

Sustainability Strategy and Accounting in the light of broadening perspectives and hope for better results

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Abstract

The EMAN conference 2016 celebrated EMAN's 20th anniversary. Various publications have been issued. Many companies have introduced policies and practices that relate to sustainability. That explains the further attention in research given to management tools such as the Balanced-Scorecard and the development of business models in which sustainability can be given a prominent place. The paper explores various areas in which sustainability management accounting could make further contributions.

Special attention is given to the following areas:

- Business continuity and environmental management
- Water management: the net zero model and its performance indicators
- The rise of community-based management accounting
- Corporate governance and sustainability
- Responsible Management
- Hypercompetitive markets, strategies and organisational adaptation
- Business models and sustainability
- The Third Industrial Revolution.

1. Sustainability between hope and fear

Sustainability is about a future requiring action today. We find ourselves between hope and fear, between activity and the realisation that we do not enough. This is illustrated by daily publications in newspapers. Reading in a Dutch newspaper of 15 September 2016. The first article reports about the latest two-yearly Balance of the Living Environment published by the Dutch Planning Bureau for the Living Environment (1). The government is exhorted to swing into action. Drastic interventions in agriculture and husbandry are inevitable. Climate change, biodiversity and the wanted circular economy are areas of great concern; we're lagging

behind. When it comes to the reduction of CO₂, closing a few coal-fired power plants will not be enough to reach the targets. The same newspaper of 15 September 2016 reports on new government policies that should bring a sustainable society closer to realisation: circular economy policies and the announcement of a new natural park along the North Sea Coast; see for more details Text Box 1.

The above reporting and announcements underline what is going on for decades. There are quite some policies in place that promote sustainability, and there are results to be reported. However, each time these results appear to be insufficient to guarantee a sustainable future.

In the business community, we see similar trends. Many companies have introduced policies and practices that relate to sustainability. There is progression in many areas; sometimes, leading companies attract attention because of their progressive strategies. Nonetheless, many companies take a passive stand towards sustainability. They often intend to at least obey the law and try to avoid courses of action that could harm their reputation. However, even such behaviour cannot be taken for granted. The recently discovered trickeries undertaken by Volkswagen and, likely, other car makers (to hide the true levels of harmful content of the exhaust gases) is just one of many manifestations of short-termism and lack of social responsibility that characterises much corporate activity. Also, in this case, we find ourselves in a position between hope and fear. Such problems could later speed up the introduction of cleaner technologies because of increased public pressure and political resolve.

Text Box 1. New policies favouring sustainability

A few pages further down, the newspaper reports about new 'circular economy' policies launched by the Dutch government that summon companies to innovate to switch over to the reuse of raw materials. Gone will be the short-lived materials that are thrown away. In 2050, waste will be a forgotten word. In 2030 the use of fresh raw materials, minerals and metals will be halved. Producers must take these targets into account when designing their products. They will also be held responsible (more than now is the case; the idea is already quite old) for the life span of their products. Usage or leasing will imply that consumers give the products back to the producer. Recycling systems (that already exist in the case paper, metals, cars and care tyres) will be created for mattresses, diapers, textile, building materials and smartphones. Moreover, much more benefits can be derived from existing waste streams. Builders have to use much more sustainable products; in 2050 the entire built environment has to be energy neutral (which is also an EU target). At the same time, the sharing economy is worth promoting. Government policies include replacing existing laws that preclude the mixture and reuse of certain materials, supplemented by various financial incentives. In line with the Dutch neo-corporatist tradition, next year the Dutch government intends to conclude a 'raw materials accord' with the business community to bring the circular economy to life. There will be talks with the banking sector to induce it to finance innovative, sustainable projects that are promising but have not yet proved themselves.

That same newspaper, on the same day, announced that along the Dutch North Sea coast (between Hoek van Holland and Katwijk) there will be established a new national park covering a strip of coastal land of 43 kilometres long and 8.5 kilometres broad. The new national park is to strengthen the natural interconnections between different smaller areas so that the adherent natural qualities can be preserved for the future.

Source: Trouw, 15 September 2016 (1).

In sustainability research, we see similar developments: new concepts or tools are defended on the ground that previous tools, even if implemented to the full, are insufficient to reach sustainability. In the nineties, for instance, the introduction of environmental management systems was encouraged but it did not take long before there were mitigating voices. Such management systems did not require ambitious goals while it was even possible to 'go through the motions' to please the market without much real implications for the running of the business.

