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Special Issue: Sustainability Consulting

[Commentary and Discussion]

The Cubical Matrix of SustainabilityMartin BAITZ^{1,*} and Constantin HERRMANN¹

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Synopsis: Companies need to meet accepted sustainability standards with solutions that are unique to their business' needs, requiring them to seek out sustainability experts for help. As part of Sphera's mission to create a safer, more sustainable and productive world, Sphera works with companies around the world to help them along their sustainability journeys. Such a flexible approach allows Sphera to work with businesses without a fixed offering, remaining agile to better cater to any particular company's needs. This adaptive approach has a complex strategy behind it that combines data, software and consulting to help clients move toward sustainability independence. The approach emphasizes education and training, which encourages innovation and a shift in business models. This leads to greater transparency in sustainability communication and creates a collaborative model for sustainability expansion along the value chain. This combination is what makes Sphera's consulting strategy unique. In addition, Sphera's consulting approach tackles corporate and product sustainability and the topics that arise where the two categories of sustainability meet. The intersection between product and corporate sustainability begins in a space where each side can inform the other. This synthesizing approach is, ultimately, always a life cycle approach. The life cycle of the product includes the value chain, whereas the lifecycle of the company is composed of the value chain of their entire product portfolio, including the company's operations itself. That combination involves value chain management and transcends simple solutions to lead companies to address bigger-picture topics, such as cooperative business practices, that will move modern economies toward a circular economy, an obligation for every company if we are to meet the rapidly mounting environmental challenges and create a sustainable future for humanity.

Keywords: product and corporate sustainability; life cycle approach; value chains; consulting strategy

1. The sustainability journey and flexibility

A thorough explanation of Sphera's sustainability consulting strategy requires contextualization of the experiences that client companies go through when they act on environmental sustainability. Examining what client companies face offers insights into why sustainability consulting is necessary. It also shows at which stages along a business' sustainability journey consultancy activities are most frequently triggered and which strategies work best at a particular point in time. As you will learn, Sphera's consultancy approach is inevitably linked to where each client company finds itself along its sustainability journey and is therefore characterized, above all else, by tremendous flexibility.

There is no minimum expectation or hurdles to jump over before a company can initiate sustainability efforts.

Companies can start wherever they are and focus on whatever they choose. Most companies are already engaged in sustainability activities, so often it is only a matter of bundling the activities, structuring them and moving them to the next logical step along the company's unique sustainability pathway (Figure 1).

2. Accuracy challenge

Businesses that begin to assess the sustainability of their activities and make improvements are quickly confronted with the problem of accuracy. Where is the data coming from? How can they be sure that the data used for calculation is correct? What benchmarks on behalf of which indicators do the calculations rely on? Which calculation methods should they use? How can they verify the accuracy of the results?

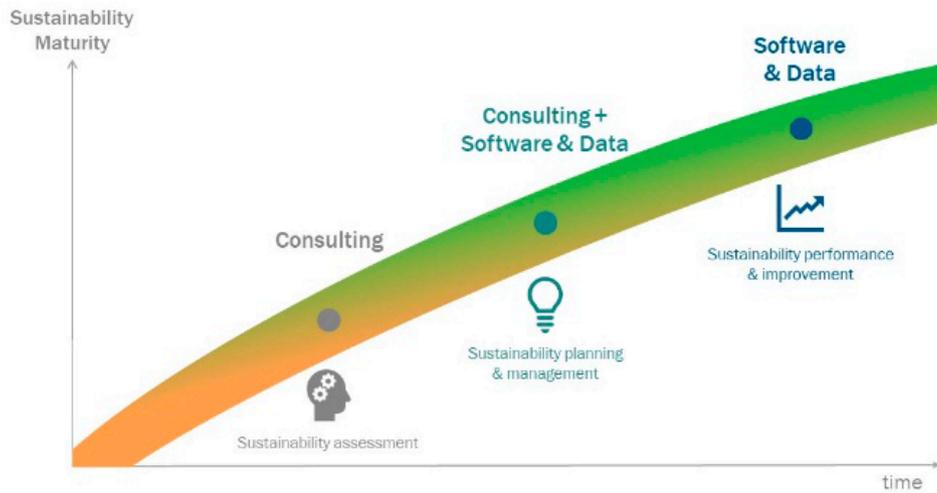


Figure 1. The Sustainability Maturity Curve. Companies normally begin with consulting and mature toward greater independence with in-house teams of experts who use software and data solutions.

