


Article

Interrelation between Sustainable Dynamic Capabilities, Corporate Sustainability, and Sustained Competitive Advantage

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Abstract: Achieving sustained competitive advantage in the current business landscape has become an important challenge for both the service and manufacturing sectors. Based on the thematic analysis of the empirical data from expert interviews of 46 professionals from Australia and Pakistan, this study puts forward a framework to achieve sustained competitive advantage. The research employs a dynamic capability (DC) theory lens and creates a foundation for the “sustainable dynamic capabilities” concept for future research. The findings affirm that (1) sustainable dynamic capabilities lead to sustained competitive advantage, (2) sustainable dynamic capabilities lead to corporate sustainability, (3) corporate sustainability leads to sustainable dynamic capabilities, and (4) corporate sustainability acts as a mediator between sustainable dynamic capabilities and sustained competitive advantage. By utilising the proposed framework, practitioners can clearly define their strategies to achieve competitive advantage by implementing sustainability practices. The findings of this research clearly pinpoint the interrelationship between sustainability practices and sustained competitive advantage, and sustainability should be taken as a dynamic capability itself, opening up new avenues for future research.

Keywords: sustainability; dynamic capabilities; corporate sustainability; competitive advantage



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1. Introduction

Traditionally, the research focus in previous studies has mainly been on developed countries. Given that developed countries witnessed industrialisation ahead of developing countries, they are more likely to have experienced the benefits and challenges of sustainability initiatives [1]. This research focuses both on Australia, as a developed country, and Pakistan, as a developing country, to bring forward key insights, drivers, and practices to better understand the central phenomenon of developing dynamic capabilities and corporate sustainability, their interrelationship, and how they can be integrated to achieve sustained competitive advantage.

Until now, dynamic capabilities have never been seen as a vehicle for achieving corporate sustainability. Most of the business practitioners and researchers who focus on dynamic capabilities in the context of large organisations and small and medium enterprises (SMEs) have only relatively recently understood the full impact and breadth of dynamic capabilities, and this is particularly true for developing countries. At the moment, sustainability and dynamic capabilities are treated as two different strategic avenues by organisations, but this research introduces the theoretical concept of sustainable dynamic capabilities, which have practical implications for both SMEs and large organisations in developed and developing countries. Through primary and secondary empirical studies, this framework is presented to be utilised as a tool to achieve sustained competitive advantage.

During the past 10–15 years, “sustainability” has become the centre of attention for many innovation studies. In practice, sustainability has become a new norm, primarily

being driven through compliance requirements, and no industry or business can now survive without actively promoting and effectively implementing sustainability practices. In addition to annual financial reports, large corporations are also publishing their annual corporate sustainability reports for their shareholders and investors, as it has become a critical part of shareholders' decision-making process. Emerging managerial frameworks are exceedingly relying on sustainability; hence, the importance of ensuring sustainability is a part of one's strategy has rapidly increased in recent times [2–9].

On average, 60–100 research papers are published every year as the field of sustainability transition is gradually evolving, further contributing to the importance of sustainability as a research domain [4]. A transition usually manifests over a long period, which could be as much as 50 years or more. It involves many changes, impacting different dimensions such as technological, organisational, economic, political, socio-cultural, and institutional. Examples in history include the introduction of water supply through pipes, conversion from cesspools to sewer systems, and the invention of automobiles and the shift from carriages [4,9].

A comprehensive review of 540 journal articles confirmed that the sustainability transition is a growing research area involving varied actors such as individuals, firms, and other organisations [4,9].

To make sustainability a part of their business strategy, managers have also been required to make changes in their attitudes and behaviours towards sustainable practices. This has led to the need to explore the types of capabilities needed to adapt a successful sustainable business model. Dynamic capabilities have been found to contribute towards achieving sustained competitive advantage [6,10].

Practitioners, in particular, face challenges in successfully adopting sustainability practices, mostly because of their uncertainty regarding the actual financial and business growth gains that sustainability could bring. There is a very limited understanding of sustainability practices as a tool to grow a business and earn a premium by promoting sustainability as a value addition that can deliver a competitive edge.

This research focuses on the findings, excerpts, feedback, and insights received from our expert interviews with practitioners from both Australia and Pakistan to develop a comparison, have a broader impact, and better understand the challenges and opportunities faced by organisations in developed and developing countries. This research is novel in the sense that no previous research has attempted to obtain empirical evidence of the potential of sustainability practices to be converted into dynamic capabilities to achieve sustained competitive advantage.

Based on the findings of this research and using the framework presented, future research can conduct sector-specific quantitative studies and case studies, and use the framework for theory development. The findings of this research can also find applications in other related domains of sociology, information technology, environmental sciences, and engineering. Hence, this research paper focuses on the following research objectives:

- (1) To present the drivers and themes of dynamic capabilities for large corporations and SMEs in Australia and Pakistan.
- (2) To present the drivers and themes of corporate sustainability for large corporations and SMEs in Australia and Pakistan.
- (3) To put forward a framework to achieve sustained competitive advantage through corporate sustainability and dynamic capabilities.

In order to meet the mentioned research objectives, the following research questions are developed:

(RQ-1) What are the drivers of dynamic capabilities for large corporations and SMEs in Australia and Pakistan?

(RQ-2) What are the drivers of corporate sustainability for large corporations and SMEs in Australia and Pakistan?

(RQ-3) How are sustainable dynamic capabilities, corporate sustainability, and sustained competitive advantage interrelated?

The research questions were developed in such a way that these constructs can be critically analysed and discussed in sufficient depth and detail. Sustainability is not seen as an integrated part of the strategy when businesses focus on developing dynamic capabilities to achieve competitive advantage. This is primarily because organisations and researchers currently do not have enough knowledge or data to understand the current status of research focused on dynamic capabilities and corporate sustainability in an integrated manner. Moreover, there is a lack of empirical evidence concerning the key practices and themes that can be developed into sustainable dynamic capabilities that would ultimately ensure sustained competitive advantage in return.

With this in mind, the research questions addressed in this study are very specific, measurable, attainable, reliable, and timely, and were developed based on this pertinent problem faced by practitioners and researchers alike. This research is a qualitative study; hence, extensive quantitative approaches are not included in the scope of the research.

2. Methods

The aim of this research is to enable organisations to become better equipped to understand which practices are useful and have the potential to be converted into sustainable dynamic capabilities. This not only contributes to helping practitioners to identify and focus on the best practices to achieve corporate sustainability by developing sustainable dynamic capabilities, but also provides a theoretical extension of the Dynamic Capability Theory (DCT) put forward by David Teece in 1997 [11]. At the time of its development, DCT only focused on the attributes of dynamic and static capabilities and did not incorporate the sustainability orientation and concepts; Refs. [1,6,10,12] all concluded that dynamic capabilities have the potential to deliver competitive advantage, but these researchers were unable to provide the missing connecting link, namely, corporate sustainability. The inclusion of corporate sustainability in the relationship with sustainable dynamic capabilities enables both SMEs and large corporations, irrespective of their location in either a developed or developing country, to ensure sustained competitive advantage.

This research helps to extend dynamic capability theory, which was based on the Resource-Based Theory (RBT) of competitive advantage. An innovative framework is developed to convert sustainability into dynamic capability to achieve a competitive advantage, which introduces the theoretical concept of “sustainable dynamic capabilities” (SDCs). The three main constructs discussed in this paper are as follows:

- Sustainable dynamic capabilities (C1);
- Corporate sustainability (C2);
- Sustained competitive advantage (C3).

Comprehensive expert interviews were used to obtain primary data from industry practitioners, which were then used to extract the key concepts and themes of the drivers of both sustainable dynamic capabilities and corporate sustainability. Finally, the findings were triangulated to devise the final framework for the achievement of sustained competitive advantage.

Given the fact that Australia is a developed country that has a large portion of SMEs compared to manufacturing facilities, and Pakistan is a developing country currently going through industrialisation, the findings and data obtained from the experts complement each other well and also provide good contrast. To ensure the homogeneity of the data, experts were selected from different segments of the economy, including the industrial sector, service sector, finance sector, non-governmental organisations, and not-for-profit organisations. Since sustainability and dynamic capabilities are visible to practitioners in the day-to-day operations of the organisation, operations managers are those who are primarily exposed to these phenomena; hence, they were selected for their ability to provide critical insights.

Denzin and Patton suggested four triangulation types: (1) theory triangulation, (2) data triangulation, (3) investigator triangulation, and (4) methodological triangulation [13]. When more than one methodology is used to study a specific research problem, it is called methodological triangulation [12,13]. This approach is widely used in both qualitative and quantitative studies. Methodological triangulation provides comprehensive data and findings, enhances the interpretation of findings, and enables the confirmation and validation of the findings through either the convergence of the data or the capturing of complementary information, with one methodology making up for the weaknesses and limitations of another [13–15].

There are two main types of methodological triangulation:

1. Within method: Two research methodologies are used, either qualitative or quantitative, but without being mixed [14,15].
2. Across method: Qualitative and quantitative techniques are both utilised, and this is called mixed method triangulation [12,15].

This research used the within method of triangulation using qualitative techniques. A systematic literature review was used as the first qualitative methodology, and expert interviews were used as the second approach, as shown in Figure 1.

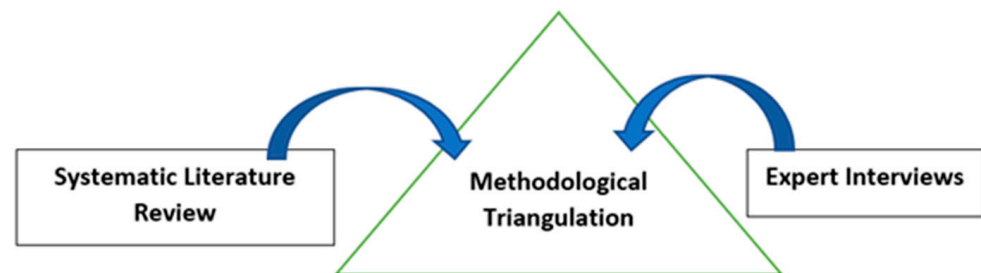


Figure 1. Methodological triangulation, based on a systematic literature review and expert interviews (author’s own work).