In general, we have seen a tendency towards preaching a broadening of corporate strategy and the integration of aspects and functions. For instance, the Balanced Scorecard was developed in the early 1990s as a new

approach to performance measurement due to problems of short-termism and an orientation towards the past in management accounting (2). Quality and process improvement programs existed well before the introduction of the Balanced Scorecard (BSC). Japanese companies, in the 1970s, demonstrated the power of their total quality management (TQM) approaches, which built on earlier innovations by Deming and others. Western versions of Japanese TQM showed up in the 1980s, including lean management, just-in-time and six sigma (3). Quality models focus on identifying processes as falling short to best practices. This allocation process, however, occurs independently of strategic priority setting whereas the BSC provides explicit causal links from quality and process improvements to successful outcomes for customers and shareholders. The cause-and-effect relationships in a strategy map and the strategic objectives on the BSC highlight the process improvements that are most critical for successful strategy execution. The BSC is noticed as a prominent managerial tool for aiming at more sustainability and the continuity of firms.

Unfortunately, the conventional BSC does not explicitly distinguish and balance different stakeholder interests, sustainability issues and derived strategic goals. EMAN started as enhancing the responsibilities firms have in field of environmental care. It may be regarded as exploring and further integrating the concerns related to a more sustainable development. The BSC is a successful exponent of this development. It is possible to broaden it and include sustainability. So, the Sustainability BSC (SBSC) can benefit from the connections between strategy and operations. The interpretation of the term 'balanced' is extended to the intensions and objectives of corporate sustainability (4). That means progression as the SBSC helps overcome the shortcomings of conventional approaches to environmental and social management systems by integrating the three pillars of sustainability (economic, social and ecological dimensions) into a single and overarching strategic management tool (2) from a business perspective.

2. Sustainability from a business perspective

Innovative business models reflect changes in society and the priorities in economic sectors. Much has been published on the connective capacity of sharing and managing values. Sometimes, it is the sharing of the same values, whereas in other instances it is conflict that creates new challenges to corporate managers. Both new opportunities and threats inspire to develop new, inclusive business models. It is important for these business models to be informed of a broad spectrum of sustainability issues. In principle, sustainability accounting could play a major role in this. To be effective, what should sustainability accounting look like? The history of EMAN and the developments in management accounting that have been addressed in this network could provide an answer to this question. Embedding a path towards sustainability in the mainstream of the business sector was and probably continues to be a key pillar of EMAN. The strength of this pillar builds upon at least three elements: 1. Business continuity and environmental management; 2. Social responsibility and 3. Business-Society relations within the framework of responsible management and stakeholder involvement.

3. Continuity and environmental management

Strategic decision making aims at the continuity of the firm by creating value to its stakeholders. From the perspective of nature and its resources, strategic decision-making of individual firms can easily be too narrow. The governance of natural resources calls for transitions to non-fossil energy and sustainable water management. This transitions requires innovative business models that lead to adopting new technologies and the use of sustainable resources. Such business models require an openness to society and an explicit willingness to take social responsibility, with clear consequences for external reporting¹. Solid governance

¹ Recent examples from car manufacturing and the banking sector revealed a lack of social responsibility, not in the least when using deceitful indicators.

approaches to natural resources consider the value of biodiversity and the option value of nature for future generations by safeguarding the regenerative capacity of eco-systems.

Innovative green energy technologies must be underpinned by solid business cases. The adoption of management concepts such as net zero water models, green building approaches and energy saving approaches are wide-spread. These concepts promote a capacity for technological innovations; the active use of environmental indicators signals what comes out of them (see Exhibit 1).

Capital budgeting is that part of management accounting that can be used to allocate capital resources to technological innovations which reduce the need for water, increase water efficiency, recycling, reusing and recharging local water resources. Performance indicators may put together a broad set of impacts a firm has on its current and future ecosystems. Cost accounting may report on efficiency and eco-efficiency levels in firms (Exhibit 2).

Exhibit 1. The case of water management within organizations: The net zero water model and its performance indicators

Developments in environmental management has led to tailor-made management performance indicators which inform decisions that impact the governance of natural resources. For instance, Chelkowska-Risley and others (5) have analysed the development of sustainability indicators relevant to water management ('Net Zero Water', NZW) by defence organizations in an international context. These indicators can be used in external and internal reporting on conservation, efficiency, water reuse and water security.