When organizations seek solutions in the marketplace, they normally come across two options: software solutions and consultancy solutions. Companies need to determine whether they should buy the results they need through the assistance of consultants or create the results themselves through software. Buying the results is a one-time solution in which a company pays a consultancy for the result. The company does not learn anything, but it also does not have to invest heavily. The consultancy company takes all responsibility for the accuracy of the results.

Alternatively, using software enables companies to learn about sustainability. However, if a software solution is going to truly make a difference, it must be flexible enough to be configured to the company's demands, which can be achieved through tactical or strategic consultancy (we will address this later).

Frequently, companies base their sustainability software choice on price. They often turn to the cheapest solution they can find first, typically some kind of online software for calculating corporate or product environmental performance. This software requires the company to input information about the life cycle of its products or about its operations.

When client companies start searching for the right input data, several questions arise about data accuracy: How much effort will it take to collect the same or similar information on a regular basis? Who needs to be involved in the process? Which divisions of the company should be included? What do we do when critical information is

missing? As a result, companies quickly realize that software alone does not provide all the answers.

The origin of the data used for calculating must be transparent for the client company to ensure that it is representative of those activities that take place in its business. Poor data sources translate into false results. Companies hire consultants for software implementation to maximize the value created by the software and minimize the efforts needed to run it.

Accuracy in the use of sustainability software requires both expert implementation and accurate data. In other words, companies that make the mistake of expecting accurate results from generic online calculation tools can expect to delay accurate assessment and increase their sustainability costs. The cost in time and effort required in preparation for making a simple software solution accurate is likely to be greater than the well-integrated (consulting/data/software) alternative.

3. Strategic vs. tactical vs. operational consulting

We break down our consultancy activities into three categories (Figure 2). A client company may seek strategic advice: Why should they act and what is the business case? It may want a specific tactical approach: How should they act, what are the most efficient processes and who should be responsible for execution? Or it may seek changes at the operational level: What technical tasks related to the tactics and the strategy need to be carried out and by whom and when?

We will break down the actual activities that fall



Figure 2. The three levels of consulting activities.

within each of these categories later in this paper. However, briefly explained, Sphera helps client companies transform the strategic and tactical levels into very specific technical options that each client company can validate on the production floor and in the value chain.

4. Client-centric consultancy

In sustainability, it is impossible to predefine the client company's strategy because it is always individual to that company and the products or services they produce and deliver. Even the type of product does not necessarily dictate the strategy because two different companies could have two totally different sustainability approaches for realizing their visions, although they produce comparable products and are both on a progressive path toward greater sustainability. They may even realize equivalent sustainability outcomes with two totally different strategic approaches.

Each company is also structured differently and works with individual processes. So diverse strategies, different processes and varying responsibilities lead to different tactics.

Sphera's consultants develop sustainability solutions out of a client company's culture, strategy and business needs rather than imposing a simple, ready-made solution.

5. Corporate sustainability data

A client company may seek sustainability improvements for its operations, its products or both. So, depending on what the client company is trying to accomplish, it will need either product- or corporate-related data or both types of data.

If the company needs corporate data (e.g., scope 1 and 2 emissions data), it can get it relatively easily, since collecting such data is typically a function of each company's core business. However, every business operates differently, so someone will need to configure the software and ensure that the data used is adequate for a company's needs.