Expert interviews were used to validate the conceptual framework shown in Figure 2, and through a thematic analysis of the transcripts of these interviews, a final framework was developed to transform sustainability into a dynamic capability for integration with a competitive advantage strategy [16,17]. A total of 46 participants were selected and recruited in line with the following criteria [18–20]:

Twenty-seven participants from Australia: Twenty-two participants from a large industry at the advisory or managerial level and five participants from SMEs. All participants had more than 5 years of experience.

Duration of the interview: 30–45 min.

Nineteen participants from Pakistan: Eight participants from a large industry at the advisory or managerial level and eleven participants from SMEs. All participants had more than 5 years of experience.

Duration of the interview: 30–45 min.

Expert interviews were conducted virtually [18–20]. All Australian experts participated virtually given the standard operating procedures during COVID-19, and for Pakistani experts, the same virtual medium for interviewing was used.

The participants were contacted for the interviews via email, phone calls, and via the MS Teams and Zoom virtual meeting platforms.

Contact details and verbal consent for the interviews were obtained from all experts prior to the interview sessions.

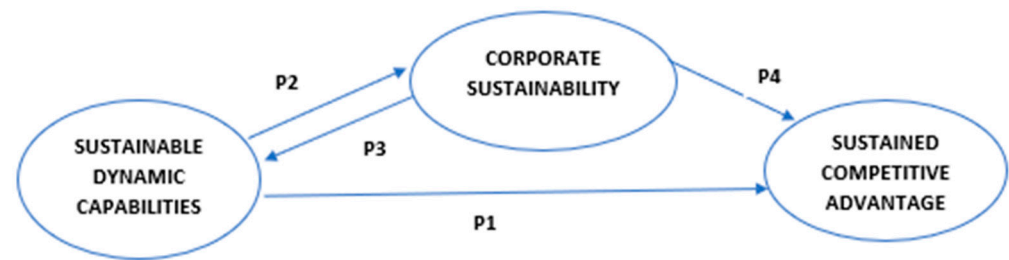


Figure 2. Conceptual model to achieve sustained competitive advantage through sustained dynamic capabilities and corporate sustainability [21].

3. Results

Through the expert interviews, a comprehensive list of key drivers was obtained from the participants from both Australia and Pakistan. Given the different economic, social, environmental, and political dynamics between these two countries, a contrast was found between the countries in terms of the drivers of dynamic capabilities. To fully address research question one (RQ-1), the drivers of dynamic capabilities for the developed and developing countries are listed separately. Table 1 presents the list for Australia, for which a total of 21 drivers was captured. It is pertinent to note that the participants referred to certain drivers multiple times, even in a single interview session. In the table, the columns indicate how many interviews covered a specific driver, and how many times a participant referred to that specific driver during the interview session. As per the participants' answers, the drivers with the highest number of references tended to receive more strategic importance and focus from businesses and organisations.

Table 1. List of drivers of dynamic capabilities for a developed country (Australia).

Drivers	Number of Interview Sessions That Made Reference to This Driver	Number of Times the Driver Was Referred to by the Participant
Sustainability strategy (financial, operational, and reputational)	23	59
Environmental responsibility	17	47
Innovation and Product Development	15	25
CSR	13	23
Dynamic organisational culture	13	17
Competitive advantage strategy	11	15
Enterprise excellence	11	15
Stakeholder engagement	11	15
Top management commitment	9	14
Diversity	6	8
Human resource commitment	7	8
Regulatory compliance	6	8
Human resource development	5	7
Technology adoption	6	7
Customer focused orientation	5	6
Product lifecycle management	6	6
Corporate learning and development	4	4
Branding and marketing	2	3
Globalisation	2	2
OHS and safety	2	2
Systematic approach	2	2

3.1. Drivers of Dynamic Capabilities for Australia (RQ-1)

To highlight the key drivers, the list in Table 1 is tabulated according to the number of references made by the experts during the interviews. These references were tabulated in NVivo.

Sustainability strategy, environmental responsibility, innovation and product development, corporate social responsibility (CSR), and dynamic organisational culture were found to be the top five drivers of dynamic capabilities in Australia. A full list of the drivers according to the preferences of the experts is presented in Figure 3. This validates the conceptual framework presented in Figure 2. Proposition 2 (P2) was found to be very strongly and directly interrelated, as the key drivers for dynamic capabilities also lead to the achievement of corporate sustainability. This enables businesses and practitioners to focus on the most appropriate set of processes and practices, thus developing dynamic capabilities and delivering corporate sustainability.

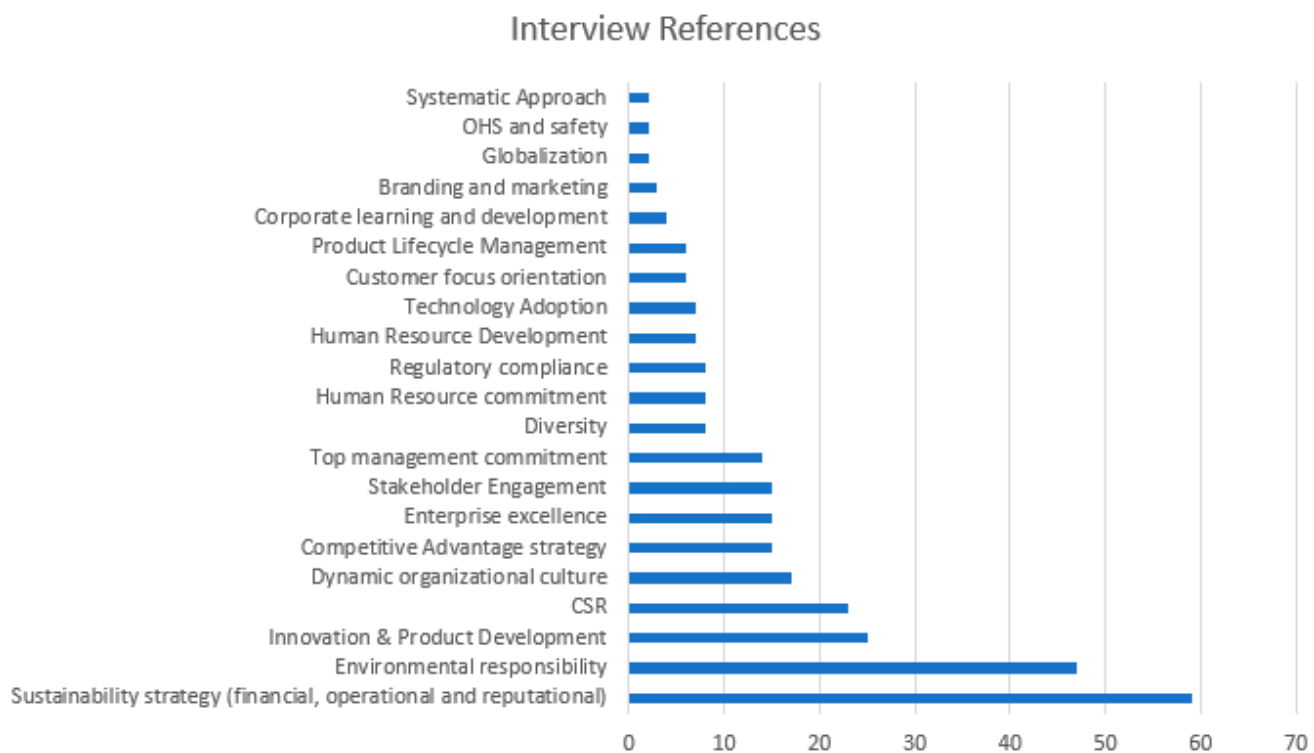


Figure 3. Drivers of dynamic capabilities in Australia according to experts (author's own work).

If sustainability is incorporated into strategy, the organisation is equipped to explore and seize new relevant opportunities and transform the business models as per requirements. It was evident based on the feedback from the experts that having a sustainability strategy is the biggest driver for dynamic capabilities. A managing director of a large Australian company noted, 'I guess it's not a rocket science, it's just a curriculum they have to follow. Like they really need to start from creating a vision, a long-term strategy around the corporate sustainability' (Participant # 12, Personal Communications, March 2022).

Developing environmentally responsible practices also helps businesses to navigate a challenging and ever-changing landscape. Deploying environmental management systems not only enables organisations to meet their regulatory compliance requirements, but also provides businesses with a platform to explore new business opportunities and gain competitive advantage, as being environmentally responsible is no longer a choice; rather, it has become the norm, and is an expectation of customers. This was mentioned by the managing director of a large Australian company: 'the biggest talk of the town is the

commitment towards climate change, like achieve zero carbon by, say, 2050, that is what the pledge by the company which I am working for' (Participant #12, Personal Communications, 2022).

Australia is a mature industrial market where mass production industries are on the decline, and it is evident that environmentally responsible decisions and compliance have led to a stronger focus on low-carbon-based technologies. As the chief executive officer of an Australian company noted, *'I see more sustainability as a license to operate moving forward with whatever is happening around us in the global landscape with the climate change and everything else around that'* (Participant #18, Personal Communications, April 2022).

This transition can also be seen in all developed countries, as it has become an important part of the global phenomenon of climate change and the United Nation's sustainable development goals. The research and development manager of a large Australian company said in this respect, *'not only were the focus on mining sustainability requirements per se, but also occupational health environments and safety environments and environmental, the whole kit and kaboodle essentially. And it's a piece of software that we're using within the company to track raw materials'* (Participant #2, Personal Communications, May 2022).

Continuous innovation and production development is the backbone of organisational growth and the overall economy in developed countries like Australia [22–32].

By having a diversified portfolio of products, businesses are able to tap into new markets, offer more competitive products, and pitch exclusive products in the market. This driver is promoted more in Australia, primarily because it is a service-oriented country where there is an increasing focus on offering niche and high-value products, rather than mass-producing high-volume, low-margin products. Continuous innovation also demands skilled manpower, which is readily available in developed countries compared to in developing countries; naturally, this contributes to a higher output of innovative products being developed in countries such as Australia.

Experts also see corporate social responsibility as one of the main drivers for developing dynamic capabilities. Integrating social needs into their corporate vision, having all stakeholders on board, and giving back to the community not only helps businesses to act in a socially responsible manner, but it also has a positive impact on their business by enhancing their brand value and reputation amongst the general public, as well as proving their ability to secure and hire diverse manpower. CSR also increases societal awareness of different social, economic, and environmental trends. Implementing strong CSR practices enables businesses to counter any negative media escalations, neutralise pressures from different labour associations and unions, and capture new business opportunities in difficult markets, for example, in countries and sectors where community input is especially important and where a considerable amount of state legislation is incorporated. Better CSR outputs also result in a stronger impact on investment decisions by different stakeholders.

