

Sustainability and eCommerce



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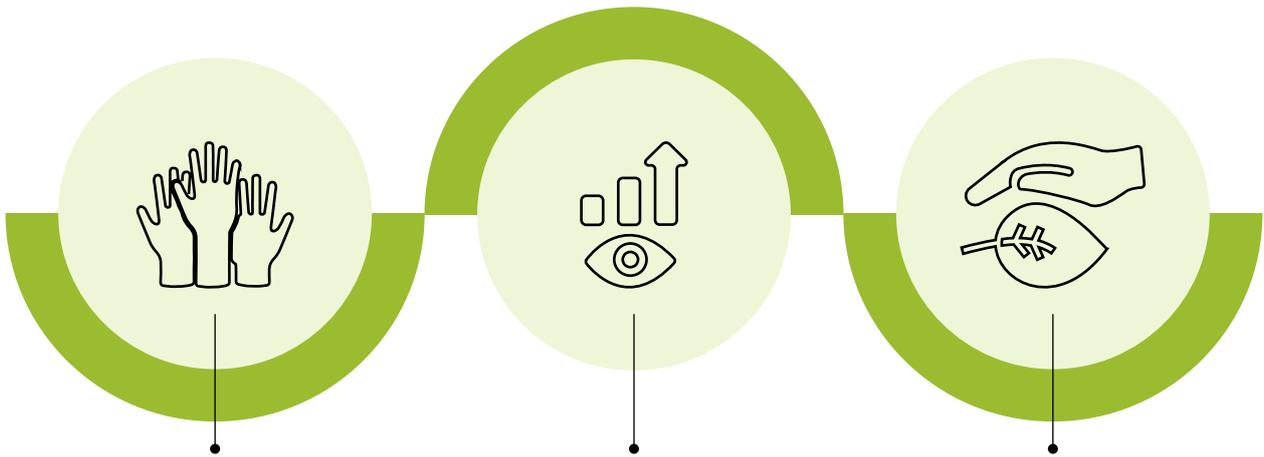
Introduction

With the unprecedented shift toward online channels, and rising conservation and climate change concerns, organizations are actively exploring ways to adopt sustainable models for their eCommerce business. Aware consumers are making sustainable choices and are ready to make impactful changes to their habits from ‘right now’ delivery to no-plastic packaging.

Sustainability means adopting processes, tools materials and methodologies that help conserve natural resources and support long-term ecological balance by eliminating any adverse impact on the climate. A more humane approach is to adopt lifestyle changes to meet our current needs without compromising the needs of future generations to meet theirs.

Sustainability, however, often implies choosing a path less convenient and delaying ROI. And this is where new technology plays a key role to make sure transitions are smooth and easy on the budget. It’s all about finding a common ground in the three competing pillars of sustainability – economic growth, social responsibility and environmental protection. Initiatives like reducing your carbon footprint, minimizing waste, and practicing fair trade are often associated with the adoption of sustainable practices.

The three pillars of **Sustainability**



Social responsibility

Social equity;
Operating model
that benefits all stake
holders - community,
employees, and
customers

Economic growth

Maintain growth
and profitability
while adhering
to company
vision, goals,
and objectives

Environmental protection

End-to-end tracking
and focus on
reducing the
carbon footprint
and impact to
environment

**Recent research by New York University (NYU), Nielsen and Forrester
on global consumer preferences gives some very interesting insights on new trends:**

- ▶ 73% of the people polled are willing to change their consumption habits
- ▶ 72% prefer environmentally-friendly options
- ▶ 50% of the growth between 2013-2018 came from products marketed as sustainable
- ▶ Millennials more likely (75%) than Baby Boomers (34%) to actively adopt sustainable habits
- ▶ 57% of consumers intend to purchase from companies that contribute more often to sustainability

Most research shows that eCommerce, packaging and shipping are the major culprits in terms of impact to the environment and climate. At HCL, we are working on new strategies and innovations to make eCommerce business more sustainable. For example, a range of solutions and POCs that allows businesses to adopt and embrace sustainability with minimal disruptions, so we can sustain with our planet's limited resources.

There are also government and statutory obligations that need to be fulfilled by the organizations. Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD) in the EU are some examples.

This whitepaper will focus on ideas and solutions for building an eCommerce platform that presents a more holistic approach to adopting sustainability.

