections.

Systems change initiatives of any shape and form are challenging and require us to work with our partners in different ways and on different terms. Achieving systems change for sustainability may ask even more of us. For many it is a less familiar competence with roles and responsibilities distributed across a range of different business functions, some of which fall outside our routine points of contact. It also requires us to interface with types of organization that fall outside our normal orbit and so require us to establish entirely new connections. As we engage with a wider network we have to learn deal with different perspectives, understand new frames of thinking and develop a shared language. Building influence with partners beyond our normal frame of reference is part of the systems change journey, for many companies this presents an additional level of challenge.

Regulators and regulation can be the difference between success and failure.

To create the momentum needed to transform a system requires the commitment and collaborations of all system actors. A willingness to embrace change is a pre-requisite and can be sufficient to initiate change. However, change initiatives can take years, and sustaining the commitment in the face of ebb and flow of economic conditions can be difficult. Well framed standards and regulations that are coherent and reinforce the change can make a critical difference and increase the likelihood of success. Involving regulators as early as possible in the systems change process increase the likelihood of regulatory alignment. The topic of how we can work with regulators towards a better future could be the subject of a Playbook in its own right.

> So what does practice look like and what roles do we play as systems change leaders?

CASE STUDY

Forging new partnership to deliver greener materials and good business outcomes

Companies working in energy, cement and steel are in the spotlight when it comes to sustainability. To create more sustainable product requires us and our wider partners to make system wide changes, but being capital intensive businesses makes what is already a challenging undertaking, even harder. Therefore, Shell and JSW Group deciding to explore collaboration to decarbonize hard to abate sectors is not a trivial commitment, and one both sides understood was going to take time, committed resources and came with no guarantees of success.

The first critical step on this partnership was to establish a shared vision and common agenda. Although as companies we had a relationship, we were changing from a transactional engagement to a creative and collaborative partnership. We also were very different types of company, as often is the way with systems change projects, change demands that you forge new partnerships with different types of partners, and this was the case for us. This means that you are more likely to start with different perspectives, priorities, and expectations. These gaps had to be recognized and closed before we could move forward.

The next critical factor was that we recognized the need to ground our ambition in commercial terms. We all supported the idea of business propositions centered around decarbonization, but good intent is not sufficient - these are often long lasting and slow to pay back projects and risk being derailed by wider business pressures if they lack a strong business case. In our case we hoped the partnership would be a platform for a multi-decade relationship to support JSW Group's energy transition. JSW Group wanted to leverage each other's strengths, to help protect and unlock future growth. The commercial ambition was paramount. The collaboration was not set in terms of a 'pilot', rather it was a critical step on a commercial path with very clear business goals and expectations. Framing it this way highlighted the need to engage and understand the motivations and constraints of other players in the system. To do this we brought together different stakeholders as part of a coalition to allow us to explore and understand these dynamics. This gave us the insights we needed to direct efforts including business practices, and the influence of regulations and standards, to enable us to create a viable solution.

The project required us to commit to significant groundwork before we could move forward. It was time consuming, but this was time and effort well spent. We are on journey and have not yet reached our destination, but in identifying understanding the critical players in the system, establishing a clear and shared vision, and keeping things grounded in terms business objectives we laid the foundation to enable success.

Yuri Sebregts,
Shell Global Solutions International BV

CASE STUDY

Creating the momentum for a more sustainable means of rice production

Creating a sustainable planet requires complex transformations throughout the entire food value chain. As one of the world's leading life science and agriculture companies, sustainability is a core commitment and our drive to reduce greenhouse gases goes well beyond our own operations.

Rice is a staple food for billions of people and some estimates suggest that a 25% increase in production will be required by 2050 to meet demand and keep prices stable. But conventional methods of rice cultivation (Transplanted Puddled Rice or 'TPR') already account for about 12% of global methane emissions and ~1.5% of total global GHG emissions, as well as being very labor intensive. It also requires some ~3000 - 5000 liters of water to produce just 1kg of rice.