It is also pertinent for companies to have a dynamic organisational culture where there is flexibility and where a high emotional quotient is part of the business model. By contrast, excessive red tape, authoritative approaches, and disconnect with wider operational and tactical teams are found to be detrimental for organisational growth and transformation [10,15,33–38].

3.2. Drivers of Dynamic Capabilities for Large Corporations and SMEs in Australia (RQ-2)

Interestingly, sustainability strategy, environmental responsibility, innovation and product development, CSR, and a dynamic organisational culture were found to be the top drivers of dynamic capabilities for both large corporations and SMEs, as per Figure 4. This addresses research question three (RQ-3), which was aimed at gaining an understanding of the main drivers of dynamic capabilities for large corporations and SMEs.

Drivers	References	Sector
Sustainability strategy (financial, operational and reputational)	59	SME+Large
Environmental responsibility	47	SME+Large
Innovation & Product Development	25	SME+Large
CSR	23	SME+Large
Dynamic organizational culture	17	SME+Large
Competitive Advantage Strategy	15	SME+Large
Enterprise excellence	15	SME+Large
Stakeholder Engagement	15	SME+Large
Top management commitment	14	SME+Large
Diversity	8	SME+Large
Human Resource commitment	8	Large
Regulatory compliance	8	Large
Human Resource Development	7	Large
Technology Adoption	7	SME+Large
Customer focus orientation	6	SME+Large
Product Lifecycle Management	6	SME+Large
Corporate learning and development	4	SME+Large
Branding and marketing	3	Large
Globalization	2	SME+Large
OHS and safety	2	Large
Systematic Approach	2	SME+Large

Figure 4. Drivers of dynamic capabilities in large corporations and SMEs in Australia (author's own work).

In fact, out of all of the drivers of dynamic capabilities, only five were found to be uniquely related to large organisations in Australia, namely, human resource commitment, regulatory compliance, human resource development, branding and marketing, and occupational health and safety [32,39–44].

Human resource commitment is particularly important in large organisations in order to develop dynamic capabilities, as, given the size of the company and its large numbers of employees, it is particularly difficult to manage any change without ensuring that people are on board. It is challenging for leadership to implement strategies from the top to the bottom without obtaining consensus from wider teams. A business cannot be transformed with this rigid approach and cannot be competitive enough to seize new opportunities. The majority of the experts interviewed in this study provided this feedback. Naturally, for smaller organisations, it is easier to implement decisions given the size of the manpower, less intricate business models, and their adoption of more centralised decision making as part of their management approach. Another important aspect of human resource commitment is a personal commitment to different global and business issues, for example, gender diversity, climate change, and globalisation. Ultimately, these issues need to be properly addressed through an effective corporate strategy to energise the teams and develop overall consensus on corporate values, policies, and strategy. As large corporations have a presence in multiple locations and sometimes in multiple countries, the mix of employees and human resources is usually highly diversified. Different countries and locations will also have different localised priorities, challenges, and issues; hence, bringing

people on board is critical for a company's growth and transformation. For example, a large corporation may have a mass production facility in a developing country where the wage disparity between genders and different social groups is burgeoning. This can also be viewed as the exploitation of employees by local authorities and labour associations. A lack of effective human management systems and policies in such countries can only lead to corporate disintegration [45,46]

Regulatory compliance is also found to be a more pronounced driver for large corporations in developing dynamic capabilities. As one director of an Australian company said, *'that's correct. Compliance is definitely one of the leading factors'* (Participant # 22, Personal Communications, November 2021). Large corporations usually have broader production footprints, large workforces, more media scrutiny, and more public attention, and they are exposed to relatively more stringent regulatory compliance requirements, as mentioned by the experts. A larger scale of economy could be the sole reason for this. As large corporations earn higher revenues and profits, it is only natural for different compliance authorities to expect these large businesses to allocate sufficient funds and resources to ensure that different compliance requirements are met. These compliance requirements can very well be related to environmental issues, human and labour workforce issues, and financial and security compliance. Small to medium-sized organisations are mostly private limited companies and they are not listed on different stock exchanges, hence receiving less public attention. They also have less access to public funding, have a smaller employee workforce, and have customised production facilities. All of these attributes lead to less attention from different compliance authorities and the general public.

There are also fewer opportunities for human resources and employees to develop in smaller organisations; hence, in larger organisations, human resource development is found to be a key driver to achieve dynamic capabilities. Without developing the right human resources, large organisations can suffer from corporate inertia. The research and development manager of an Australian company noted in this respect: *'may be the training of the technical human resource, so these are all capabilities; even marketing, technical marketing is a capability'* (Participant #3, Personal Communications, December 2021). This stagnancy is detrimental for any organisation's growth, but for large corporations, it is especially important to focus on the right human resources, allocate appropriate funds and energy for them to develop, and energise them to achieve common corporate goals. The experts pinpointed the need for management to be lean in smaller companies. The top management is usually composed of the owners of the business, who are more focused on driving net profits rather than providing sufficient growth opportunities to their employees. However, the challenges faced by small organisations are considerably different to those of large organisations; SMEs do not see higher returns on developing their human resources, and prefer to maintain an effective skillset that is appropriate for most corporate policies and goals [47–54].

After merging all of the drivers of dynamic capabilities for Australian SMEs and large corporations into concepts, three main themes were developed, as shown in Table 2.

Table 2. Main themes of dynamic capabilities in Australia.

Themes	Merging Concepts	Drivers	References	
Sustainability oriented transformations (ST)	Environmental systems management and routines	Environmental responsibility	47	
		Product lifecycle management	6	
		Innovation and product development	25	
		Regulatory compliance	8	
		OHS and safety	2	
		CSR	23	
	Sustainable operations excellence		Technology adoption	7
			Enterprise excellence	15
			Systematic approach	2

Table 2. Cont.

Themes	Merging Concepts	Drivers	References
Integrated Value Chains (SC)	Increased stakeholder engagement	Stakeholder engagement	15
		Customer focus orientation	6
Strategic Organizational Development (OD)	Organisational learning	Corporate learning and development	4
		Human resource development	7
		Human resource commitment	8
	Strategic planning and corporate governance	Diversity	8
		Dynamic organizational culture	17
		Top management commitment	14
		Sustainability strategy (financial, operational, and reputational)	59
		Competitive advantage strategy	15
		Globalisation	2
Branding and marketing	3		

3.3. Drivers of Dynamic Capabilities for Pakistan (RQ-2)

For Pakistan, a developing country, the experts put forward 16 key drivers for developing dynamic capabilities. These drivers are listed in Table 3 and are arranged as per the references received from the experts. The references are the number of times the experts mentioned a particular driver during the interviews, so the higher the references for a driver, the higher the priority it received in this research. This addresses research question two (RQ-2).

Table 3. Key drivers of dynamic capabilities in Pakistan.

Drivers	Number of Interview Sessions That Referred This Driver	Number of Times the Driver Was Referred to by the Participant
Sustainability strategy (Environmental, social, and financial)	14	30
Competitive advantage strategy	16	26
Innovation and development	11	19
Environmental concerns	11	17
Energy conservation and recycling	8	15
Compliance	9	14
CSR	6	14
Human resource commitment	9	13
Top management commitment	4	9
OHS	5	8
Stakeholder engagement	7	8
Global integration	3	7
operational efficiency	4	7
Company culture	2	5
Education and training	4	4
Diversity and gender equity	2	3

It is worth noting that the participants referred to some drivers multiple times, even in a single interview. In the table, the columns indicate how many interviews actually covered a specific driver, and how many times a participant referred to that driver during the

interview. Based on the participants' comments, the drivers with the highest number of references tended to receive more strategic importance and focus from businesses and organisations.

A sustainability strategy, competitive advantage strategy, innovation and development, environmental concerns, and energy conservation and recycling were found to be the top five drivers for developing dynamic capabilities in Pakistan.

Having a sustainability strategy was found to be a common driver for both Australia and Pakistan and was seen as a key driver to turbocharge the development of dynamic capabilities for an organisation. The reason for this is the importance of setting the vision, goals, and objectives at the very top level and then to communicate these down to the operational and tactical level. This will set the tone for the business and provide clarity regarding what needs to be achieved and how. Without this clear vision and objectives, businesses may lack direction. Setting a clear strategy also pinpoints the areas for new business explorations and opportunities to be seized, and, based on the selected opportunities, businesses can focus on developing the required skillsets, which will enhance the capacity of business units to take on prioritised business opportunities, ultimately becoming a transformational capability for the company. The strategy must be comprehensive and address all key pillars of the business, which have a direct impact on the top and bottom line of the organisation. Financial objectives and targets need to be clearly defined and communicated to highlight the growth a company is looking to achieve. It should be realistic and in line with the current business landscape of the country; similarly, it is pertinent to include environmental strategic objectives in the overall corporate strategy. Since it has become vital for developed countries to ensure environmental sustainability and reliability, developing countries are also found to be following this path. The experts in our study particularly emphasised the importance of following the norms and standards being set by developed countries in the realms of environmental sustainability. Another important factor to consider is that, in Pakistan, the level of new research and innovation is not as high as in Australia, so most of the leading companies operating in Pakistan are global multinational companies that have set up their subsidiaries in the country. Naturally, the subsidiaries follow the corporate policy of their parent company with a slight tweak in the local strategy, given the local challenges faced in the market, but the overarching approach remains the same. This is also related to the third aspect of sustainability strategy: the social dimension. As this is a critical element for the corporate strategy of global companies, it also becomes important for subsidiaries in Pakistan. Thus, according to the experts, sustainability cannot be achieved or worked towards in isolation, and it must, therefore, be actively incorporated into the overall corporate strategy [47,48,55–58].

Given the ever-increasing population of Pakistan and the lower GDP per capita in comparison to a developed country like Australia, companies in Pakistan are particularly focused on being competitive. A well-thought-out competitive advantage strategy needs to be in place, not only to tap into new businesses, but also to become an essential component in maintaining the existing business. Competitiveness has become critical for the survival of companies. The experts emphasised that without competition, it would not be possible for any business to seize new opportunities, so this has become a foundational pillar for developing dynamic capabilities. Competitiveness is not just related to the pricing mechanism of the products and services a company offers, but has also become a very broad term and includes several elements [59]. A business has to be competitive in terms of lead times and supply chain efficiency, but it also needs to be competitive in terms of product development and offering the right set of services and products. Customers in developing countries are becoming increasingly better educated and are more aware of global trends. They also expect vendors to offer more exclusive services and products and to go the extra mile to demonstrate value addition, and this is becoming a starting point in outperforming competitors and standing out from the crowd.