Establishing a sustainability solution at the corporate level may also include transforming the company culture—changing internal behaviors that dictate how operations function. Such a transformation also requires proper tactical and operational consulting to understand the most efficient implementation into the company's structure. It can also necessitate that certain indicators are used for establishing the best option from a number of standards in the sustainability arena.

6. Product sustainability data

If, on the other hand, the company is seeking sustainability solutions for its products, the question becomes: How much data does the company already have? Where is the data stored (in which format or structure)? How much data will the company need beyond what they have? Which data sets are most relevant? How is the data implemented? What does this data even mean? Therefore, product sustainability consulting is much more technical than corporate sustainability consulting.

7. Intersection between corporate and product sustainability

Sphera helps client companies to synergize between corporate and product sustainability if the companies are ambitious enough to address scope 3 emissions. Often corporate sustainability is divorced from product portfolio sustainability. Reality and marketing are also often disconnected and tell contradictory stories (i.e., greenwashing). An obvious time to align between corporate and product sustainability is when seeking to calculate scope 3 emissions. That is, when companies reach out to their suppliers and those involved in the use phase (customers) and end of life (EoL) of all products, they inevitably open the door to a different way of doing business.

Typically, the external data from the supply chain is easier to buy than to create internally. For product sustainability, getting the right data for assessment is beyond the company's core activities, because it involves

collecting information about the materials and manufacturing that happens before the company receives its parts for assembly. It is also critical to know how the product is being used by the B2B or B2C customer and to understand what happens to the product at its EoL—its reuse, recycling or final disposal.

Solving this challenge requires the optimal combination of expertise and data because, again, tapping into the supply chain or EoL is beyond the scope of a company's regular business activities. Therefore, it quickly becomes obvious that the supply chain figures need clarification on the tactical level, how to manage things and, on the strategic level, why the company is investing in this and how much effort is worthwhile.

Here it becomes clear that the corporate strategy also needs to consider product-related sustainability. If the client company wishes to assess and act to improve all areas of its sustainability, it must specify the intersection between product and corporate sustainability on all three levels:

- For the strategic level, it must have the same vision and goal for both product and corporate sustainability, to ensure that the sustainability journey moves in a harmonized direction.
- For the tactical level, the company needs to address the ideal implementation of actions and solutions (often software implementation, but also programs for employees) combined with the right selection of indicators—CO₂ equivalencies, land use, water use, Global Reporting Initiative (GRI), etc. Do the software, implementation, program and indicators provide the optimal granularity of transparency, ensuring that options for influencing value along the sustainability journey also move in the same harmonized direction with new product developments and a new corporate identity?
- For the operational level, time and effort matters in collecting the right data compared to the cost of purchasing data. Both must ensure the intended accuracy as well as support the business case for creating value from sustainability performance. Sustainability activities may not be the company's core business, but they are nevertheless critical to the success of the company.

8. The cubical matrix of sustainability

As you can see in the Cubical Matrix of Sustainability (Figure 3), for Sphera there are three axes upon which all sustainability consulting relies. The first axis includes data, software and services. The second axis is the need to have proper product and corporate sustainability as well as the intersection between the two. The third axis addresses the strategic, tactical and operational levels.

9. Understanding the cubical matrix

There are 27 combinations in the Cubical Matrix of Sustainability, and Sphera consultants are experts in quickly identifying where client companies are along their sustainability journey and what they can offer to meet the demand of the specific combination within the Matrix.

For example, a client company might need strategic consulting (axis 1), corporate sustainability (axis 2) and software (axis 3). If the company is trying to decide whether to buy software for corporate sustainability, then they need strategic consulting to clarify the *why*. Once they have decided, then they need tactical consulting to clarify the *how* (adapting to the specific needs). If they have clarified the how, then they may need consulting to help determine the *who*, meaning the person, people or technology that is going to feed the software with data, how often, etc.