Sustainability ideas in eCommerce

Sustainable products and business practices help businesses stand out, create customer loyalty, and appeal to conscious consumers. A key differentiator in today's sustainability-minded scenario is how well a business is perceived as taking appropriate steps toward sustainability and how well it appeals to its customers on factors they care about with regards to the conservation of natural resources.

We start with sustainability ideas that can be implemented on eCommerce platforms with minimal impact to other applications and systems in the enterprise-wide IT landscape. While the features listed below are more eCommerce-centric, the actual measurement and tracking of the carbon footprint numbers from farming/mining to manufacture and delivery will be done by backend technology and other third-party services.

Communicate the company's brand philosophy

This could be the first place to start where the company could introduce the concept of sustainability through its brand and ensure this is communicated well through its online channels. The eCommerce platform is one of the best channels to communicate this and to build an emotional connect between its brand and the customers. To be perceived as a sustainable brand, it is important to take a clear stand and communicate all the initiatives, practices and actions undertaken to support this stance.

Adopt sustainability as part of the branding by highlighting the company's

vision/mission and objectives on sustainability. The communication should be clear as to where the company stands in the fight against climate change and to conserve natural resources of our planet. This brand ethos should be communicated across the eCommerce platform and other channels where applicable and possible.

This brand ethos should also percolate through social media networks and non-digital platforms, where applicable, supporting the same strong statement that is conveyed on the eCommerce platform.

Giving options to online buyers to opt for sustainable choices

Based on research outcomes, it is believed that many aware customers will opt for sustainable choices if given the option and the information they need to make a choice. So, another initiative to adopt sustainability is to enable the customers to make this choice easily with the knowledge they need to do so.



Display carbon footprint with the products

The eCommerce platform can be enhanced to give the sellers the ability to display carbon footprint numbers and other details around sustainability with their products. This could be displayed along with the key information like price and availability in the product list, as well as the product details page. It could also be included as a search criteria to enable easy access and comparison through faceted search.

Many eCommerce businesses are adopting such carbon labeling of their products, which is essentially the amount of carbon emitted to produce a particular product. It also includes the carbon emissions to deliver the product from production site to warehouse to the customer's doorstep. Carbon emissions by organizations are usually calculated as per three key 'scopes:'

01

Scope 1 emissions are all direct GHG emissions which are well under the control of the organization. Examples include company operations – boilers, furnaces, vehicles, fuel consumption, amount of packaging used, etc.

02

Scope 2 emissions are indirect, though they are in the company's control to a large extent. Examples include type of energy source – electricity, type of material used for packaging, outsourced logistics, etc. They are also accounted for as they are the result of the organization's use.

03

Scope 3 include all other indirect emissions associated with the company's up-stream and down-stream value chain which are not under direct control of the organization. Examples include – raw materials mining processes, operations of its suppliers and service providers, usage and disposal of its products by the customers, employee commute, business travel, etc.



While Scope 1 and 2 emissions are relatively easier to track and measure, Scope 3 emissions which are usually the largest for a company, are more complex to track and measure. However, with the adoption of new technologies and business processes, it is possible to achieve greater transparency and measurement of scope 3 emissions as well.

Until recently, lack of investment in consistent data collection was a major challenge cited by most companies. However, several new technologies combined with satellite and machine learning capabilities, have made the cost of carbon tracking affordable even for small and medium businesses. While such tools and calculations can be data intensive, they are no longer too complex.

We can draw some parallels with the food and beverages industry here when they started introducing the nutrition labeling on the packages. It can be recalled that this nutrition labeling had a significant impact on the consumption behavior and pattern of the consumers in terms of calories consumed and type of products consumed – high fat to low fat, etc. Like the human body, our planet can also tolerate the carbon emissions only up to a certain limit, and beyond that, it becomes

highly unsustainable with long term adverse impact to the environment and climate. A similar labeling for carbon is also expected to have a significant impact on the consumption habits of consumers.

The good thing is that we are already seeing a trend of carbon labeling especially in the food and beverages industry. Significant research has been done in the area of agricultural inputs and impact to environment, so the food producers are now able to estimate their carbon and GHG emissions fairly confidently – especially in the case of animal protein.

We will discuss in more detail the technical solution and high-level architecture in a later section. However, it is important to mention here that calculating carbon footprint at a product level is becoming relatively easier by the day as new technologies are made available to address various aspects of this calculation. SAP has also released a new product called SAP Product Footprint Management, which is a cloud application running on SAP Business Technology Platform. It enables calculation of product footprints periodically and at scale across the entire product lifecycle. There are several third-party services that provide similar data and also services to purchase and retire carbon offset credits.