To address these issues a switch in farming practice is required. Broader adoption of controlled and intermittent flooding (ADW); or better yet, changing from transplantation to direct seeding (DSR) can have very positive impacts on the global water utilization for agriculture as well as reduction of GHG emissions. But change can be difficult to achieve in what is a large, fragmented, and heterogeneous industry.

Committed to catalyzing a change in practice, we spent two years doing the vital groundwork needed to help provide the guidance and framework to make this transformation successful. With that complete, the next step was to demonstrate that these more sustainable farming methods could operate at scale. Towards achieving this goal, we initiated a collaboration with a group of partners including Shell Energy India Private Limited, (a subsidiary of Shell Plc) and GenZero that set about stepping-up ADW/DSR rice cultivation in India's monsoon and winter growing seasons to 25,000 hectares in just 1 year.

This is one step on a bigger journey, but larger companies like us with skin in the game are often the ones best placed to take the lead and initiate these demonstrator projects. Without the evidence that gives good 'reason to believe' others in our ecosystem are unlikely to get on-board and we will not achieve the progress nor scale we all want to see and that will be required if we are to achieve our ambitions for sustainable growth.

Robert Reiter,
Bayer Crop Science

Play 3 Principles

7

Step up when your influence and power unlock the opportunity and empower others to step in to share the journey.

Systems change often relies on the involvement of the supply chain's 'big' players. Large influential companies are well placed to help 'make change happen', but the challenge of leading systems change is not to be underestimated, it demands significant time and resource commitment. There are compelling reasons to take up the mantle of systems leadership. It may offer direct economic gain and competitive advantage, protect your right to operate, or defend against equity damage resulting from a product/brand association with the issue. Sometimes the business case is more difficult to pinpoint, but if the change creates value in the system, then it will likely cascade to others, so active participation and leadership in some shape or form should be considered.

Organizational commitment to making the change happen is essential, but the barriers to success and scale of the challenge must be acknowledged. Companies must start the journey with their eyes wide open. Factors that exacerbate the challenge include:

- Requiring many players (especially smaller ones) to make changes for which they see little obvious direct gain.
- Exposing supply chain partners to direct or consequential costs.
- Ending (prematurely) the use of current assets/resources.
- Disrupting existing supply chain partnerships.
- Acting against the dominant values, current priorities, and deeply ingrained practices of the market.
- Requiring new capital assets or infrastructure to be deployed.

The commitment and participation of large companies can be the critical enabler of systems change. They should expect to take a leadership role, but what leadership 'looks like' will change as a change initiative matures. Large companies should expect to step up and advocate for change, but they must also bring others on board to play their part. In the early phases they can expect to be activator, champion, and catalyst, helping to get traction, build coalitions and provide impetus. With time, leadership is likely to be more collaborative and enabling, and eventually supporting.

8 Galvanize partners with influence beyond your direct reach.

Most changes require the support of more than one big hitter. Large influential companies bring scale in supply and demand, take some of the burden of change, and can exert material influence and lend support across their direct network connections. Often more than one big hitter is needed to build sufficient momentum to drive transformation.

- Vertical spread (supply chain) - Giving sufficient power and influence along the full length of a supply chains.
- Horizontal spread (competitors) - Creating critical mass that commands influence and enables or attracts investment.

Big players alone will not be sufficient to deliver change, representation of the full set of system actors is needed, big and small.

Beyond those hard wired into the systems operation, early engagement of different types of actor is also recommended. Seek to engage those that can help shape regulation and enable new industry standards to be established. Without coherent regulation or appropriate standards of practice, change will be harder to win and more difficult to sustain. Involving regulators, policy makers and trade bodies from the start helps to establish a shared vision and makes it more likely the regulation will help not hinder the transformation.

> Large companies should expect to step up and advocate for change, but they must also bring others on board to play their part.