The indicators assist management to balance competing organizational objectives in how to manage the total impact on water resources and the technological and organizational approaches that provide in the total need for water. The competing water objectives [6] for military operations relate to the following security issues:

- War fighter needs
- Transportation and storage
- Local source utilization
- Host nation relationships
- Equipment, and
- Infrastructure planning and design

Water sources at military camps depend on a camp's location and the available delivery options; they include:

- Bottled water delivered over a long distance
- Water carried by trucks, delivered over a long distance
- On-site water generation from groundwater or surface water; and
- Water purchased from local water producers and local communities (transported by trucks or water pipelines).

The NZW model embraces the following key sustainability criteria (6):

- Governance, planning, and management
- Finance
- Environment
- Society, and
- Technological innovation

Here, two key questions can be asked: 1. What use will be made of this set of criteria? 2. To what extent can any set of criteria encompass the range of issues to be considered under the heading of ‘sustainability’? [7]” Wastewater can be treated and reclaimed for other uses or used to recharge groundwater aquifers (see Figure 1).



Figure 1: Net Zero Water Hierarchy [8]

The Net Zero Water model (NZW model) provides management with detailed steps to address the organizational need for water resources. In this respect sustainability indicators are developing (see table 1)

Table 1. Sustainability indicators for the NZW model concept for deployed military camps

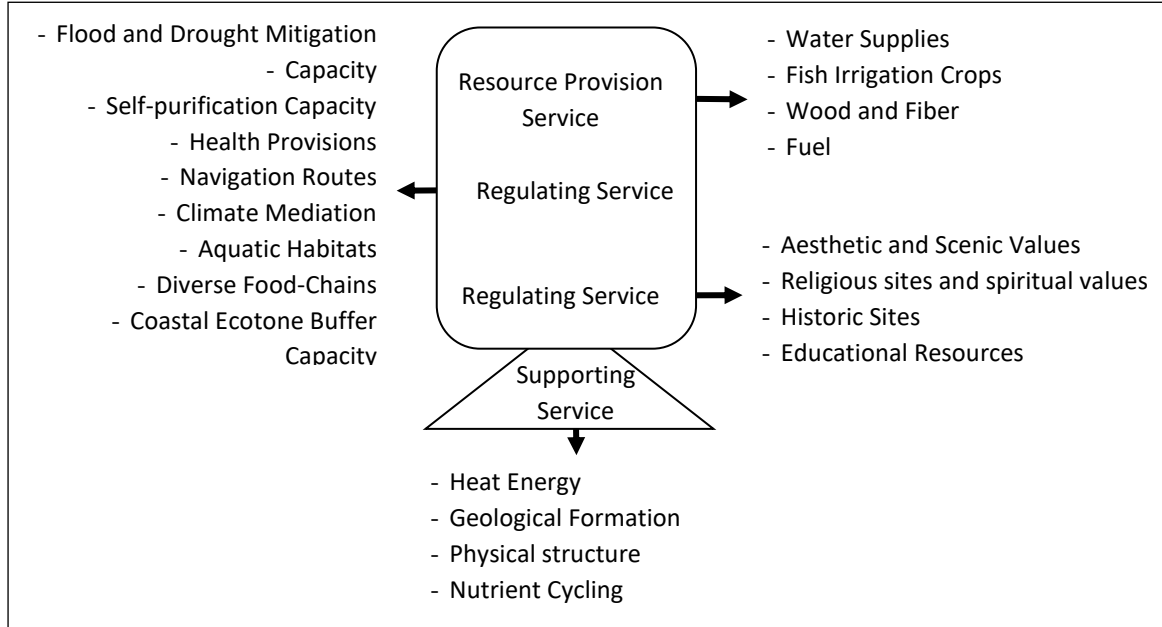
Sustainability Criteria	Indicator
Water governance	<ul style="list-style-type: none"> ○ Presence of a management plan ○ Established compliance requirements
Economic	<ul style="list-style-type: none"> ○ Calculated savings from cost reductions ○ Absence of claims for payments of damages arising from pollution
Ecological	<ul style="list-style-type: none"> ○ Percentage of water recycled/reclaimed/reused ○ Percentage of water harvested as rainwater ○ Percentage of water recharged to groundwater or surface water
Social	<ul style="list-style-type: none"> ○ Education of soldiers on water conservation and protection ○ Transfer of rainwater or excess water to local farming
Technological	<ul style="list-style-type: none"> ○ Use of high efficiency equipment ○ Percentage of water reduction derived from high-efficiency equipment ○ Percentage of energy reduction derived from high-efficiency equipment

However, it is important to realise that the NZW model’s incorporation of sustainability indicators is shaped by the organisation’s objectives as to the different and sometimes conflicting performance dimensions.