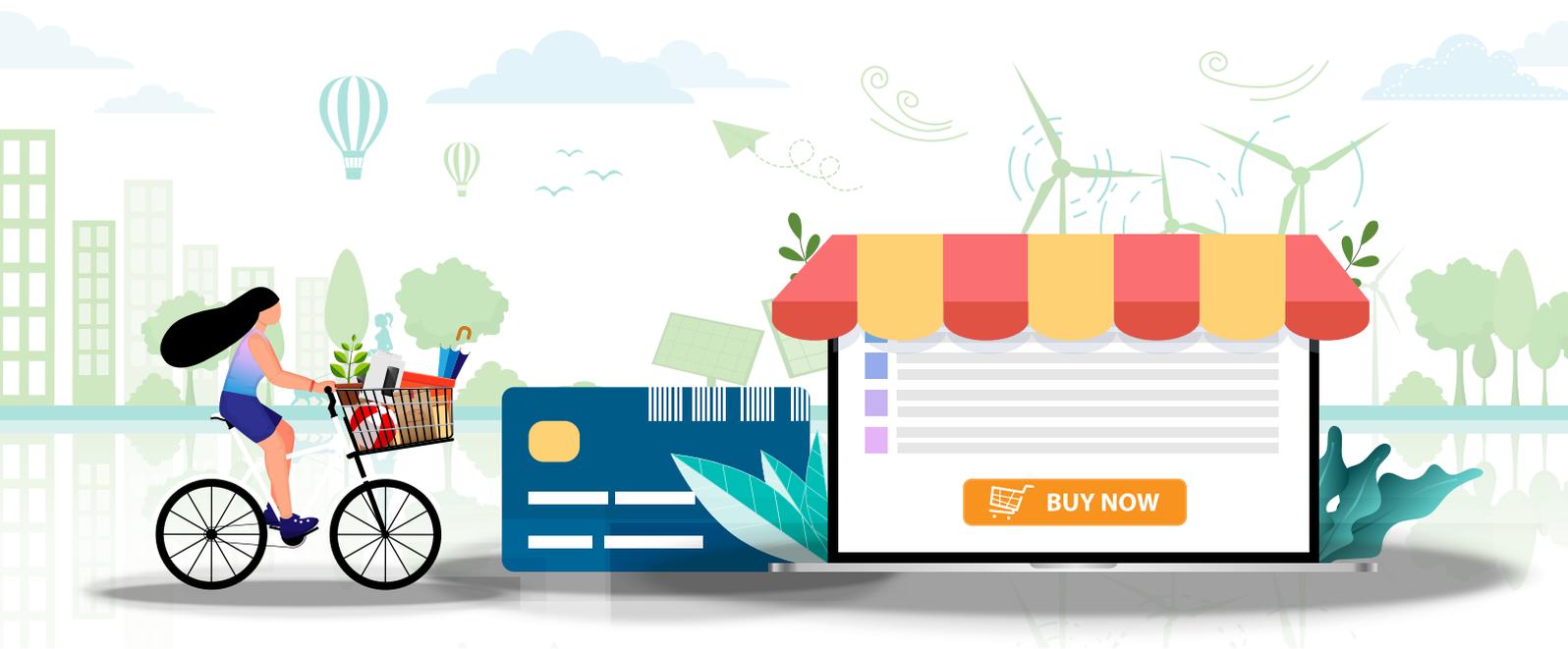


Carbon credit offset service

We all understand that consumption and sustainability do not go together, however, even the most concerned citizens cannot bring their consumption level to zero emissions, however hard they may try. But the good thing is, they have the options to neutralize it – buy buying equivalent (or more) amount of carbon offset credit.

A sustainable eCommerce platform can make it convenient for their customers to offset their consumption (products or

services) by buying carbon offset credits for the products and services they buy online. To enable this feature, the sellers should have the ability to offer an offset service, based on the carbon footprint calculations. There are vendors and organizations which provide such services for a fee, and the eCommerce platform needs to be integrated with these service providers so that the sustainability-aware buyers can also buy carbon credits from the same site.