Let's take another example, this time for product-related, operational consulting and data. The client company wants to determine whether it needs to collect the data by itself or whether it should buy the data from a

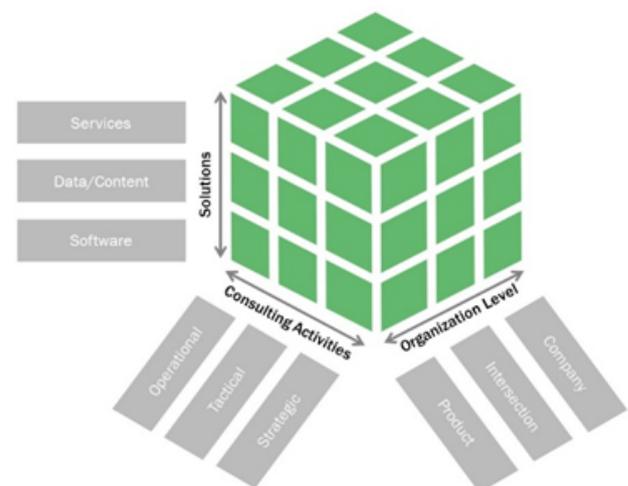


Figure 3. Cubical Matrix of Sustainability. The three axes create 27 points of possible connections.

company or institution that has it. Our consultants could generate the data sets for a client company if, for example, it saves them money or human resources.

Each combination of the three axes is the vehicle for delivering a solution for the client company. Delivering the best solution in the field of sustainability means accessing all the various competencies available in the Cubical Matrix of Sustainability and adapting the right ones to fit the client company's needs.

If a client wants to have a Life Cycle Assessment (LCA) from Sphera for a product, then the company already falls within the 3×3 plane for product sustainability. The consultant then asks the client *why* (the strategic) they want to do an LCA to find out whether software, data or services is the right solution. Once the why is clarified, then the consultant can go to the tactical level, the *how*—is it better to buy the LCA results or to learn it through a software? Lastly, the consultant will ask the *who*, meaning from whom the data should come and which data sets will be used—the *operational plane*. A follow-up question might be—if the client is open minded—how does the client's LCA demand fit into the intersection between the two or even into the corporate plane?

10. When does Sphera get involved?

Businesses wishing to tackle the very complex topic of environmental sustainability need to be honest with themselves and with others about the impacts that their operations, products and supply chains have on the environment. However, for those companies to become authentic in their internal and external communication about their sustainability, they must assess their current sustainability status in a realistic way, meaning with accurate data. After companies search around online for solutions, they quickly realize that generic one-size-fits-all solutions will not work in their situation. That is the point at which Sphera's consultants are normally called upon.

The most successful companies that are trying to make the shift toward greater sustainability and that have made public announcements about their goals—such as through carbon neutrality declarations—are focused on corporate activities that provide long-term value for society. In other words, such companies are trying to avoid planned obsolescence during production and shift their business models toward providing service rather than products. They are trying to build quality,

long-term solutions and to integrate the kind of sustainability assessment that takes into consideration the complexity of current global environmental challenges. In this way, a company secures a positive brand reputation for the future.

The foundation of our consulting business is our industry knowledge and our creative, strategic thinking. That means we are always engaged in a continual learning process to improve our skills, expertise and insights. Our consultants are required to come out with new studies every year and be actively involved in research that brings new insights into their areas of sustainability expertise. With an emphasis on continual learning, we keep ahead of our competition and secure our thought leadership.

There is a saying from one of our clients that goes something like this, "Once you stop to get better, you get worse." The saying often uses a river as a metaphor. The river of knowledge never stops flowing—it advances as time passes and technology develops. We cannot just stop, but must flow with it.

Creativity and strategic thinking are other characteristics we encourage our consultants to hone. Once consultants have helped companies to assess their situation thoroughly, we help companies use their new sustainability insights to identify creative alternative solutions and opportunities for innovation that then inform overall corporate strategy. In other words, we know from experience with many clients that sustainability insights drive not only greater efficiencies, but innovation and strategy.