Exhibit 2. The rise of Community Based Management Accounting: Towards widening up a balanced score card (BSC) approach. The bridge between regional planning and the firm's perspective.

Both simple BSC approaches and more complex, inclusive BSC approaches have increased the awareness among managers of their firm's impact on ecosystems. At the level of regional planning, both policy makers and the management of local natural parks use indicators to plan and report on the outcome of the management of natural resources. By so doing, policy makers can enhance the sustainability and economic value of natural resources. In the context of regional planning, policy documents show a tendency to favour the participation of local communities. This can be illustrated by the case of urban lake governance. Recent studies by Bal (9) - building upon the work of Ostrom (10) - made use of the Social-Ecological System framework (called SES). This Nobel prize winning economist contributed to a better understanding of the relationships between ecological and social systems. The strength of this SES framework lies in a continuous expansion of the variables involved. These encompass almost every characteristic relevant to the understanding of the functioning of social-ecological systems. However, this approach leads to a higher level of complexity in the management of natural resources. To deal with this kind of increased complexity, participative governance approaches have been encouraged, such as a dialogue between regional planners and representatives of relevant economic sectors. These developments can also be translated into BSC approaches that take the complexity and participative planning approaches into account.

A popular way amongst regional planners of classifying the value of the natural resources in a region is based on the functions of an ecosystem which provide economic values to a society (11). The SES framework encompasses the instrumental values but misses the intrinsic value. Various regional planners give more weight to the inclusion of sustainability indicators. The Resource Provision Services (such as water supplies and wood) are valued monetarily while the other services (such as health and scenic values) are difficult to value in monetary terms. For the latter, special qualitative and quantitative indicators are used. This development provokes innovations in the accounting approaches that are referred to as community-based management accounting, because of the dialogues between the management of firms and their (local) communities. This development is also conducive to meaningful sustainability strategies at different geographical levels.



Source: Bal (9)

Kaplan and Norton (3) stress that a strategy can only be implemented if it is linked to excellent operational and governance processes. The operational side of strategy is represented by the BSC or SBSC. However, the question may arise whether a company's strategy is visionary enough to stand the test of time and contribute to a sustainable future. It seems that there is a need for wider frameworks that clarify what sustainability

implies and make it possible it to position companies in terms of 'distance to target'. In these wider frameworks instruments as the SBSC and Business Models for Sustainability can have a place (4).

As a tentative discussion of the wider frameworks, it seems worthwhile to pay attention to the concept of corporate governance. Moreover, the notion of a stepwise development towards integrating sustainability in the company seems to be a helpful approach to understanding how a company is moving towards sustainability in the fullest sense of the word.

4. Corporate governance and sustainability

Looking after a company's economic, social and ecological interests requires proper corporate management. The latter is implied when we refer to the concept and practice of corporate governance. Corporate governance is a matter of administering a company within the confines of the law and generally acceptable ethical principles. It is a company's leadership that is responsible for this, while it should also be keen to render account of it. A company's stakeholders can be confident that their interests are in good hands only if the company is transparent and trustful.

Historically, the interests of shareholders were top priority. Over the last few decades, corporate governance is conceptualised much broader than before. The company has to do with all kinds of stakeholders, that is, individuals and organisation capable of influencing it and vice versa (12).

Corporate governance can be regarded as a part of a company's business and society relations. It belongs to the range of issues concerning corporate power, legitimacy and responsibility (13).

Corporate governance can be evaluated from different angles. Pruijm (6) distinguishes:

- a. A business-administrative point of view: There is a need for good management based on well-thought-of strategies, motivating leadership and effective management systems.
- b. Economically speaking, the company is to create economic value which can justify its existence.
- c. Corporate sustainability implies that value creation must be sustainable in according with the three P's (People, Planet and Profit). Reputation may be at stake.
- d. From a juridical point of view, a company board is responsible for what happens in a company; it represents the company as a legal identity.

Taken together, to some extent, corporate governance coincides with effective management control, with controllers and CFO's playing a significant role in it. This is not merely a matter of performance measurement but of performance management.