A carbon offset credit broadly refers to a reduction in GHG (green-house gas) emissions – or an increase in carbon storage (e.g., through land restoration or the planting of trees) – that is used to compensate for emissions that occur elsewhere. A carbon offset credit is a transferrable instrument certified by governments or independent certification bodies to represent an emission reduction of one metric tonne of CO², or an equivalent amount of other GHGs. The purchaser of an offset credit can “retire” it to claim the underlying reduction towards their own GHG reduction goals. (from www.offsetguide.org)

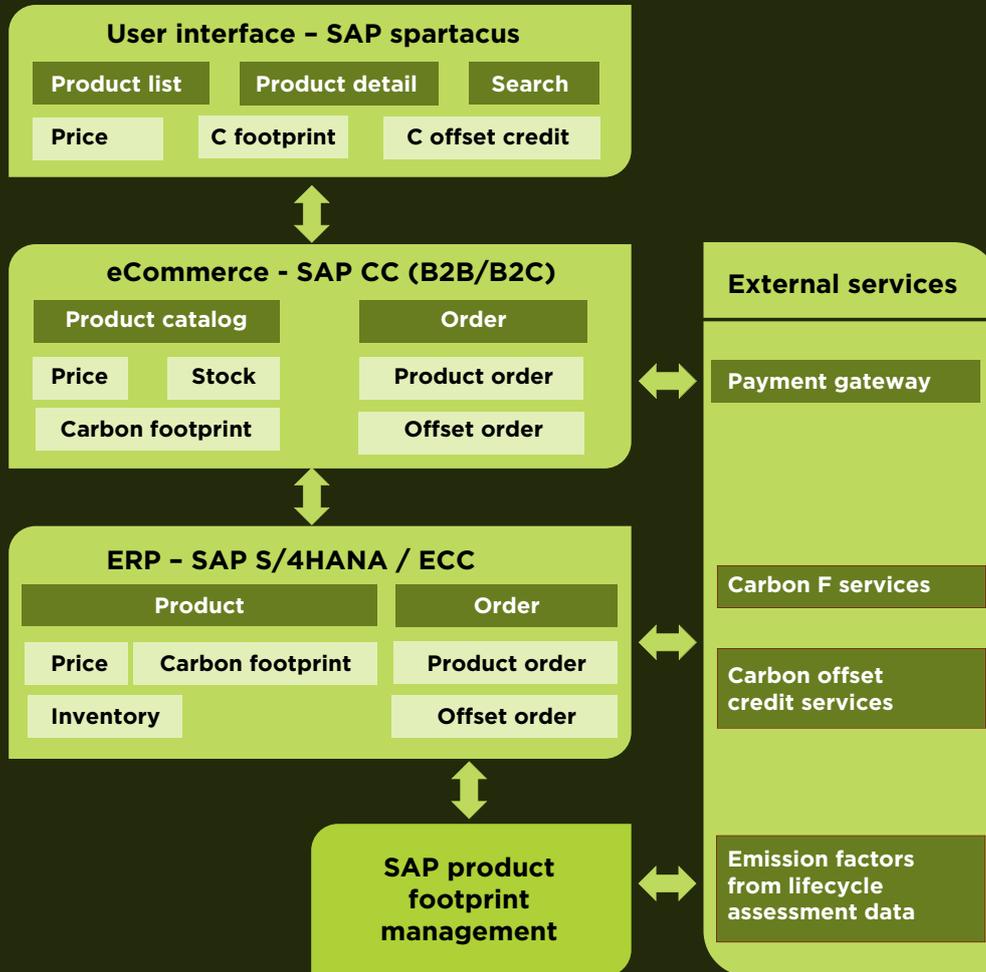
The key concept is that offset credits are used to convey a net climate benefit from one entity to another. Because GHGs mix globally in the atmosphere, it does not matter where exactly they are reduced. From a climate change perspective, the effects are the same if an organization:

- (a) ceases an emission-causing activity; or
- (b) enables an equivalent emission-reducing activity somewhere else in the world. Carbon offsets are intended to make it easier and more cost-effective for organizations to pursue the second option.

High-level architecture

The high-level architecture for both the features discussed above could be described as below. For the purpose of this white paper, we will describe the

architecture using the SAP technology stack. However, a similar architecture can be defined using other technologies as well.



The front end could be web/mobile/social or even a 3rd party application and will display, along with the products, the carbon footprint number. They will also enable an option to buy carbon offset credit through a third-party service.