9 Stage gate your commitment and build the momentum needed to activate change.

Often the bigger players need to step up and instigate the exploratory work needed to initiate discussion and catalyze action. Being the instigator at this stage does not inevitably mean you carry the mantle of leadership thereafter, but it will likely require you to stay in the game. Progress can be made in small iterative steps, perhaps taking a few years to complete. Each step building evidence, growing confidence, and winning engagement:

- Develop the hypothesis.
- Validate the hypothesis with independent (academic) groups.
- Engage other relevant stakeholders to expose validated ideas – activate interest and start process of getting traction.
- Draft a 'White Paper' with endorsements from other credible authorities and demonstrate the support of relevant stakeholders/experts.
- Reengage stakeholders across the system to start the change process.

As you progress expect to find the right balance between idealism and pragmatism. Hold out for meaningful change but as change often follows the path of least resistance be prepared to accept a less than perfect solution. It is sometimes necessary to 'surf the wave' to make material gains even if the outcome is less than ideal. However, take care to avoid potential cul-de-sacs that make it harder to justify future investment, or encourage bad practices.

10 De-risk transition and set standards to maintain the change.

Expect to de-risk the transition. Sustainable change often introduces economic risk to supply chain partners. Don't expect them to 'suck it up'. Bigger companies independently, or by working with or lobbying to wider coalitions of stakeholders, may need to devise and deploy strategies that mitigate the risk e.g., by subsidies, minimum volume/value purchase commitments etc. These arrangements can be temporary and/or phased measures, but their inclusion helps overcome potential roadblocks.

Where possible, change agents should seek to establish standards and/or regulation to reduce risk and stop backsliding. Aligning companies to a common standard is a challenging and time-consuming undertaking so action should be taken to start this process early on in the journey.

Play 3: STEPS System Change Tool

(Developed by Science Group Sustainability in collaboration with PepsiCo Inc.)

Be prepared to change the system

Understand the pathway to systems change and recognize the transitions, activities and leadership styles that drive success.

Locate where you are on the systems change journey, adopt the appropriate leadership style and set out to achieve the key outcomes that must be accomplished to progress the change process.

Step-in
Advocate action

Win the commitment of the business to take the actions needed to create initial momentum.

See Principle 7

Visionary

Test
Build traction

Seek external verification of the value and viability of change.

Socialize the results to create momentum, engage stakeholders (inside and outside the business) and build consensus and the energy for action.

See Principle 9

Champion

Engage
Secure commitment

Bring together and align the actors needed to make change happen.

Understand the drivers, dynamics and tensions of the system.

Align on the ambition and critical requirements envision the roadmap, and set guardrails to guide the forward path.

See Principle 8

Catalyst

Prove
Demonstrate success

Take the lead and invest in initiatives to demonstrate what's possible.

Recognise pain-points and barriers and find and deploy unlocks to overcome resistance.

Derive and socialize learning that can be reapplied to enable future success.

See Principle 10

Pioneer

Scale
Cement the standard

Forge partnerships in new regions/markets to replicate the success.

Empower others to embed and reapply learning catalyzing wider adoption.

Work with others to establish standards that sustain the changes and sow seeds to drive regulation that will enshrine it as normal practice.

See Principle 10

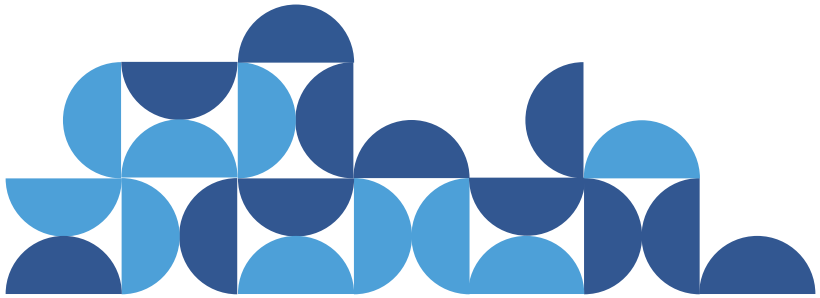
Collaborator

Closing remarks

Sustainability is no longer a matter of good corporate citizenship, it is a business norm. Our mandate requires us to achieve sustainability gains and business success. Whereas companies may have previously viewed sustainability and commercial goals as trade-offs, we need to embrace a change in mindset and aim to deliver on both counts. Progressively we should expect sustainability to be a critical source of value not a barrier to it.