According to Strikwerda (14), in today's conduct of business, performance management is embedded in the totality of a company's mission, values and vision. Mission indicates what the owners and management imagine they want the company to be and what they see as their commercial and societal assignment. Values express a company's responsibility vis-à-vis various stakeholders. A company's vision is its concrete medium-range view of the market and its wider economic environment. Vision is fundamental to formulating strategic choices. In this way, measurable goals, both financial and non-financial, are embedded in a value system and placed within a certain time frame. In Strikwerda's view, via a business model or strategy map, the measurable goals are also underpinned in causal terms, because then it will be shown how a company's capacities and views work out in concrete operational processes and customer satisfaction. This approach has the advantage that a company can make clear to its external stakeholders what it does (and does not) represent. Internally, it enables the company to explain what its mission and ranked values mean and how they relate to the achievements of its employees. The ranking of values (e.g. whose interests come first, shareholders, customers or employees) is considered important as it makes it possible to check whether the management set the right priorities. See Figure 1. It is striking that Strikwerda also includes the personal values of managers and possibly other decision-makers. This assumes that the influence of organisational goals can be either supported or

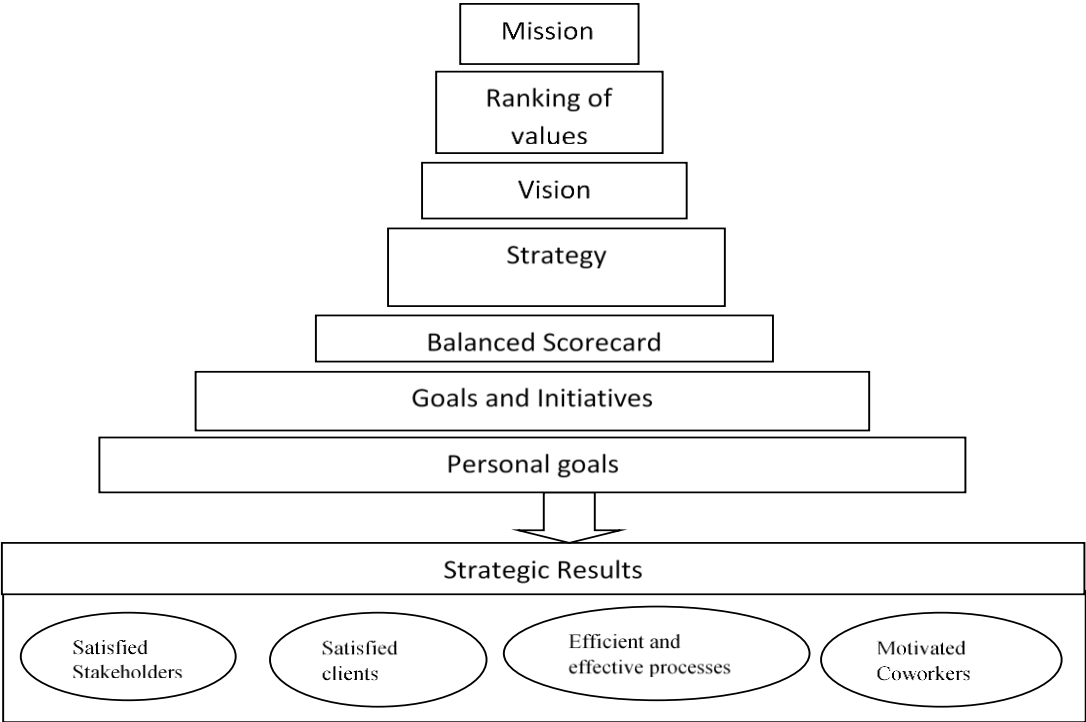
thwarted by personal values and ambitions. Ideally, the entire structure leads to satisfied stakeholders, satisfied clients, efficient and effective processes and motivated co-workers. However, personal values are difficult to be captured and mapped. These values may change over time and be influenced by other stakeholders of the firm. Values of stakeholders may conflict with each other in the short and long term.

In each of the elements of Figure 2 sustainability can play a role. When going into the details of an individual company, the role of sustainability can be made visible.

According to Strikwerda, this approach also reduces the risk that internal budgeting processes and the definition of tasks for each department are manipulated by managers for the benefit of their personal agendas that might be at odds with the company’s interests. Parameters such as a business unit’s profit, shareholder value or ROI are susceptible to undesirable decisions when they are separated from corporate values and (possible) social and ecological effects.

Potential employees can decide for themselves whether a company’s values match with their own personal values. When assessing shares, shareholders can consider a company’s values and how they are ranked. The same applies to customers and suppliers. Similarly, public opinion can make itself known by expressions of judgement on these values. The results of all these considerations inform the company about its actual contribution to the development of prosperity (in a broad sense of the word).

Figure 2. Embedding of performance management in non-financial values and norms (14).