As mentioned earlier, SAP Product Footprint Management, which is a cloud application running on SAP Business Technology Platform, enables calculation of carbon footprints at product level based on the data from S/4HANA and emission factors from lifecycle assessment data. This can be done periodically and at scale across the entire product lifecycle. The calculated footprint numbers can then be sent back to S/4HANA for further

downstream use and analysis and reporting. There are also several third-party services who provide similar services for carbon footprint calculation. For example, service providers (like www.CarbonFund.org) who can help with the assessment of the carbon footprint for the products and services sold. Many also provide overall sustainability ratings for the company (like EcoVadis).

Similarly, several third-party services are available for procuring and retiring offset credits. The carbon offset credit services can be integrated with SAP S/4HANA for the offset credit orders or they can be integrated directly with commerce to enable customers to procure these credits from a single platform.

The eCommerce platform could also help aggregate the carbon footprint for the customers, similar to how it maintains the order history. This information makes it easy for the customers to decide the amount of carbon credit they should buy

if they so desire for any given period. Recent technology also allows carbon credits to be saved in wallets and track spends and “retirement”
Example: www.terrapass.com

Making eCommerce more sustainable

Next, we can consider features which will further enhance the sustainability quotient of an eCommerce platform. It is a well-known fact that packaging and logistics are at the top of the list when it comes to impact on climate in an online business. So, any endeavor to making eCommerce a more sustainable model, needs to include innovative ideas for reducing waste in packaging and optimizing logistics. This will not only make eCommerce business sustainable, but also have a huge impact on controlling operational costs, so it’s a win-win for online businesses.

To start with, one of the far-reaching decisions an organization can take is to use environment friendly packaging material. Of course, that in itself will not be sufficient, so we need to include features to reduce packaging per se.

In this section, we will explore options to make online business more sustainable. Ranging from adopting sustainable packaging to reducing packaging and optimizing logistics, these can be slightly more complex as it will need the support of other applications and backend systems in the enterprise IT landscape for efficient implementation.

Adopt eco-friendly packaging

Thanks to the rapid growth of eCommerce due to COVID-19, the global eCommerce business will most likely cross \$5.4 trillion by 2022. While this is excellent news for online businesses, the ever-increasing packaging waste, poses a huge risk of an adverse impact to the climate. Unless drastic and urgent steps are taken across the value chain globally to reverse this trend, we are looking at an imminent environmental catastrophe in the near future.

Luckily, sustainable eco-friendly packing is already available. The options vary depending on the industry, but in general, eco-friendly packaging refers to the sourcing, production, usage and disposal of packaging that leaves minimal environmental impact and footprint. The key considerations for sustainable packaging are:

Minimize waste and support circular economy

Optimize the use of recycled and bio-degradable material

Source, manufacture, and transport with maximum use of renewable energy

Good and safe for consumers as well as environment throughout its lifecycle

Sustainability rating services for businesses

Sourcing and procuring eco-friendly packaging can be a challenge for many businesses especially when they are dealing with numerous options. To make this process relatively easier and streamlined, procurement applications can be enhanced to include sustainability ratings of the suppliers so that the procurement departments can make informed decisions while finalizing a supplier and purchase.

HCL has collaborated with SAP and business sustainability rating service

provider EcoVadis (www.EcoVadis.com) to integrate the ratings feed with Ariba. With this solution in place, businesses can now, define threshold sustainability ratings for their vendors to be in the list of preferred suppliers for the packaging material or any items sourced from suppliers. This allows the procurement department to not only select suppliers meeting their sustainability criteria, but also seek on demand ratings for suppliers who haven't been rated yet.

Reduce packaging

As mentioned earlier, packaging waste ranks amongst the topmost concerns in any online business. Controlling this wastage, is not only good for the environment, but also good for business as it also lowers cost. So, it's surprising that not much thought has gone into controlling this waste in real earnestness.

According to a research by First Insight (<https://www.statista.com/statistics/1100403/excess-packagingamazon-shipments-generation/>) nearly half of people polled, think shipments sold and delivered by

online stores include excess packaging. From eCommerce perspective, we can implement features that could go a long way in encouraging sustainable practices and habits when it comes to reducing waste in packaging.