Our businesses must find ways to eliminate the sustainability negatives that may have once been acceptable collateral in the search for growth. Companies that don't act on sustainability risk their future business success. They may see regulation or fiscal intervention that damages competitiveness and/or costs the bottom line. They may face local actions that constrain their right to operate. They may simply see their market share decline as others take the initiative to leverage an upside of a more sustainable product or solution.

Finding sustainability wins is not a small undertaking, but they are there to be had. Some can be actioned unilaterally by making changes that fall within the direct control of the business. Others will require companies to look beyond their own organization, necessitating partnership with suppliers, customers, and with the wider supply chain and associated ecosystem including private and public sector organizations. To build on our early wins we will need to learn to think, act and work differently. Progress will require partnership and collaboration, and by implication we must also expect to take our share of the pain as well as gain.



CASE STUDY

Readying our portfolio for sustainable demand

Across industry segments, customers are looking at more sustainable packaging solutions. In time we can expect regulation to raise the bar for packaging sustainability and, this will drive the market. But today customers remain cautious and sensitive to any added cost; unable to justify a marginal price increase for what is often a more expensive product.

We do see movement though; certain brands and categories are embracing the challenge and where necessary paying a small premium. We recently launched a 'performance paper' product, recyclable in existing paper waste streams but with barrier properties akin to plastic, it has the potential to help brands lower the impact of upcoming EPR (Extended Producer Responsibility) changes and plastic taxes. But it is more expensive and in the absence of regulation or taxation we don't expect to see a step change in adoption any time soon. Despite the slow pace of change we are committed to readying ourselves to execute products like this - designing and developing more sustainable products and even tooling up and investing in the new assets needed to make them. For example, we are investing in all regions of the world to produce our new AmFiber Peformance Paper product, and also building our R&D efforts and capabilities to expand application offerings. If we don't, we stand to lose out as conventional products max out their potential for growth.

Making the case to invest ahead of demand is certainly not easy, especially as we experience different revenue cycles, and face inevitable pressure to trade long term potential for short-term returns. Securing a clear mandate from the CEO is essential, we need to take a tough line and negotiate with our colleagues to land on key bets we can all get behind.

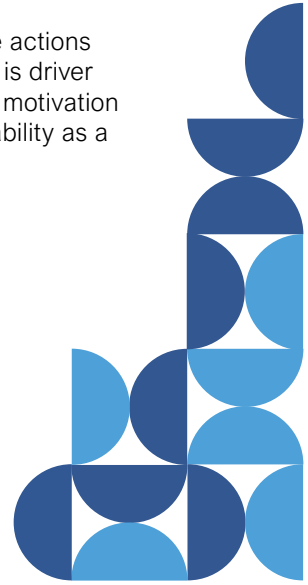
William Jackson,
Amcor Global Flexibles

We must be in this for the long-term, through good and bad economic cycles. To navigate a successful path, we must know our agenda and key priorities.

Sometimes in an effort to address one of our specific sustainability goals, we may have to acknowledge that progress on other sustainability outcomes is constrained. Although not desirable, there will be occasions where sustainability-on-sustainability trade-offs will be inevitable. We can't afford to do nothing in fear of causing some collateral negatives, that is a recipe for inertia and failure. We must consider our actions, be prepared to present our reasoning, and do what we can to mitigate the negatives. Without doubt, as science and opinion evolve, the ground will move under our feet, but we don't have time to delay our decisions to sometime in the future when all is certain.