As mentioned in the case of Australia, innovation was found to be a main driver, given that developed countries are more focused on niche and high-profit products and services.

Pakistan needs innovation and development to keep up with the pace of the regional and global market. Regionally, Pakistan competes with other developing countries to secure export orders, such as Bangladesh, India, Thailand, and Vietnam. In order to outperform these competitors, Pakistan is focusing more on innovation and development; this could be product innovation, service innovation, or business process innovation, all of which enable companies in Pakistan to seize new opportunities. Innovation enables businesses to keep up with their regional competitors, and is also needed to address the ongoing challenges faced by businesses in Pakistan, for example, issues related to energy shortages. Thus, being innovative in adopting new renewable and green technologies will ensure that businesses are kept running. The experts in our study shared the opinion that innovation, for a country like Pakistan, is not to develop high-profit and high-margin products, but is more related to upgrading basic services and becoming standardised. The current service and product portfolios of most businesses in Pakistan are deemed outdated; they are not only eating into profit margins, but are also making these organisations uncompetitive in the export market. There has been considerable neglect in previous years in terms of developing new technologies, services, and products.

All of the 16 key practices and drivers for dynamic capabilities in Pakistan were merged into key concepts and then finally developed into three main themes, as shown in Table 4.

Table 4. Main themes of drivers of dynamic capabilities in Pakistan.

Themes	Merging Concepts	Drivers	References
Sustainability oriented transformations (ST)	Environmental systems management and routines	Environmental concerns	17
		Energy conservation and recycling	15
		Compliance	14
		CSR	14
		Innovation and development	19
	OHS	8	
	Sustainable operations excellence	Operational efficiency	7
Integrated Value Chains (SC)	Increased stakeholder engagement	Stakeholder engagement	8
Strategic Organizational Development (OD)	Organisational learning	Human resource commitment	13
		Education and training	4
		Diversity and gender equity	3
	Strategic planning and corporate governance	Sustainability strategy (Environmental, social, and financial)	30
		Competitive advantage strategy	26
		Top management commitment	9
		Global integration	7
Company culture	5		

3.4. Drivers of Corporate Sustainability for Australia (RQ-2)

A total of 24 drivers were shared by the experts in the interviews. Drivers with a greater number of references are ranked higher, magnifying their significance, and it can be deduced that there was some consensus among the experts if the driver received a high number of references. All of these 24 drivers are represented graphically in Figure 5.



Figure 5. Drivers of corporate sustainability in Australia (author’s own work).

The top five practices that drove corporate sustainability for organisations in Australia were found to be competitive advantage strategy, environment and safety, commitment to carbon neutrality, developing dynamic capability, and social awareness and orientation.

It should be noted that possessing a competitive advantage strategy to achieve corporate sustainability in a business received the maximum number of references. As the managing director of an Australian company noted:

Well, you know that day by day the competition is increasing and only the companies who are taking a lead in innovations and they are managing their risks properly and develop an organisational culture which can lead to lead the organisation to the next level, only those companies can survive. So, investing into competitive world you have to practice, you know, sustainable activities. That is the only way to take advantage and to take the lead [which] means that you are the first in mind and you are the first in choice. (Participant #13, Personal Communications, June 2022)

All of the 24 drivers were grouped into key concepts to develop the main themes around the practices driving corporate sustainability for businesses. Based on the merging concepts, six main themes were developed, as shown in Table 5.

Table 5. Main themes of drivers of corporate sustainability.

Themes	Merging Concepts	Drivers	References
Environmental Oriented Sustainability (ENS)	Environmental compliance requirements	Environment and safety	49
		Commitment to carbon neutrality	44
		Compliance	24
	Green innovation strategy	Green chemistry	17
	Waste management and recycling	Circular economy	26

Table 5. Cont.

Themes	Merging Concepts	Drivers	References
Sustainable Strategic Management (SR)	Corporate sustainability strategy	Corporate strategy	23
		Competitive advantage strategy	102
		Sustainability reporting and accounting	4
		Cost and financial efficiency	28
		Social awareness and orientation	29
	Top management commitment	Leadership commitment	12
		Training and education	5
		Ethical human resources	13
		Diversity and inclusion	10
		Sustainable Dynamic Capabilities (SDC)	Dynamic capabilities development
Dynamic company culture	8		
Stakeholder Centric Strategic Approach (SS)	Stakeholder management and operations excellence	Operational excellence and stakeholder management	26
Sustainable R&D (RnD)	Technological innovation	Research and Development (R&D)	16
		Product management	3
Sustainability Oriented Global Business Strategy (SGS)	Sustainability oriented marketing management	Strategic marketing	6
		Benchmarking	5
		Brand image	18
		PR and communication	4
	Internationalisation and global business strategy	Globalisation and sustainability	5

3.5. Drivers of Corporate Sustainability for Pakistan (RQ-2)

All 20 drivers were arranged as per the number of references received from the experts during the interviews. Drivers with more references were deemed more important in terms of receiving the attention from businesses in Pakistan. This does not mean that the drivers with a lower number of references were considered of lower importance in terms of enabling organisations to achieve sustainability. It could simply mean that the drivers with fewer references are relatively new practices being adopted by businesses and, hence, they might have not yet become a widespread practice in Pakistan. The list of drivers as per references received is graphically represented in Figure 6.

The top five drivers were found to be the competitive advantage strategy, developing dynamic capabilities, technology and product development, commitment to carbon neutrality, and regulatory compliance.

It is interesting to note that most of the main drivers in Pakistan found to be common in achieving corporate sustainability were similar to those in Australia, despite both countries having totally different market dynamics, geographical locations, and business-related challenges, as well as levels of corporate sustainability. Although the practices were the same, the underlining reasons for implementing them were entirely different for Australia and Pakistan.

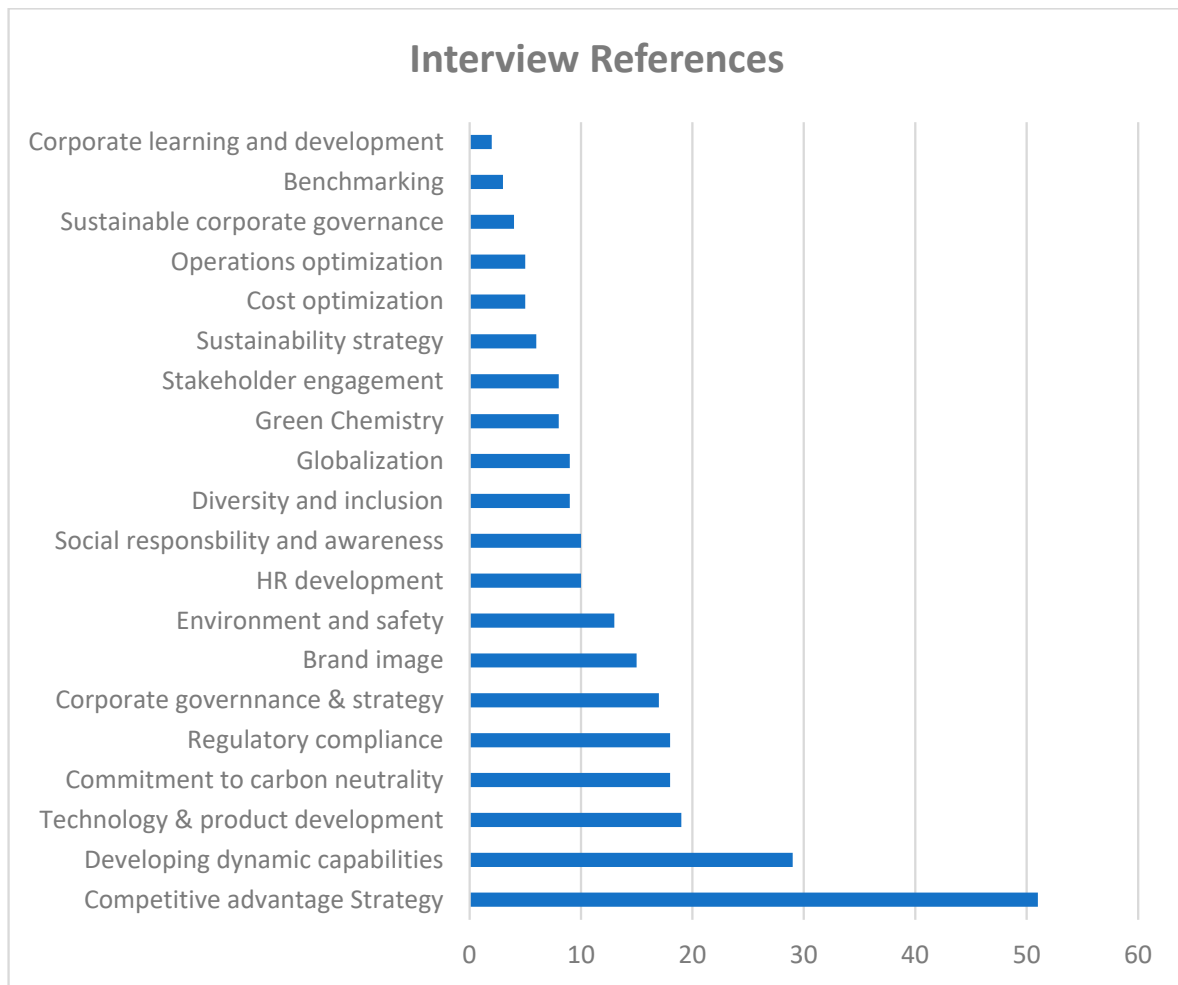


Figure 6. Graphical representation of drivers of corporate sustainability in Pakistan (author's own work).