Option for OEM packaging only

A simple yet a very effective feature is to give the option to customers to eliminate additional packaging on top of the original OEM packaging. Most OEMs (original equipment manufacturers) deliver their products in their own packages to the resellers - retailers / distributors /wholesalers / etc. Most of the time these OEM packages are robust and safe enough to go through the rigors of a typical delivery process. Adding additional packaging on top of the OEM packets is

essentially a waste which can be eliminated easily. However, if the businesses feel that delivering products to their customers without the additional packaging could lead to a decline in the customer experience of their brand, then they can leave this decision to the aware customer. All they need to do is to educate the customer which products ship with an OEM packet that is strong and safe enough to be delivered to their doorstep.

Option to add multiple items in a single package – Box-Tab

Another effective feature is to give the option to customers to combine orders in a single package where possible. An efficient way (amongst similar others) is to allow the customer to start a “Box-Tab” (similar to a bar-tab) and start shopping. We can define business rules around starting and closing a Box-tab based on the operating model and type of merchandise sold. For example, a simple one could be that the box packs up once it is full and delivery is initiated, with an option to start a new box automatically

(or manually if desired). Box sizes can be based on type of merchandise and delivery frequency desired.

This feature will require support from backend systems and logistics provider applications. Once the feature is analyzed and designed in detail as per business needs, suitable customizations can be made for implementing this feature holistically. A high-level exploratory architecture is discussed in a latter section to explain in more detail.

Reduce/optimize shipping & logistics

Shipping and logistics, arguably the most critical components of a seamless e-commerce experience all customers expect and demand, are carbon-intensive processes with a huge carbon footprint. According to a research by Boston Consulting Group, transportation activities account for 17 percent of global greenhouse gas (GHG) emissions - <https://www.bcg.com/en-au/publications/2020/climate-action-pays-off-in-transportation-and-logistics>

According to World Economic Forum estimates, urban deliveries are expected to add 11 minutes to daily commute and increase carbon emissions by 30% until 2030 without effective intervention. <https://www.weforum.org/press/2020/01/urban-deliveries-expected-to-add-11-minutes-to-daily-commute-and-increase-carbon-emissions-by-30-until-2030-without-effective-intervention-e3141b32fa/>

While several companies are switching to greener vehicles and other initiatives for a more eco-friendly shipping and logistics processes, here we will focus on initiatives and features that can be included in eCommerce to make delivery and return more sustainable.



Accurate product descriptions

Research shows that more than 20% of product returns in eCommerce can be attributed to wrong expectations and inaccurate product content on the portal. While many factors are not easily controllable, a good and accurate product

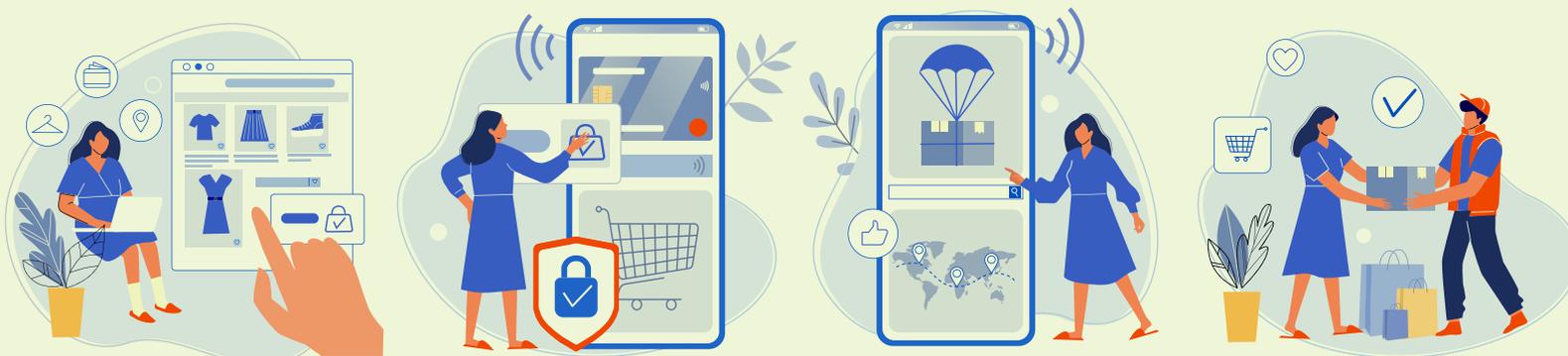
information reduces the risk of product return to a large extent. The eCommerce strategy should include a robust and comprehensive enterprise grade PIM (product information management system).