We are on a sustainability journey. We have acknowledged the need, set the ambition, and have started to take actions. We are still in transition and, having picked off much of the low hanging fruit, we now face steeper challenges. The next step of the journey will be increasingly reliant on systems change. We have the power and influence to help drive change beyond our own organizations, with our supply chains partners, and across our industries and it is this level of collaboration that is required if we are to make material progress. We must learn to build and flex our 'sustainability muscle'.

Large companies will be held accountable by others for the actions taken and not taken, and as good corporate citizens, there is driver to making the business sustainable. However, as strong as motivation good corporate citizenship may be, we should see sustainability as a vehicle for securing business value.



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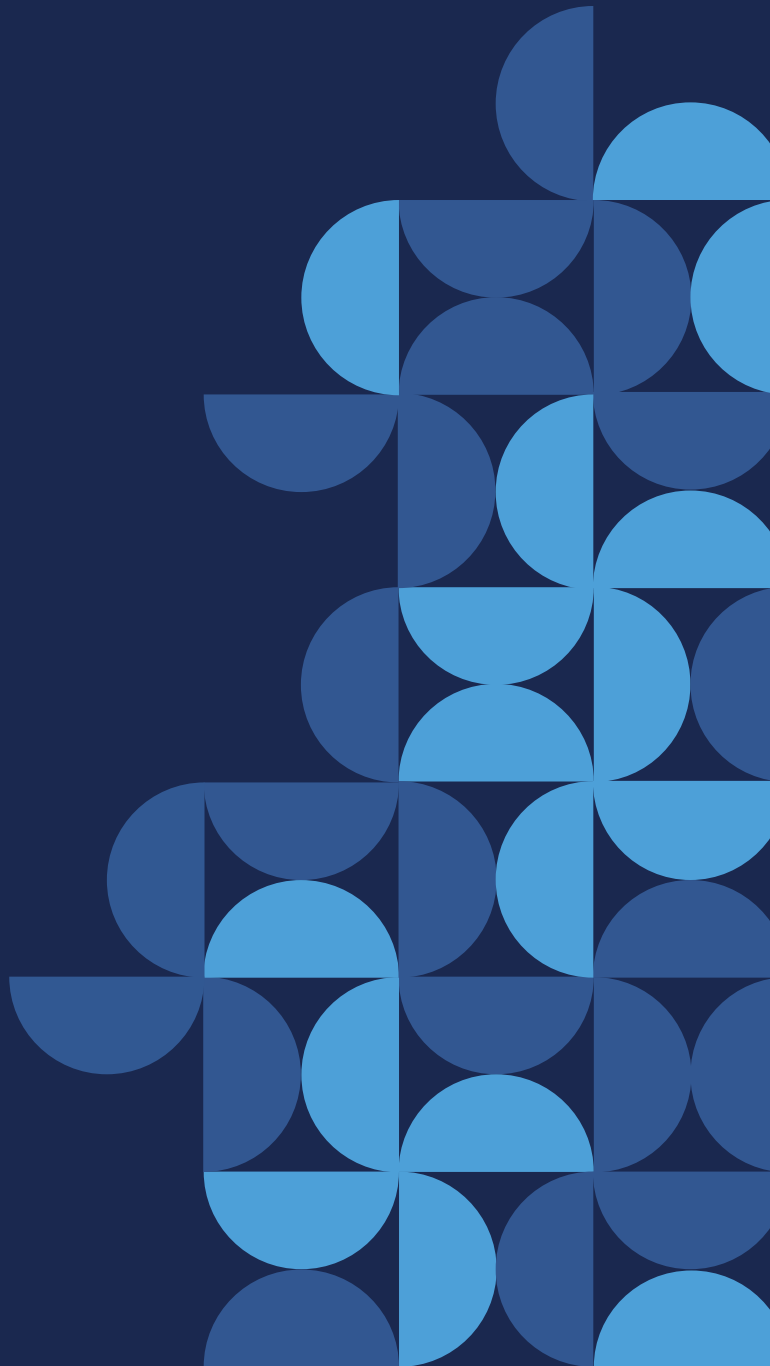

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