5. Responsible Management

The extension of corporate governance towards a broad group of stakeholders has led to an even further broadening of corporate concerns and responsibilities. This has inspired the areas of stakeholder management, business & society relations and, not in the least, the wide area of Corporate Social Responsibility (CSR). ISO 26000 provides clarity on both the content and the process of CSR. It distinguishes seven general principles of social responsibility which are applied to seven core subjects (which are worked out into CSR issues). The seven general principles are: accountability, transparency, ethical behaviour, and respect for stakeholder interests, respect for the rule of law and respect for international norms of behaviour and respect for human rights. Moreover, ISO 26000 holds more specific principles, such as environmental principles. No need to say that such a systematic overview of CSR activities can serve the purpose of effective and sustainability accounting.

The broadening of frameworks and fields of special attention seems to have culminated in, what is called, Responsible Management. In Responsible Management, the individual perspective has a prominent place (which was also present in Figure 1). Laasch & Conaway (15) claim that the logical next evolutionary step is translating the organisational vision into the managerial and operational achievement of this vision by a responsible manager, however, without giving the merits of the previous organisational emphases. These authors distinguish three domains:

- Sustainability (aims to create a neutral, or better, a positive triple-bottom line)
- Responsibility (aims to optimise stakeholder value)
- Ethics (aims to create moral excellence).

These domains are worked out based on distinguishing four levels:

Levels	Domains		
Domain level	Sustainability	Responsibility	Business Ethics
Organizational level	Business sustainability	Business responsibility	Business ethics
Management level	Sustainability management	Responsibility management	Ethics management
Core concept level	Triple bottom line	Stakeholders	Ethical issues

The above is just to give an impression of the Responsible Management approach (for the details, see 15). It is a framework that covers a large variety of topics and issues relating to sustainability and CSR.

Part of the Responsible Management 'programme' is achieving stakeholder accountability by integrating sustainability, responsibility and ethics into the company's accounting and controlling system. Along with this, it is necessary to develop and use indicators for social, environmental and ethical activity and performance as a basis for Responsible Management activity. There is a need for internal and external reporting about Responsible Business and its performance (8). 'Sustainability accounting and controlling' is defined as a subset of accounting and reporting that deals with activities, methods, and systems to record, analyse and report: 1. Environmentally and socially induced economic impacts, 2. Ecological and social impacts of a company, production site etc. and 3. (perhaps most importantly) Measurements of the interactions and links between social, environmental and economic issues constituting the three dimensions of sustainability.

The authors recognise that the dominant paradigms of financial management (concerning profit, growth, short-run, money as a measuring rod, shareholders) stand in the way of creating a responsible business. Solutions to dismantle those paradigms might require dramatic changes and disruptive innovation. Such solutions are not readily available (15, chapter 15).

The role of the CFO in corporate governance was already mentioned when discussing the important role of CFO's and controllers in ensuring management control in support of corporate governance. This shows how the functional and personal value systems relating to finance and financial management is a crucial and at the same time vulnerable aspect of achieving a sustainable enterprise.

In the dialogue between firms and external stakeholders, firms may have conflicting interests. Managers may see regional sustainability objectives – although legitimate - as a serious hurdle if they wish to increase the short-term profitability of their products and services. For instance, firms could become active in the (co-)production of sustainable energy in their region.

The establishment of sustainable business parks, often referred to as examples of industrial ecology, is also an option that regional planners may wish to explore and work out. This requires discussions with local firms and local communities. To work this out, there is a need for information about present material flows (use of natural resources, such as water resources, raw materials and waste streams) and ideas on how a local 'industrial ecology' could help engender a circular economy that is much more sustainable than the present situation.

The information that resource managers need is inherent in stock and flow indicators that are often already available in the internal accounting systems. For example, these indicators can be part of existing BSC frameworks and/or (mandatory) external reporting structures. That information can be a crucial role in the discussion between firms, communities (represented by local governmental organizations and NGO's) and regional planners. The availability of scarce natural resources and other inputs to business processes can inspire new ways of shaping the economy. Sustainable business parks may be an interesting way of creating sustainable values.

6. Technology change, strategic and organisational adaptation

One of the issues that still needs discussing is the fact that, especially in industries where advanced technology is involved, the static identification of competitive advantage (on which strategies are built) overlooks an important strategic opportunity. Depending on industry and market, strategy may be changing all the time because of external economic pressures, decisions on green strategies decisions and internal marketing ambitions. This may require striking a balance between on the one hand a structured approach to strategy based on existing competitive advantage and experimenting with entirely new technology and business models on the other hand (16).