Some key consideration from PIM perspective to convey accurate and relevant product description:

- ▶ Avoid exaggerated information. Examples could include product features, materials used, or even product usage guidelines which tend to showcase the product in unrealistically good light.
- ▶ Provide specific and clear product descriptions. Elaborate all relevant product specifications - ranging from dimensions and weight to compatibility with other products and environments like voltage, temperature of operation, etc. Ecommerce is an excellent tool to research the products before making the final purchase, and your eCommerce platform should enable the user to do exactly that.
- ▶ Wrong information is a strict no-no. Information provided on the portal,

must be validated and quality assured to make sure there isn't any wrong information pertaining to any product in the catalogue. Most of us would have encountered this problem especially in the context of materials used in the product. This is one of the major causes of product return.

- ▶ The pictures, videos and any multimedia related to the product should not be misleading. Almost every buyer on the online channel relies heavily on the visuals to know the product before they make the purchase. If these are misleading or inaccurate, then it not only creates a bad user experience, it also becomes a cause for product return.



Reduce delivery frequency

The Box-Tab concept reduces delivery frequency, however, even without this feature, buyers can be given the option to allow sellers to optimize delivery trips based on shopped articles, say for the whole week/fortnight, etc. To encourage this selection by the customer, she should be explained the impact she will make toward sustainability by opting for this initiative. Several studies show that most (more than 60 %) aware customers are willing to accept some delay in delivery time if they are made

aware of the positive impact this would have in containing emissions.

The eCommerce platform should enable the customer to select this option conveniently during the checkout flow, to give the seller the flexibility to plan and optimize delivery effectively in order to reduce the trips and thereby reduce carbon footprint.

There are also several route optimization tools available to optimize the last-mile delivery for online businesses.

Reduce/optimize returns frequency

As in delivery of products, reverse logistics, i.e., pick-up and return is also quite a carbon-intensive process in eCommerce. Again, depending on the industry and type of merchandise, we can adopt some innovative features to optimize the return process.

One such simple yet effective feature is to allowing buyers, the option to select return at the time of next delivery. This can be especially adopted by online businesses selling high volume or frequent replenishments – for example long shelf life grocery items, or even apparels where customers typically try out several articles before settling down on the one.

Like in the case of Box-Tab, the eCommerce platform could also give the user to create a similar “Return-Box” to club multiple returns into a single trip. This feature is especially useful for items like apparels.

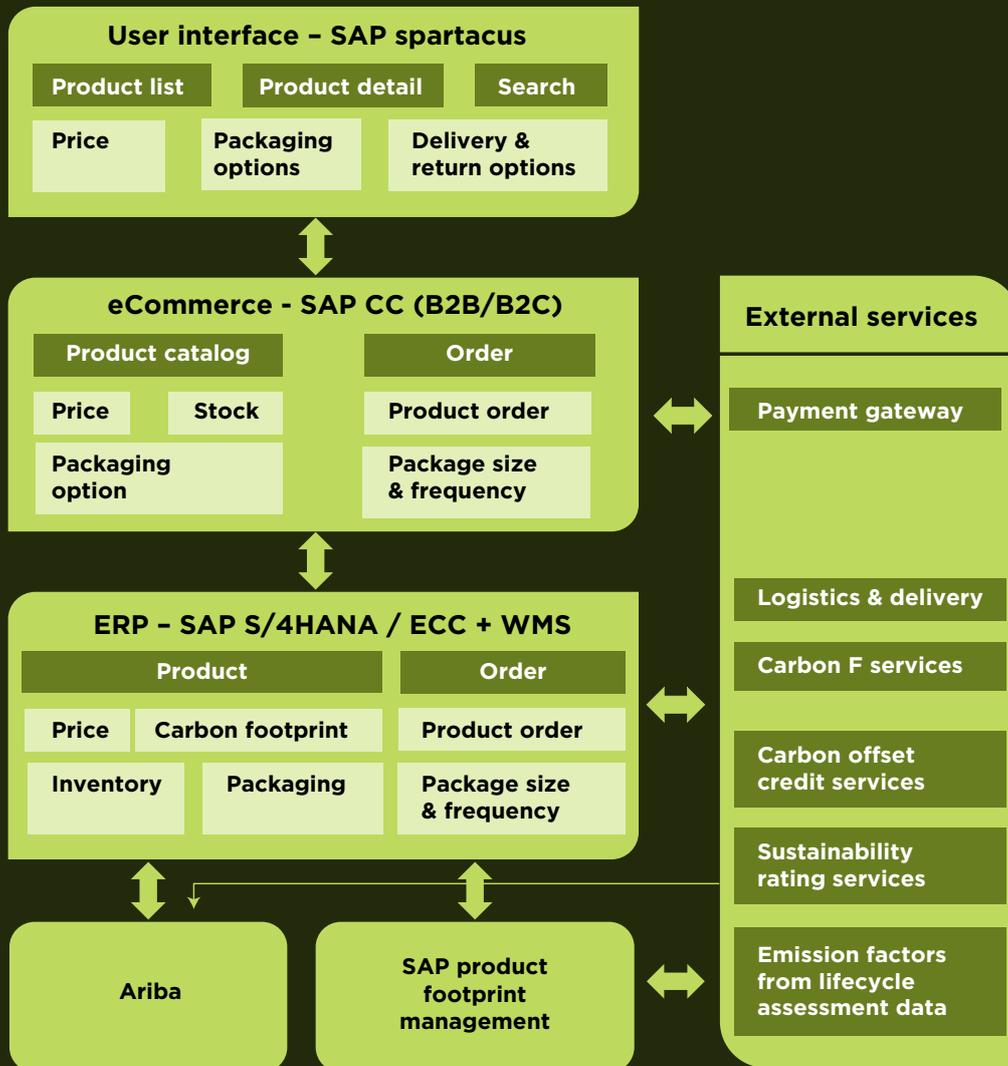
While on the topic of returns, it is worth mentioning that online businesses should also explore seemingly extreme yet logical options to decide whether it’s even worth spending on processing a return – just leave it with the customer even after processing a refund. There are financial and brand value considerations in arriving at such decisions. With new technology in the area of machine learning and AI, it’s easier to assess the financial and physical viability of processing a return. The reduction in the carbon footprint also increases the viability of such options.