Lastly, we encourage companies to take total responsibility for their actions, to be honest about communicating, even when a company is failing to be as sustainable as it wants to be. Of course, companies do not have to disclose everything about what they are doing in sustainability. But if they are as transparent as possible, admit where they have the potential to improve and show that they are actively working toward solving their sustainability challenges, they will earn greater trust and respect from their B2B or B2C customers.

11. Seven core strategies

We have identified seven strategies that make up the core to our approach. Just as with our clients, we differentiate between strategies and tactics. In this context, strategy is the general plan for achieving our consulting goal,

which is to help businesses succeed sustainably. Here is an overview of our core strategies:

1. We combine sustainability data, software and consulting to differentiate ourselves in the marketplace. No other company offers all three. Normally, a client company begins with consulting, especially if they are new to sustainability. Once they mature along their sustainability journey, they will want to access industry-specific data and software tools. In this intermediate stage, we often engage in less consulting, but act more as a knowledgeable guide, sometimes assisting with larger projects or training the client's sustainability team. Eventually, a company will have their own, well-trained sustainability team and will no longer require consulting services, except, perhaps, for isolated projects or studies.
2. We transform companies from dependency on external support for sustainability to independence and self-governance in their sustainability efforts. Of course, some companies may not have the resources to develop a large sustainability department, in which case they may outsource their sustainability activities entirely to Sphera. However, although it may seem counterintuitive, we strive to help businesses to learn and develop skill sets that release them from dependency on external consultants. We think that consultancies that make their clients dependent on their help are doing them a disservice.
3. We educate and train clients about sustainability. The more they know, the better decisions they will make in relationship to sustainability. If they remain ignorant about how their activities affect the environment, eventually it will come back to haunt them. So, we encourage the development of deep knowledge about the effects of their products, operations and value chains.
4. We suggest ways sustainability can be used for disruptive innovation. The insights that companies discover about design when they assess their sustainability situation can be used to rethink their activities altogether. So, for example, a company that currently manufactures shoes will, while working with our consultants, begin to look at what they are delivering in a different light. They may discover that they are not delivering a pair of shoes, but a means of providing foot protection. Stepping back

from the product and looking at the business in terms of demand, value and services, a company gains remarkable insights into how they can transform what they are doing to minimize the negative impact on the environment while still providing the same (or greater) value to their customers.

5. We encourage the integration of sustainability throughout a company's brand and corporate identity. Why? Because we know from experience that companies that place sustainability at the core of their business activities and brand identities are leaders in their respective industries.
6. We help businesses become more authentic and transparent in their communication with their B2B and B2C customers and other stakeholders. Based on accurate data, consultants work to help companies differentiate themselves in the marketplace by sharing their sustainability progress. Our consultants encourage the use of such verifiable vehicles as Environmental Product Declarations, Science Based Target declarations and other widely recognized standards.
7. Lastly, we give companies insights into the bigger picture as to why people should act, going beyond simply compliance to the greater ethical and technical dimensions of sustainability. Sustainability is no longer only about checking off a box to show that a company is doing something, but about participating in the larger movement to stop global warming and other environmental impacts. It is about working toward a sustainable future that includes a new, collaborative business approach. It means transforming one's thinking toward a circular economy—no material waste and no emissions (Figure 4).

12. Core tactics

The core tactics represent the *how* of what we do with clients to deliver on our seven strategies. Here they are listed in sequential order:

1. **Holistically assess the sustainability of an organization based on its current situation.** Our approach is holistic in that we try to assess a company's sustainability situation, taking into account all of its complexity. Some companies (and consultancies) tackle their sustainability in silos, not taking into consideration all inputs and outputs and often



Figure 4. Greater sustainability increases revenue, reduces costs, improves brand and reduces risk.

shifting environmental burdens from one impact to another. We avoid that. We also do not push clients to make a fixed set of changes, but start with wherever they are. If a company only wishes to begin with a single product, then we start there. If they wish to tackle their entire operations and/or their entire product portfolio, then we will help them do that. So, we remain flexible to focus on a company's specific conditions and needs, while still looking at their situation in all its complexity.