As competitive advantage is constantly evolving, strategies need to be proactive. Particularly in hypercompetitive markets, rapid innovations are of crucial importance. Hypercompetition means constantly escalating rivalry caused by rapid product innovation, shorter design and product life cycles, aggressive price and competence-based competition and experimentation with new approaches to serving customer needs. According to Vollman (17), for companies, dealing with hypercompetition means recognising the need to dominate your markets. Operating under such circumstances imply that change initiatives like reengineering, continuous improvement and employee empowerment are not sufficient to survive and thrive.

The alternative to market domination, Vollman argues, is organisational death, which may happen quickly, or, more frequently, very slowly. The signs of organisational decay are often identifiable long before crises become apparent, considering signals such as a loss of market share, possession of the wrong set of competences, slowing growth patterns, a loss of employee morale, poor product and process development, and the failure to recognize competitors' true capabilities. Only when change programmes are deep and fully integrated across the organization can an enterprise truly be transformed (17). Nowadays, in many cases, such change programmes are likely to be built on major strides towards sustainability: green energy, low energy use, recovery of materials, reuse and recycling, and evident usefulness. Visionary research on potentially interesting sustainable business models may be needed here, as waiting for the moment of real business development

may be too late, considering the speed that is needed. This forward-looking aspect of operating in hypercompetitive markets requires a rethink of the value of using tools such as the BSC and the SBSC.

It can be assumed that technological development and change takes place in all industries and markets. However, hypercompetition is not everywhere. There are sectors in which changes go slower and therefore make it possible to take time to research and develop new ways of doing business, in particular sustainable business. More generally, business environments differ in terms of complexity and dynamics (18). The more complex and dynamic a business environment is, the greater the uncertainty that companies face.

There is room for research that studies the relationship between sustainability and external uncertainty. Also, in many areas of sustainability strategy there are developments which make it difficult to assess the costs and benefits of different solutions (15, Ch. 14):

1. Green technologies are still the subject of basic research and development, while for the more proven technology there is going on more advanced production technology research.
2. Costs of energy are uncertain. On the longer run, costs of energy can be expected to rise, while currently costs are relatively low.
3. The economies of scale associated with existing green technology will reduce costs over time as companies engage in larger-scale production.
4. Stakeholder attitudes to sustainability, including those of customers, are still developing

Hence the benefits and costs of sustainability strategies are uncertain and must be considered, not only from a prescriptive but also from an emergent point of view. A prescriptive strategy is a strategy whose objective has been defined in advance and whose main elements have been developed before the strategy commences. After defining the objective, the process includes analysis of the business environment, the development of strategic options and the choice between them. The chosen strategy is then implemented (15, ch.2). Mintzberg (19) has identified major difficulties with the prescriptive strategic process, such as less knowledge and predictive power than assumed and less agreement in the organisation about the strategy than assumed. Separating strategy formulation and implementation as distinctive phases may be very simplistic in many complex strategic decisions. This may lead to the conclusion that a company should solely focus on emergent strategy or adopt a combination of both prescriptive and emergent strategy. Under emergent strategic management, a strategy has no final objective; its elements are developed in the course of time as the strategy proceeds (15, Ch. 2).

These dynamic and emergent elements of strategy seem to make the relationship between strategy and implementation through the corporate organisation and its partnerships less straightforward than originally assumed. Moreover, the other side of the coin is considering the strength of the organisation itself. One concept that may enlighten this aspect will be discussed here. It is the concept of organisational agility (20): The ability to quickly adapt one's organisation to different external circumstances as a matter of strategic competence. Agility makes it possible to deal with sudden change and reduces an organisation's dependence on intense strategic management processes.

The agile organisation (and in fact its personnel) conforms to the following characteristics (21):

1. There is a high level of initiative (the organisation is undertaking and enterprising)
2. There is a tendency to work together spontaneously
3. There is an ability to renew the organisation (to innovate through knowledge and mentality)
4. There is an ability to take up new activities quickly and repeatedly
5. The workers are goal-oriented
6. The workers are ready to work in teams
7. The personnel accept that developments can at times be paradoxical
8. There is a sense of operating in a business-like manner (costs and benefits have to match).

These characteristics could be worked out for a company operating on versatile markets if it intends to integrate sustainability in its strategies, business models and organisation.

7. Business models

Not only do BSCs have a direct tie to strategy. This connection also refers the phenomenon of business models. Starting point is the core business strategy of the company. Every part of the business model must then be consistent with this core. Analysis of the existing model can be the beginning of developing new insights as to where new there are new market opportunities for the company. Going into the details of a business model may make them long and complex. Rather than leaving out major aspects, it is preferable to first consider the details but then, for the sake communication and decision-making, to simplify the business model, either by means of aggregation or decomposition into elements that do not interact (15, Ch. 20).