High-level architecture

The high-level architecture for both the features for making eCommerce more sustainable could be described as below. Again, for the purpose of this white paper, we will describe the architecture using the

SAP technology stack. In fact, the below architecture is in a way an extension of the architecture discussed earlier. Also note that a similar architecture can be defined using other technologies as well.



It is important to note that the role of third-party solutions has increased significantly. A key aspect of the solution is to use the capabilities of several cloud-based services, which deliver special capabilities to make the eCommerce platform more sustainable.

From the eCommerce engine point of view, it will require some customizations, but not too complex, as the underlying features and functions are still the same and derived from the core. As mentioned earlier, SAP Ariba takes in the business

sustainability ratings from service providers like EcoVadis as a feed and on demand.

Some additional provisions need to be made for detailed packaging-related information in back-end and in eCommerce engine. These will allow the eCommerce engine to apply business rules while deciding which orders can be clubbed for delivery, and what could be the recommended frequency or which products can be dispatched in its OEM packaging etc.

Other solutions to consider

There are more solutions that should be considered and these may require a more intensive transformation of the overall enterprise-level CX platform. There are several innovative ideas that can be

implemented to make eCommerce more sustainable. Without going into the details of a long list, I feel some of them are worth a mention:

Promote the circular economy

Create a private marketplace to allow the buyers to resell the used products they bought from the seller (after purchase validation etc.) and price control options by seller.

End of product lifecycle services

Provide a suite of holistic disposal / recycle / refurbish services to the customers so they are given the option to avail these services at the time of product purchase or later.

Conclusion

Just because it's important, it does not necessarily imply businesses must implement whatever it takes to reduce their carbon footprint. A thorough assessment of the IT landscape and business processes is the key to defining a proper roadmap to move toward sustainability. Most successful transformation journeys start with small steps and regular feedback and evaluations before taking the full plunge. A great customer experience is not built on a few binary decision points, rather, it takes a holistic CX strategy coupled with a team committed to customer satisfaction and sustainability, together with the support of tools and processes which can adapt with speed and agility to deliver a great sustainable eCommerce experience.



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Manish is a customer experience specialist with over 20 years of experience in the Digital Engagement and Transactions domain, including strategizing multi-year roadmaps and delivering customer-centric digital transformation programs with compelling features and functionalities to enable great customer experience. He has extensive experience in product design, business consulting and management in the consumer internet space. Manish is also a guest lecturer in prestigious universities like Indian Institute of Management, Xavier Institute of Management, and a regular panel speaker on several new and emerging technology forums.

About HCL's SAP Practice

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