The competitive advantage strategies for Pakistani businesses were highlighted as a means of survival, as one business manager from a Pakistani company noted:

There are different examples in Pakistan where the different types of companies have developed this competitive edge and they are working in different directions. Like if we talk about some big oil companies in Pakistan, they are now developing capabilities to install electric vehicle chargers at their retail outlets. Previously they were selling diesels and other gasoline fuel from the sites, but now there came a time when they used to sell natural gas from these outlets. (Participant #27, Personal Communications, May 2022)

3.6. Drivers of Corporate Sustainability in Large Corporations and SMEs in Pakistan (RQ-3)

All practices were found to be common among large corporations and SMEs except for one: corporate learning and development. All remaining practices were common, primarily because, irrespective of the size of the companies in Pakistan, most are generally on the same level in terms of their journey towards corporate sustainability. Most of their concerns are the same, and the mental barriers that prevent the adoption of sustainable practices are gradually leading businesses to lose their competitive advantage. The list of drivers for achieving corporate sustainability in large corporations and SMEs in Pakistan is presented in Figure 7.

Drivers	References	Sector
Competitive advantage Strategy	51	SME+Large
Developing dynamic capabilities	29	SME+Large
Technology & product development	19	SME+Large
Commitment to carbon neutrality	18	SME+Large
Regulatory compliance	18	SME+Large
Corporate governance & strategy	17	SME+Large
Brand image	15	SME+Large
Environment and safety	13	SME+Large
HR development	10	SME+Large
Social responsibility and awareness	10	SME+Large
Diversity and inclusion	9	SME+Large
Globalization	9	SME+Large
Green Chemistry	8	SME+Large
Stakeholder engagement	8	SME+Large
Sustainability strategy	6	SME+Large
Cost optimization	5	SME+Large
Operations optimization	5	SME+Large
Sustainable corporate governance	4	SME+Large
Benchmarking	3	SME+Large
Corporate learning and development	2	Large

Figure 7. Drivers of corporate sustainability in large corporations and SMEs in Pakistan (author's own work).

Corporate learning and development was found to be uniquely associated with large corporations in Pakistan. According to the experts, this could be due to the availability of better infrastructure in large corporations. This enables businesses to devise their strategies in accordance with market demands and future growth opportunities. Thus, intentionally or unintentionally, large corporations have been updating their processes, operations, and systems through learning and development. This can be achieved either by developing their human resources, conducting training for functional heads, or through adopting customised corporate learning programmes offered by third-party consultants. The premise for adopting these practices is not necessarily to achieve corporate sustainability, but rather to sustain operations and win new business, which the experts thought was the very definition of corporate sustainability. Through further corporate learning and training, businesses in Pakistan will realise that corporate sustainability is not just about environmental sustainability, but also about the very survival and growth of a business in the longer term.

All of the key drivers and practices were merged into concepts to develop six main themes. These themes, along with the concepts and drivers for achieving corporate sustainability in Pakistan, are presented in Table 6.

Table 6. Main themes of drivers of corporate sustainability in Pakistan.

Themes	Merging Concepts	Drivers	References	
Environmental Oriented Sustainability (ENS)	Environmental compliance requirement	Environment and safety	13	
		Regulatory compliance	18	
	Green innovation	Green chemistry	8	
Sustainable Strategic Management (SR)	Corporate sustainability strategy	Competitive advantage strategy	51	
		Corporate governance and strategy	17	
		Sustainability strategy	6	
		Social responsibility and awareness	10	
		Sustainable corporate governance	4	
	Top management commitment		Commitment to carbon neutrality	18
			Diversity and inclusion	9
			HR development	10
			Cost optimisation	5
			Corporate learning and development	2

Table 6. Cont.

Themes	Merging Concepts	Drivers	References
Sustainable Dynamic Capabilities (SDC)	Dynamic capabilities development	Developing dynamic capabilities	29
Stakeholder Centric Strategic Approach (SS)	Stakeholder management and operations excellence	Stakeholder engagement	8
		Operations optimisation	5
Sustainable R&D (RnD)	Technological innovation	Technology and product development	19
Sustainability Oriented Global Business Strategy (SGS)	Internationalization and global business strategy	Globalization	9
	Sustainability-oriented marketing management	Benchmarking	3
		Brand image	15

4. Discussion: Revision of Sustained Competitive Advantage Framework (RQ-3)

Based on the findings from the analysis of the expert interviews, the main themes related to the drivers of sustainable dynamic capabilities, corporate sustainability, and sustained competitive advantage have been presented in this paper, for Australia as an example of a developed country and for Pakistan as an example of a developing country. Although these two countries are considerably different in terms of OECD rankings and definitions, with Australia also being a slightly unique country among developed nations, a number of common themes were shared. Three main constructs were examined in this research: sustainable dynamic capabilities (C1), corporate sustainability (C2), and sustained competitive advantage (C3). The relationship between these constructs was proposed through a conceptual framework, as illustrated in Figure 2.

In the previous sections, we critically analysed all of the drivers and practices for these main constructs in both Australia and Pakistan, for large corporations and SMEs, as identified through our expert interviews. The common themes for all three constructs, for both Australia and Pakistan, are presented in Figure 8.

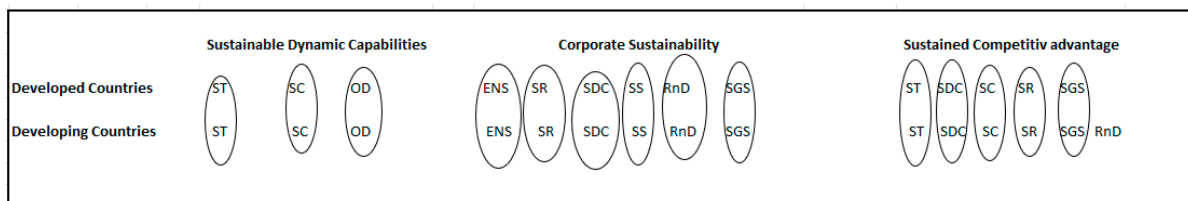


Figure 8. Common themes in Pakistan and Australia for different constructs (author’s own work).

As discussed in the previous sections, the same theme can have different underlying practices, challenges, and opportunities for Australia and Pakistan, but the overarching themes and concepts remain the same. Figure 7 highlights the fact that for both sectors, large corporations and SMEs have the same trajectory in terms of implementing practices; however, corporate learning and development is the main differentiator between the two sectors. This is further highlighted in Figure 8; RnD is the only theme that stands out for developing countries, which clearly demonstrates that, in Pakistan, it is mainly large corporations that focus on achieving corporate sustainability, and this is currently achieved by focusing primarily on RnD activities and corporate learning and development. By focusing on these main themes, practitioners can catalyse the drive towards different constructs at the same time. By focusing on sustainability-oriented transformation (ST), managers can achieve sustainable dynamic capabilities and sustained competitive advantage at the same time, which validates proposition number 2 (P2) of the conceptual framework presented in Figure 2. This critical finding will be valuable for practitioners and researchers alike, and more so as this finding is applicable to both Australian and Pakistani businesses. Similarly, integrated value chains (SC) also enable businesses to develop sustainable dynamic capabilities, while at the same time ensuring that businesses can maintain sustained competitive

advantage. Furthermore, sustainable strategic management (SR) is a critical theme to deliver corporate sustainability and also to ensure that a business can maintain its sustained competitive advantage. Sustainable strategic management (SR), according to the experts, was not found to be instrumental in developing sustainable dynamic capabilities, which could be because dynamic capabilities are mostly developed from the bottom from practices, routines, and operations, and then taken to higher levels. However, sustainable strategic management is devised at the corporate strategy level, which can have a long-term impact on the overall objectives and direction of a company. Furthermore, it is also recommended that a competitive advantage strategy be incorporated at the corporate strategy level.

A very key finding of this research is that sustainable dynamic capabilities (SDCs) in themselves become a means of achieving corporate sustainability and sustained competitive advantage. This validates propositions one (P1), two (P2), and three (P3) of the conceptual framework, as presented in Figure 2. Until now, dynamic capabilities have been considered to enable businesses to navigate a changing business landscape, but this research has demonstrated that if dynamic capabilities are sustainability-oriented, then they become sustainable dynamic capabilities, which can not only deliver corporate sustainability for a business, but also ensure sustained competitive advantage.

Research and development (RnD) and sustainability-oriented global business strategy (SGS) were also found to be common themes to deliver corporate sustainability and sustained competitive advantage. However, in Australia, research and development (RnD) has become more of a best practice and is even necessary to operate a business, given the value proposition of Australian businesses. Hence, this approach will deliver corporate sustainability, but for a long-term sustained competitive advantage, research and development (RnD) is instrumental for Pakistan, as developing countries desperately need to focus on research and development activities and innovation projects. A sustainability-oriented global business strategy (SGS) is equally important for Australia and Pakistan, given the globalisation and digitisation of businesses, as it delivers both corporate sustainability and sustained competitive advantage. This leads to the validation of proposition number four (P4) put forward in the conceptual framework presented in Figure 2.

The cluster relationship based on the coding of the expert interviews through an NVivo-generated relationship map is shown in Figure 9.



Figure 9. Relationship cluster generated by NVivo (author's own work).

The relationship cluster, based on the algorithm used for designing using NVivo analytics, clearly validates the propositions of the conceptual framework presented in Figure 2. The relationship cluster shows that sustained competitive advantage is the outcome of corporate sustainability and sustainable dynamic capabilities, whilst sustainable dynamic capabilities and corporate sustainability are directly interrelated.

Building on the relationships mentioned in the expert interviews, the cluster relationship identified through NVivo, and the common themes found for different constructs, the revised final framework was developed and is presented in Figure 10.