2. Meet with clients to identify hotspots and changes they can make immediately. That means identifying low-hanging fruit, things they can tackle right now that are relatively easy. We also identify hotspots that have the worst environmental impacts and try to focus a lot of attention on those, helping to reduce the impacts as quickly as possible.
3. Develop a sustainability strategy with the client that makes sense given their situation. Realistic long-term planning for sustainability requires a strategy, a plan for success. We help companies to plot out their strategy for years to come while still addressing more immediate sustainability concerns.
4. Provide software tools so companies can measure where they stand and help them innovate into the future. Our product sustainability software (GaBi) and our corporate sustainability software (SoFi) provide tools that help companies assess their current impacts and identify future alternatives. Using our real industry data, our consultants train clients to use the software and guide them through implementation.

5. Set specific targets that can be externally verified. These might include a Science Based Target, scope 1, 2 and 3 targets, targets related to the Sustainable Development Goals, carbon neutrality or any other goal that can be verified through assessments recognized as legitimate within the general sustainability community.
6. Honestly communicate the results, being as transparent as possible, internally to build an improved business culture and externally to build trust with stakeholders and shareholders. Along with published studies, Environmental Product Declarations and other scientific communication, we encourage and even assist in translating detailed environmental information into the kind of language that customers and the general public can understand.
7. Build scientific and technological assessment results into a sustainability marketing strategy that continually assists companies in differentiating themselves in the marketplace and ultimately pushes their unsustainable competition off the playing field. In other words, allow sustainability outcomes to drive marketing strategy and push competition to become more sustainable themselves or face the inevitable consequences.

13. Core operational solutions

The following is a brief overview of the kinds of solutions Sphera's consultants offer client companies (the *what*) to achieve their sustainability goals. These link back to the numerous sustainability options outlined in the Cubical Matrix of Sustainability.

Performance Improvement and Implementation

Life Cycle Assessment (LCA)
 Product Environmental Footprint (PEF)
 Corporate Environmental Footprint
 Environmental Product Declarations (EPDs)
 Product Portfolio Analysis and Improvement

Integrated Sustainability Performance Management

Sustainability Matrix Consulting
 Supply Chain Management
 EDGE Green Building Certification
 Product Carbon Footprints (PCF)
 Water & Land Footprints (LANCA (Bos et al. 2020))
 Critical Review
 thinkstepGo™ Workshop (thinkstep 2020b)
 Materiality Assessment
 Benchmarking
 Sustainability Strategy Development
 Business Value of Sustainability
 Sustainable Solution Steering™ (thinkstep 2020a)
 Circular Economy
 Carbon Neutrality & Net Zero
 CDP Reporting
 Science Based Target Setting

14. Conclusion

Sphera's sustainability consulting strategies, tactics and solutions enable companies to experience unexpected insights into their manufacturing options, their operational choices and their alternatives within value chains, upstream toward suppliers and downstream toward users and EoL. Companies that work with consultants to progress along their sustainability journeys can, and often do, discover surprising insights and ways toward greater innovation and improvements.

Sphera has experienced this many times with client companies. For example, we worked with a major auto manufacturer that found out through LCA consulting that the weight of all their components for a vehicle did not match the total weight of the car. In that way, the client was able to make their engineering more accurate.

The flexibility and client-centric nature of Sphera's approach to sustainability consulting allows us to adjust to the specific needs of client companies and to deliver solutions that match those needs. We are not focused on one-size-fits-all scalable consulting solutions, because we

know such solutions do not lead to greater long-term success for our client companies—every company's sustainability pathway is specific to its business.

In the past 30 years, companies improved with our assistance and solutions in more than 5,000 projects worldwide. Those consulting activities consistently resulted in improved products, reduced costs, greater efficiencies, higher revenue or improved brand value for the client companies involved. Of course, the beauty of all of this is that the client companies' efforts have contributed to improving the sustainability of our societies and economies, an achievement that we need to build upon and accelerate.

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