Involving sustainability can be done if it is part of the core strategy. Then sustainability will be inevitably on the agenda. There is significant research done on the development of business models for sustainability (22) and new research can be expected to emerge. Abdelkafi and Täuscher (23) have developed a business model for sustainability (BMfS) that incorporates the natural environment as an essential element, but does not deal with sustainability from a broad perspective. The core logic of the model they present is based on the creation of a reinforcing feedback loop between the created value to the customers, the value captured by the company and the value to the natural environment. Given the above-mentioned issue of avoiding complexity to enable effective communication on business models, one may wonder what audience can benefit from such interesting but rather complicated approach, which at the same time is limited in scope.

8. Are we on the right track? The Third Industrial Revolution

By way of conclusion, one may raise the question: do all the strategies, business models and BSC that may exist or will be developed - either implicitly or explicitly involving corporate sustainability -, eventually lead us into the right direction and ensure that a sustainable future is within reach?

A new path of finding adequate answers to this question, may be paved by considering what Rifkin (24) calls The Third Industrial Revolution. To make a longer story short, the spread of renewable forms of energy – solar, wind, hydro, geothermal, ocean waves and biomass, make up the first of the four pillars of the Third Industrial Revolution.

The first pillar is the renewable energy, which will become cheaper in the course of time and more efficiently used. However, there is a need to load it. For that, the building industry will provide. Now, new technological breakthroughs make it possible to convert existing buildings and design new ones that can generate some, or even all of their own energy from locally available renewable energy sources, allowing to reconceptualise the future of buildings as ‘power plants’. The commercial and economic implications are far-reaching for the real estate industry and, and for that matter the world. The first two pillars of the Third Industrial Revolution require the simultaneous introduction of the third pillar.

To maximise renewable energy and to reduce costs, there is need for dependable storage methods. Rifkin considers hydrogen as the universal medium that ‘stores’ all forms of renewable energy to assure a stable and reliable supply for power generation and transport. Hydrogen is the lightest and most abundant element in the universe, and when used as an energy source, the only by-products are pure water and heat. A renewable energy society becomes viable to the extent that part of the energy can be stored in the form of hydrogen. The fourth pillar is the reconfiguration of the power grid along the lines of the Internet, allowing businesses and homeowners to produce their own energy and share it with each other. The next phase in grid technology is embedding sending devices and chips throughout the grid system, connecting every electrical appliance. Much more can be expected from this technology.

The introduction of the gasoline-powered internal combustion engine required the building of national road systems, the laying down of oil pipelines and the construction of new suburban commercial and residential

corridors along the transport infrastructure. This was implied in what is called The Second Industrial Revolution. The Third Industrial Revolution, based on renewable energy, requires a comparable new commitment. Eventually this development will dramatically change the globalisation process, especially in developing countries. If millions of individuals in developing communities were to become producers of their own energy, the result would be a notable shift in power relations. Communities would be able to produce goods and services locally and sell them globally. This is what Rifkin sees as the essence of the politics of sustainable development and reglobalisation from the bottom up. The developed nations, working with industries and civil-society organisations, can help facilitate the next phase of sustainable globalisation by reorienting development aid, leveraging macro- and microfinancing and credit and providing favoured nation status in order to help developing nations establish a Third Industrial Revolution. According to Rifkin, the market economy as we have it now is far too slow to take full advantage of the speed and productive potential made possible by the software and communications revolutions. Thus, we witness the birth of a new economic system that is different from market capitalism. It will be based on the new ICTs; they allow for continuous activity over extended periods of time. It will be a pure network economy; property will still exist, but it remains with the producer and is accessed in time segments by the user. In this way, many goods will be transformed into a service. Rifkin sees the European Union as the first continental governing institution of the Third Industrial Revolution era. He foresees a process of continentalisation and bottom-up globalisation. Geopolitical conflict will be replaced by common biosphere politics, recognising the interdependencies between people and habitats. However, it is not certain whether old-school conflicts and old divisions will be sufficiently overcome to realise a world of distributed power and wealth, fully based on sustainable production and consumption patterns, involving new waves of emphatic existence.

This very short explanation of Third Industrial Revolution is intended to unleash a discussion on what corporate sustainability really means. It may be the beginning of new way of thinking about what really matters when sustainability is the aim.

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