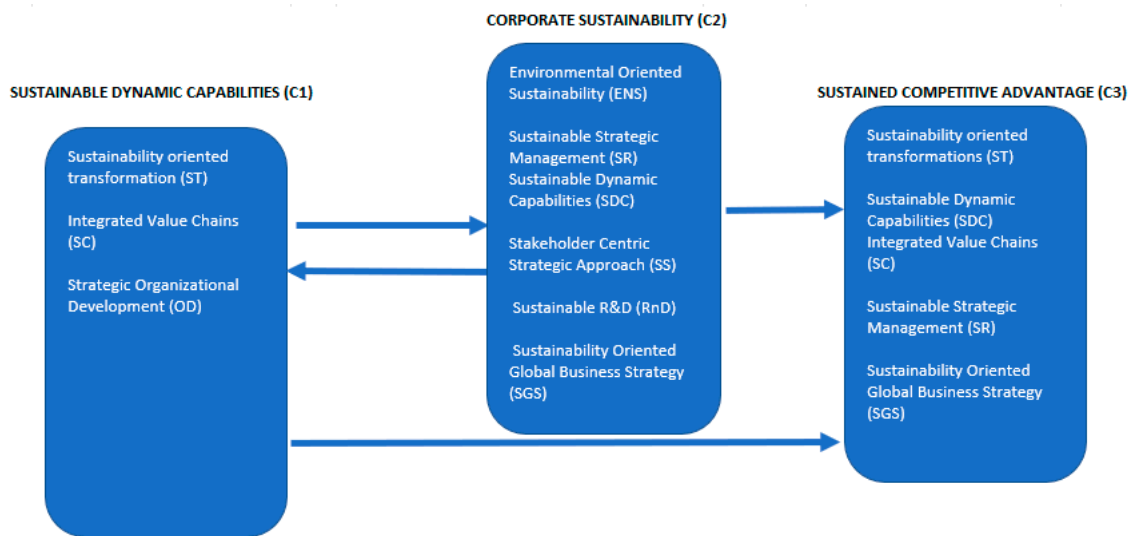


Figure 10. Framework to achieve sustained competitive advantage (author's own work).

Figure 10 shows all of the main themes that ensure and deliver the specific individual constructs. This relates to additional information obtained from the expert interviews. Thus, the expert interviews contributed not only to the validation of the propositions put forward earlier in this research, but also helped to clarify the main themes needed to achieve a specific construct. The framework shows a clear two-way interrelationship between sustainable dynamic capabilities and corporate sustainability, a relationship between corporate sustainability and sustained competitive advantage, and a relationship between sustainable dynamic capabilities and sustained competitive advantage. The findings from the expert interviews validate the following:

- P1: Sustainable dynamic capabilities lead to sustained competitive advantage (C1 --> C3);
- P2: Sustainable dynamic capabilities lead to corporate sustainability (C1 --> C2);
- P3: Corporate sustainability leads to sustainable dynamic capabilities (C2 --> C1);
- P4: Corporate sustainability acts as a mediator between sustainable dynamic capabilities and sustained competitive advantage (C1 --> C2: C2 --> C3).

5. Conclusions

In this study, the status of sustainability and dynamic capabilities research in developed and developing countries was thoroughly investigated through a systematic literature review, and a conceptual framework was devised and empirically validated through expert interviews. The findings revealed that very little research has so far been conducted on developing countries; in fact, only 24% of the research papers we reviewed focused on developing countries, and none focused on Pakistan. Hence, the present study focused on both Australia and Pakistan, providing examples of developed and developing countries, by conducting semi-structured expert interviews with 46 practitioners from which to validate our conceptual framework. We found that Australian businesses are focused on the sustainability journey, but still lag behind European companies, given the high hydrocarbon resource industry still operating in the country. Conversely, Pakistan is much further behind on the sustainability journey, trailing behind all developed countries and even some developing countries such as China, India, Thailand, South Korea, and Vietnam. Pakistani businesses are still somewhat reluctant to proactively deploy dynamic capabilities to achieve sustainability; thus, businesses in Pakistan are struggling significantly to achieve sustained competitive advantage. Research question one (RQ-1) was fully addressed through the critical analysis described in Section 3.

The detailed list of drivers of dynamic capabilities and corporate sustainability in large corporations and SMEs in developing and developed countries was discussed in Section 4, which addressed research questions two (RQ-2) and three (RQ-3). All of the drivers were

coded and grouped into key concepts to develop main themes. A comparison between the main themes of the drivers found through the systematic literature review mentioned in Appendix A, and the expert interviews was also conducted.

Sustainable dynamic capabilities (SDCs), strategic routines and competencies (SR), and integrated value chains through stakeholder engagement and sustainable supply chain management (SC) were found to be the critical drivers of all three constructs: sustainable dynamic capabilities (C1), corporate sustainability (C2), and sustained competitive advantage (C3).

The conceptual framework was revised following the expert interviews, and the propositions were also validated using thematic coding and critical analysis in NVivo, as discussed in Chapter 6, which fully addressed research question four (RQ-4). The following interrelationships between all three constructs were proposed, as they were also vetted by the experts through interviews:

- (1) Sustainable dynamic capabilities lead to sustained competitive advantage (C1 --> C3);
- (2) Sustainable dynamic capabilities lead to corporate sustainability (C1 --> C2);
- (3) Corporate sustainability leads to sustainable dynamic capabilities (C2 --> C1);
- (4) Corporate sustainability acts as a mediator between sustainable dynamic capabilities and sustained competitive advantage (C1 --> C2; C2 --> C3).

This research used the lens of Dynamic Capability Theory (DCT) and Resource-Based View (RBV) theory to merge key concepts and practices in order to develop drivers of corporate sustainability and sustainable dynamic capabilities. The study introduced the concept of sustainable dynamic capabilities, which can be taken as an extension of Dynamic Capability Theory (DCT). The relationship between the three main constructs, sustainable dynamic capabilities, corporate sustainability, and sustained competitive advantage, were investigated for a developed and a developing country. This is a novel approach, especially since no previous study has compared businesses in Pakistan and in Australia to understand the current level of sustainability practices, drivers, and strategies used to achieve a sustained competitive advantage. Sustainability and dynamic capabilities are currently treated as two distinct strategic objectives by businesses, but this research has introduced the theoretical concept of sustainable dynamic capabilities, which has practical implications for both SMEs and large organisations in developed and developing countries.

Practitioners can use this research as a guiding principle to focus their attention on the key drivers for developing sustainable dynamic capabilities, enabling businesses to achieve corporate sustainability and maintain sustained competitive advantage. The findings confirm that corporate sustainability itself can act as a sustainable dynamic capability, which should encourage practitioners to view sustainability practices through a refreshed lens. The findings of this research are equally applicable to Australian and Pakistani business practices.

Researchers in the future can use the concept of sustainable dynamic capabilities introduced in this research to formulate a theory. There is an opportunity to validate the findings of this research through case studies in other developed and developing countries. Moreover, it was found that corporate sustainability principles and practices also have an impact on the digital transformation of companies; hence, the findings of this research can be further investigated in the Information Technology (IT) sector.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Table A1. Summaries, knowledge gaps, and details of the papers selected for systematic review.

	Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
1	Green product innovation in manufacturing firms: A sustainability-oriented dynamic capability perspective	<i>Business Strategy and the Environment</i>	Dangelico, Pujari and Pontrandolfo (2017) [19]	Italy	Out of external resource integration, internal resource integration, and resource building and configuration capabilities, the resource building and reconfiguration was found to be the only Sustainability-Oriented Dynamic Capability (SODC) with a direct link to the better performance of market products.	(1) Cross-sectional data were used; casual interference cannot be achieved. (2) No clarity on why some firms are better at deploying SODCs than others. (3) SODCs for the service sector were not explored. (4) No comparison was conducted between developing and developed countries.
2	Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities	<i>Long Range Planning</i>	Bocken and Geradts (2020) [10]	Sweden	Excessive focus on shareholder value, uncertainty avoidance, short-termism, functional strategy; dominant focus on exploitation, prioritising short-term growth, functional excellence, standard innovation process, fixed resource planning and allocation, short-term incentive system, and financial performance metrics, which are the barriers to dynamic capabilities. Balancing shareholder and stakeholder value, embracing ambiguity, valuing business sustainability, collaborative innovation, strategic focus on SBMI, patient investments, people capability development, enabling innovation structure, ring-fenced resources for SBMI, incentive scheme for sustainability, and performance metrics for sustainability are the drivers of dynamic capabilities.	(1) The findings did not account for the actual outcomes of the SBMIs. (2) How organisational design conducive for DCs can improve the financial, social, and environmental (sustainability) parameters was not studied. (3) To what extent barriers and drivers were impacting the development of DCs was not studied. (4) The study did not differentiate between different drivers and their impact on sustainability. (5) Lack of understanding of how corporations embedded sustainability for the successful implementation of SBMIs. (6) No comparison made between the service and manufacturing industries.
3	Dynamic sustainability capabilities and corporate sustainability performance: The mediating effect of resource management capabilities	<i>Sustainable Development</i>	Shang, Chen and Li (2018) [49]	China	Monitoring, seizing, and reconfiguration capabilities are the foundation of dynamic sustainability capabilities. Dynamic capabilities with respect to sustainability had a direct impact on each dimension of Corporate Sustainability Performance (CSP). Hence, dynamic sustainability leads to better sustainable performance.	(1) Dynamic sustainability capabilities were vaguely discussed. (2) The mediation effect of resource management capabilities on balancing dynamic sustainability capabilities and CSP was studied, although other capabilities can also have a mediating effect. (3) A thorough study is indeed to understand the relationship between dynamic sustainability capabilities and CSP.
4	Toward a comprehensive model of organizational evolution: Dynamic capabilities for innovation and adaptation of the enterprise model	<i>Global Strategy Journal</i>	Zollo et al. (2016) [59]	France	Expectations of wider set of stakeholders demand managers of MNCs to adopt “multi-stakeholder enterprise model”. To do this, the current ad hoc capabilities are not enough, and dynamic capabilities need to be developed and honed. By using this multi-stakeholder enterprise model, MNCs can achieve corporate sustainability.	(1) Purely theoretical study. (2) Field experiments can be conducted in the future. (3) Lack of understanding of when MNCs commit to the multi-stakeholder enterprise model and how the strategic and operating decisions, internal governance, and firm stakeholder engagement are formed and evolve.
5	Dynamic capabilities for sustainability: Revealing the systemic key factors	<i>Systemic Practice and Action Research</i>	Cezarino (2019) [13]	Brazil	Companies have integrated sustainability into 3 factors: (1) develop an integrative strategy, (2) introduce a sustainable culture, and (3) develop organisational routines for innovation.	(1) Limited to only one case study and one sector. (2) Proposed model was not empirically tested. (3) Other variables like budgeting and comparison between different functional areas and engagement levels were not integrated into the proposed model.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
6 Explicating dynamic capabilities for corporate sustainability	<i>EuroMed Journal of Business</i>	Wu, He and Duan (2013) [56]	UK	A framework is proposed to utilise dynamic capabilities as a vehicle for corporate sustainable development. The findings confirm that dynamic capabilities enable firms to monitor emerging sustainability needs and challenges, seize relevant sustainability opportunities, and reconfigure functional capabilities to achieve corporate sustainability.	(1) No empirical study was conducted to validate the findings extracted from the 'content analysis' of the CSR report of seven UK firms. (2) SMEs were not studied. (3) The research was narrowly focused in the context of a developed country, i.e., UK.
7 Drivers and barriers of eco-innovation types for sustainable transition: A quantitative perspective	<i>Business Strategy and the Environment</i>	Kiefer, Gonzalez and Hermosilla (2018) [33]	Spain	Dynamic capabilities are the determinants of eco-innovation (EI) types. Eco-innovation types contribute towards the sustainable transition of the economy and society. Friendly corporate culture, technological push, market pull, and internal financing are the drivers for EI. Cooperation, standardisation (ISO), organisational learning, ecological certification, and technological path dependencies are barriers.	(1) Survey data were not hard data, and there were no clear alternatives for these data. (2) The framework might not be applicable to developing countries. (3) The study only focused on the industrial sector.
8 Dynamic eco innovation practices: A systematic review of state of the art and future direction for eco innovation study	<i>Asian Social Science</i>	Rashid, Yahya and Shami (2015) [45]	Malaysia	The key drivers for eco-innovation are regulatory push, technological push, market pull, firm strategies, green HR, eco-innovation culture, and environment management systems strategy. There are five main types of eco-innovation that contribute to sustainable development: (1) process-targeted, (2) product-targeted, (3) institutional-targeted, (4) marketing-targeted, and (5) organisational-targeted. Dynamic capabilities can be developed through activities such as (1) integrating, (2) reconfiguring, (3) gaining and releasing resources, (4) leveraging, (5) learning, and (6) creative integration.	(1) This was purely a conceptual study without any empirical data. (2) Selected papers were used in Google Scholar, not a comprehensive literature review.
9 An empirical study on the manufacturing firm's strategic choice for sustainability in SMEs	<i>Sustainability</i>	Suh and Lee (2018) [50]	South Korea	There is a relationship between supply chain visibilities, a modular design for supply chain flexibility, and the agility needed to achieve sustainability. Supply chain visibility leads to supply chain flexibility and agility, which are both considered dynamic capabilities. Flexibility reduces risk and uncertainty and brings sustainability. Agility equips the organisation to face unexpected changes, survive threats, and obtain advantages. Flexibility and agility have the prerequisite dimensions of sensing, seizing, and redeploying resources in the supply chain context; hence, they are considered dynamic capabilities. Supply chain integration can also be viewed as a dynamic capability.	(1) The data were received from the respondent based on their experience; this could lead to bias. (2) Study only focused on one aspect of modularity, when there could be several dimensions of modularity and flexibility. (3) Degree of modularity was not studied to understand its impact on flexibility and agility.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
10 Identifying firm capabilities as drivers of environmental management and sustainability practices—Evidence from small and medium-sized manufacturers	<i>Business Strategy and the Environment</i>	Hofmann, Theyel and Wood (2012) [27]	Germany	Adoption of advanced technology, inter-firm relationship experiences, and production innovation capacity are recognised as three dynamic capabilities to become greener (sustainability). The result showed that only 15 to 25 percent of firms adopt advanced technologies like CAD and CAE. Companies that used less technology showed low collaboration as well. The concept of green dynamic capabilities was touched upon through this research, albeit at a very high level.	(1) As the SMEs were only selected from the East Coast of the US, a very limited set of data could be accessed. (2) A comparison with SMEs in Asia and Europe was not conducted; hence, this is recommended. (3) Due to the limited scope of the study, only three dynamic capabilities could be captured, when in reality, there could be more than that. (4) The cross-sectional study design is not the most suitable strategy to obtain answers to the question of causality, as all of these routines and capabilities could exist concurrently and might not have a straightforward relationship.
11 Micro foundations of dynamic capabilities: Insights from circular economy business cases	<i>Business Strategy and the Environment</i>	Khan, Daddi and Iraldo (2019) [32]	Italy	A circular economy is a key strategy to achieving corporate sustainability, and to integrate a circular economy into a business model, the micro foundations of dynamic capabilities (DCs) are sensing, seizing, and reconfiguration practices. It was found that four micro foundations (market monitoring and technology scanning, idea generation, knowledge creation, and experiential learning) of sensing were critical to identifying opportunities, and three micro foundations (strategic planning, business model and governance, and collaboration) of seizing and four micro foundations (organisational restructuring, technological upgradation, knowledge integration, and best practice adoption) of reconfiguration were vital to capture the identified opportunities. The structure, strategies, and operations of companies are attached to the linear economy; hence, DCs were required to integrate a circular economy.	(1) Data obtained for case studies were from only four firms. (2) Interviews with only top management were conducted, yet interviews with other employees from R&D, HR, production, etc., could provide broader insights. (3) Limited geographical diversity in data and comparison. (4) The commonalities among the micro foundations of DCs were not studied. (5) The impact of a circular economy on company performance was not studied.
12 Global connectedness and dynamic green capabilities in MNEs	<i>Journal of International Business Studies</i>	Maksimov, Wang and Yan (2019) [37]	USA	Global connectedness in MNEs can “replace” sensing DC and act as a driver for seizure and reconfiguration to integrate green competences (green dynamic capabilities). Green dynamic capabilities require investment in various competences and are embedded in the organisation; hence, they coevolve with the resources, required competences, and tacit knowledge. By setting up subsidiaries in other countries, market insights and stakeholder knowledge can be gathered. By implementing ISOs, global connectedness can also be achieved indirectly. It was found that reconfiguration in one period can impact the sensing in the following period; this demands an investigation of the sequence of sensing, seizing, and reconfiguration not studied by Teece.	(1) The sample data were only taken from large publicly listed MNEs. (2) The period of data used omits important global changes, which could have had an impact on the study. (3) How MNEs can develop green DCs in the ‘deglobalisation’ scenario was not studied. (4) Organisational infrastructure was not studied. (5) The sequence of sensing, seizing, and reconfiguration was also not focused upon.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
13 How an international ambidexterity strategy can address the paradox perspective on corporate sustainability: Evidence from Chinese emerging market multinationals	<i>Business Strategy and the Environment</i>	Ciasullo et al. (2020) [15]	Italy	It is suggested that corporate sustainability (CS) can lead to competitive advantage if used strategically. The structural ambidexterity strategy for internationalisation leads to sustainability. Companies can achieve better firm performance if CS is integrated with the business strategy, and CS is critical for competitive advantage. Hence, sustainability is a dynamic and innovative choice for integration into business strategy. Since ambidexterity employs both exploitation (building on the existing capabilities) and exploration (finding and developing new capabilities), it is a dynamic capability. Emerging MNEs consider CS as a strategic lever to achieve competitive advantage in developed countries.	(1) The study did not focus on any specific industry; therefore, the actual results may vary from industry to industry. (2) Only China was focused upon, while other developing countries may have different results. (3) Sustainability objectives were used as a scale of measure. In future, sustainable development goals can also be integrated. (4) In regression analysis, the role of a moderating variable can be studied, e.g., for the entry mode for a firm in a developed country or the competitive pressure faced whilst entering the developed country market.
14 On the conceptualization and measurement of dynamic capabilities for sustainability: Building theory through a systematic literature review	<i>Business Strategy and the Environment</i>	Buzzao and Rizzi (2021) [12]	Italy	A systematic literature review captured 225 constructs or subdimensions of DCs, 15 of which had attributes to all three of Teece's capabilities (sensing, seizing, and reconfiguration). Most of the studies were found to be at the institutional level and only one study was carried out at the individual level. The majority of the studies on SLR used primary data (surveys, etc.) to discuss DCs and very few studies used secondary data (market/financial performance). The literature could not clearly confirm whether DCs are unique to firms or can be used as best practices across firms. Only 20 papers studied sustainability with the focus on the triple bottom line approach, and the remaining 51 papers focused on the environmental aspects of sustainability. Most of the studies focused on electronics and chemical industries. China was found to be the most popular country for case studies. Spain had the highest number of research studies. A total of 15 studies were conducted on large companies and 13 studies on SMEs. Sustainability-oriented DCs, green DCs, and green purchasing DCs are attributed to the "transformational" role in companies. Sustainability should be embedded into higher-level capabilities. A long time horizon and external focus are key for sustainability-oriented DCs, otherwise they are just ordinary/generic DCs within or outside the sustainability setting.	(1) SLR only focused on English articles published in management journals listed in Scopus and WoS. (2) There was a residual risk that a few studies might have been missed out.
15 Sustainability as a dynamic organizational capability: A systematic review and a future agenda toward a sustainable transition	<i>Journal of Cleaner Production</i>	Amui et al. (2017) [3]	Brazil	Sustainability is an important managerial strategy for firms, and there is limited research available on integrating both corporate sustainability and dynamic capabilities. There is also a clear lack of research focusing on how sustainability can be converted into a business asset (a dynamic capability integrated with business strategies). It is recommended to conduct mixed methodologies and comparative studies for different sectors and for different geographical locations.	(1) No explanation for the type of DCs needed for sustainability. (2) SLR did not provide any information on the drivers and barriers of DCs and sustainability.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
16 Organizational learning and green innovation: Does environmental proactivity matter?	<i>Sustainability</i>	Zhang et al. (2018) [58]	China	The role of environmental proactivity was researched in Chinese enterprises. It was found that the environmentally proactive companies manage to develop more balanced dynamic capabilities than companies that are not environmentally proactive. Organisational learning leads to the development of absorptive capabilities and transformative capabilities, which are DCs. These DCs, under the umbrella of environmental proactivity, lead to green innovation, which ultimately leads to corporate sustainability and competitive advantage.	(1) Research only focused on China. (2) The findings cannot be generalised for other countries. (3) The study did not capture the relationship between enterprise characteristics (organisational structures, etc.) and green innovation.
17 Sustainability oriented innovation dynamics: Levels of dynamic capabilities and their path-dependent and self-reinforcing logics	<i>Technological Forecasting & Social Change</i>	Inigo and Albareda (2019) [28]	Netherlands	Out of three levels of DCs (adapting, expanding, and transforming), transforming follows a path-dependent logic when it is a time-evolving transformation. When these transformation DCs enhance self-reinforcement, they fall among the strategic sustainability dimensions. Sustainability-oriented innovation (SOI) transforms DCs from the lower-level adapting capabilities to the higher-level transforming capabilities. SOI can also deliver competitive advantage. DCs for SOI involve complex innovation management, production and operations management, systems thinking, and cross-stakeholder management. To meet SOI challenges, large companies develop sustainable products and processes, whilst SMEs look for new markets.	(1) Due to its inductive and qualitative nature, the research cannot be generalised. (2) The data collected are time-specific, and the data from the case study may differ at different times for other companies. (3) The study was only specific to developed countries.
18 The long-term sustenance of sustainability practices in MNCs: A dynamic capabilities perspective of the role of R&D and internationalization	<i>Journal of Business Ethics</i>	Chakrabarty and Wang (2012) [14]	USA	Using longitudinal panel data from 1989 to 2009 for MNCs, this study confirmed that MNCs with higher R&D intensity and internationalisation are more likely to develop and maintain sustainability practices over a period of time. It was also found that the MNCs with lower R&D intensity and less internationalisation are less likely to develop and maintain sustainability practices over a period of time. Essentially, R&D intensity and the level of internationalisation can be considered DCs.	(1) Long-term impact of innovation capability and market orientation capability was not considered. (2) Impact of strategic decision making on investing in sustainability practices was not studied. (3) External factors were also not taken into account to study the relationship between high-intensity R&D, high internationalisation, and sustenance of sustainability practices.
19 Collaborative and sustainable supply chain practices: A case study	<i>Journal of Enterprising Communities: People and Places in the Global Economy</i>	Medina-Serrano (2020) [39]	Spain	A supply chain design model with sustainable procurement elements in it was validated in this study to offset the effects of allocation issues in the electronics market. The framework is based on sustainable supply chain management designs and collaboration with third parties. Product innovation and organisational structure reconfiguration are the key DCs in inventory management and the supply chain.	(1) All conclusions were based on only one case study. (2) The proposed model was not integrated into the decision support methodology. (3) the case study only related to the electronics manufacturing sector. (4) Impact of the framework on financial performance was not studied.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
20 Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature	<i>International Journal of Production Economics</i>	Beske, Land and Seuring (2014) [8]	Germany	This research confirmed that knowledge sharing and reconceptualising are the DCs specific to the sustainability-oriented food industry. It is claimed that companies are implementing sustainability practices and DCs to enhance tracking and traceability and to fulfil customer demands. This research emphasises the importance of a commitment to sustainability, and a clear link between DCs and sustainability (SSCM) is found.	(1) DCs and their routines related to sustainability (SSCM) were not discussed in detail. (2) Only one sector (food industry) was focused upon. (3) Secondary data were used and no primary data were collected. (4) Social dimension of sustainability was ignored. (5) Geographical and sector context was missing.
21 Technology, sustainable development, and corporate growth—striking a balance	<i>World Review of Science, Technology and Sustainable Development</i>	Durge and Sangle (2020) [20]	India	This study established the importance of performance management for sustainability capabilities (DCs) and devised a sustainability balanced score card for operationalising sustainability strategies. Using technology as a source of innovation, companies can achieve competitive advantage by implementing four sustainability strategies, which are also DCs: (1) pollution prevention, (2) product stewardship, (3) clean technology, and (4) the base of the pyramid. Emerging countries are the key area for innovation and co-creation of new products, services, and businesses. Developed countries are not the right market, as developing markets provide opportunities for reverse innovation.	(1) Only a conceptual study, with no empirical data. (2) The role of performance management in developing DCs was not studied. (3) No comparison made between developing and developed countries. (4) Sector context was missing.
22 The effects of corporate social responsibility on service innovation performance: The role of dynamic capability for sustainability	<i>Sustainability</i>	Li et al. (2019) [35]	China	This study confirmed the positive influence of community CSR on service innovation performance, which is partially mediated by a dynamic capability. Furthermore, environmental CSR also has a positive effect on service innovation performance, which is fully mediated by a dynamic capability. DCs such as internal sensing, service interaction, and service delivery lead to better service innovation performance, which will ultimately deliver sustained competitive advantage. Adaptive, absorptive, and innovative capabilities are the three dimensions of DCs.	(1) Research findings are limited to China and SMEs, and no comparison made between SMEs and large corps and those in developed countries. (2) The causal relationship between CSR, dynamic capability, and service innovation needs to be studied more systematically. (3) CSR not researched as a corporate strategy to improve firms' DCs.
23 Building theory at the intersection of ecological sustainability and strategic management	<i>Journal of Business Ethics</i>	Borland et al. (2016) [11]	United Kingdom (UK)	By combining the theories of industrial organisation economics, resource-based theory, and dynamic capability theory, a framework of five strategies called the 5Rs (rethink, reinvent, redesign, redirect, and recover) is proposed. Two further dynamic capabilities of remapping and reaping are suggested to add to the existing dynamic capabilities of sensing, seizing, and maintaining competitiveness. This framework is extended beyond the business ecosystems to global biophysical ecosystems for ecological sustainability and competitive advantage.	(1) Proposed framework was not empirically tested. (2) Research did not focus on understanding the challenges between developed and developing countries. (3) Very limited empirical data were used to develop a causal relationship between the profits and ecological sustainability. (4) Transformation cost versus actual benefits not calculated.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
24 A capability-based view of sustainability-oriented innovation: An exploratory study	<i>Academy of Management Proceedings</i>	Inigo and Albareda (2016) [1]	Finland	A capability-based view is conceptualised with three dynamic capabilities for Sustainability-Oriented Innovation (SOI): (1) incremental capabilities involving environmental scanning, clean technologies, knowledge accumulation, management systems (ISO, etc.), and intellectual capital; (2) renewing capabilities of market sensing, sustainability embeddedness, and networking; and (3) regenerative capabilities including the transformation of business strategic focus and developing new sustainable business models via reconfiguring leadership and social capital. It is concluded that sustainability (especially in B2C retail segments) leads to competitive advantage and creates new capabilities for the business.	(1) Due to the inductive nature of the research, the findings cannot be generalised. (2) All eight companies were based in Spain (EU), with no data on developing and emerging countries. (3) No detailed analysis or comparison made between large and SMEs.
25 Dynamic capabilities and organizational routines for managing innovation towards sustainability	<i>Journal of Cleaner Production</i>	Mousavi, Bossink and Vliet (2018) [40]	Netherlands	Cross-sectional data obtained from the Community Innovation Survey (CIS) administered to German companies confirmed that the DCs of sensing, seizing, and reconfiguration have a direct impact on the innovation towards sustainability. Reconfiguration capability positively influences sensing and seizing capabilities, and sensing and seizing capabilities partially mediate the relationship between reconfiguration and sustainable innovation. Companies need to change their focus not only to achieve competitive advantage, but also to achieve “sustained” competitive advantage. A diversified set of stakeholders and market innovation help to achieve this.	(1) A cross-sectional approach limited the research focus at a given time; a longitudinal approach is preferable. (2) Teece suggested that DCs should be unique for each business, but this research generalised the DCs for a variety of sectors and businesses. (3) Organisational boundaries were ignored, ignoring the fact that different businesses could have different challenges. (4) The research only focused on German companies, the context was very narrow, and no comparison was made with developing or underdeveloped nations.
26 Implementing dynamic capabilities for corporate strategic change toward sustainability	<i>Strategic Change</i>	Wu et al. (2012) [55]	United Kingdom (UK)	Through a case study of a large telecom company (Huawei), a conceptual framework was developed to gain competitive advantage by implementing specific DCs (scanning, identification, and reconfiguration) to drive a strategic change towards sustainability. Firms needed to tackle the most relevant sustainability issues as part of their core strategies.	(1) The conceptual framework was not validated or empirically tested. (2) Only one case study was conducted. (3) No research on SMEs. (4) No comparison made between different sectors. (5) The source and deployment of DCs were not discussed.
27 How manufacturing companies can utilize innovation test-centers in facilitating environmental sustainability	<i>The ISPIM Innovation Conference—Innovation, The Name of the Game</i>	Ullern and Ramstad (2018) [53]	Norway	This study highlights how leveraging innovation infrastructure centres and developing dynamic capabilities can help manufacturing companies to achieve environmental sustainability. In Norway, a government initiative known as the “Norwegian Katapult” has encouraged this approach; hence, it is critical to understand the DCs required to achieve environmental sustainability and how innovation centres (such as Katapult) could contribute to the development of sustainable processes and products. DCs directly lead to sustainability-oriented innovation.	(1) Research context was very narrow, only focusing on Norway. (2) The sector was limited to Katapult initiative and SMEs. (3) No comparison made between different sectors. (4) No comparison made between developed and developing countries. (5) Conceptual or proposed framework was missing.

Table A1. Cont.

Title	Journal	Authors	Country of Origin	Summary	Knowledge Gaps
28 Market-oriented sustainability: A conceptual framework and propositions	<i>Journal of the Academy of Marketing Science</i>	Crittenden et al. (2011) [17]	USA	Using Resource Advantage Theory, a market-oriented sustainability framework was proposed that enables organisations to align marketing and sustainability strategies to achieve competitive advantage. The main drivers for sustainability were (1) DNA of the organisations, (2) performance management, and (3) stakeholder involvement.	(1) Conceptual study, with no empirical data collected or tested. (2) Focused on large companies and no comparison made with SMEs. (3) Focused on the USA and developing countries were not considered.
29 Missing link between sustainability collaborative strategy and supply chain performance: Role of dynamic capability	<i>International Journal of Production Economics</i>	Kumar, Subramanian and Arputham (2018) [34]	India	There is a misalignment between collaboration and supply chain performance. Four models were used to demonstrate that both JRS (joint planning and resource sharing) misalignment and CC (collaborative culture) misalignment influence all dimensions of the triple bottom line through DCs, but CC misalignment was found to be more significant for operational and social performance. Hence, appropriate DCs should be developed to address this collaborative misalignment. Resource configuration is the best way to drive competitive advantage. Emerging economies are under pressure to invest in sustainability practices in the short term. Sustainable collaboration between partner firms is a DC that can be used to achieve competitive advantage. DCs improve firm's environmental performance by identifying the natural environment's requirements such as reducing pollution, recycling technologies, and eco innovation.	(1) Only large companies were used for the survey, while SMEs were not included. (2) Focus was on India, just one emerging country; therefore, the theories and conclusions cannot be generalised, even for the emerging economies like China. (3) The study focused on sustainable supply chain management, so was not comprehensive in terms of corporate sustainability.

Source: Bari, Chumhindu, and Chan (2022) [4].

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