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RESEARCH ARTICLE

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The influence of government upon multinational company manufacturing location decisions

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Abstract

With the rapid changes taking place in international manufacturing, there is a need for new theories linking the drivers for manufacturing location decisions to the influence of government. A Delphi study in 2017 of senior industrialists in Europe from capital intensive, complex technology manufacturing sectors provided evidence on the importance of government-specific factors for final location decisions. This was because of the influence of government policies as an exogenous factor on the drivers for international manufacturing, including cost effective, flexible supply chains and the use of the new technologies of Industry 4.0, in an uncertain global political climate. The findings are used to develop a new theoretical framework comprising the *decision onion* and the *government policy matrix* for multinational company manufacturing location decisions. This systematic approach to the influence of government will assist in the development of policy in the post-Covid 19 era of transformational change in industrial location strategies.

KEYWORDS

Delphi study, Europe, government role, industrial policy, international business strategy, location choice

INTRODUCTION

Changes in the locations of multinational companies (MNCs) in manufacturing industry have received much attention across a range of academic disciplines, because of their significance for patterns of economic activity on a global basis (Dunning & Lundan, 2008; Iammarino & McCann, 2013; Brennan et al., 2015). Trends in foreign direct investment, offshoring to distant locations and subsequent backshoring, have complex relationships with government policies in home and host countries (Pereira, Munjal, & Ishizaka, 2019; Boffelli & Johansson, 2020; Elia et al., 2021; Zhan, 2021). This article takes a broad overview of factors influencing MNC location choices and focuses on the different ways in which governments might influence these decisions. It develops a new theoretical framework that takes a comprehensive approach to the influence of government on MNC location decisions, which will assist in evaluation of policy initiatives and the development of new policies.

Brennan et al. (2015) identified a number of emerging themes affecting global configurations of manufacturing, such as new production systems, reshoring, sustainable practices, 'Big Data' and the 'Internet of Things, but concluded that most of them were in their initial stages and not likely to create a radical shift in the next few years. This left open the question at what point radical change might occur. More recent commentaries have predicted the transformation of global supply chains in the next decade, with the role of governments being fundamental as an exogenous factor influencing these changes (Verbeke & Yuan, 2021; Buckley, 2021; Elia et al., 2021; Zhan, 2021). In this context, new theories on the relationship between the drivers for international manufacturing and the role of government are required to help understand the impact of current policies and assist in the development of new policies.

The literature on international manufacturing location decision-making is rich and diverse, with the international business field intersecting with other research

fields, including economic geography, decision-making theory, government industrial policy and manufacturing and location strategy (Iammarino & McCann, 2013; Kim & Aguilera, 2016; Nielsen, Asmussen, & Weatherall, 2017; Pereira, Munjal, & Ishizaka, 2019; Boffelli & Johansson, 2020; Verbeke & Yuan, 2021). The role of government is a key factor in the development of theories of international manufacturing location (Porter, 1998; Dunning & Lundan, 2008; Buckley & Casson, 2009; Faeth, 2009). However, the theorisation of the influence of government on manufacturing location decisions is not the central focus of attention in these literature fields; government is part of wider explanatory frameworks on the location decisions of MNCs. The role of government in location decisions is often theorised within the formal, regulative part of the multidisciplinary construct of *institutions* (Kim & Aguilera, 2016; Donnelly & Manolova, 2020).

To obtain an overview of the reasons for industrial locational decisions, there have been studies in the past looking comprehensively at the factors affecting international location choices (MacCarthy & Atthirawong, 2003; Badri, 2007). Although these studies lack theoretical underpinning on the relationship between government influences and locational decisions, they do provide a benchmark position for the range of factors affecting industrial locations at the beginning of the 21st century. In the case of MacCarthy and Atthirawong (2003), the relative significance of these factors was also addressed, using a Delphi Study. A new research study was set up to broadly follow their approach, in order to provide a longitudinal comparison on the key drivers for international manufacturing and the influence of government amongst other factors affecting location decisions.

A panel of senior industrialists from Europe was recruited for the Delphi study that took place in 2017. The participants were asked to use their personal experience to consider a number of linked questions on the future of MNC manufacturing locations. The key questions concerned the main strategic and operational drivers for MNCs manufacturing internationally in the future, and the most critical factors for selecting future locations. The most significant differences from MacCarthy and Atthirawong (2003) in the relative significance of factors affecting MNC location decisions were in the role of government. Therefore, this article focuses on these results, while providing contextual information about the full Delphi study, as the findings from the key questions combined to provide evidence to explain the role and significance of government influences. The findings are used to develop a new theoretical framework for the influence of government on MNC international manufacturing decisions.

In the next section, the literature on international location decisions and the key theories in this field are reviewed, to identify the research gap in detail. This section is also used to compile a list of government-specific factors affecting international manufacturing locations. There follows an outline of the Delphi method undertaken for this study, which includes some novel approaches to engage the 'elite' research participants. The key results of the Delphi exercise are then presented, focusing on those related to the role of government. The findings are compared with the existing evidence base on the role of government for international manufacturing strategies and location decisions. Then the new theoretical framework is presented, and finally, applications in management practice and theory are explored, including directions for further research.

THE LITERATURE ON INTERNATIONAL MANUFACTURING LOCATION DECISIONS AND THEORISATION OF THE ROLE OF GOVERNMENT

The broad research field of International Business (IB) overlaps with many other fields in the study of MNC manufacturing location decisions. This is represented diagrammatically in Figure 1, positioning each field on the twin axes of scope and orientation, and showing the main intersections between them. Examples of how some of the key research themes and theories fit within Figure 1 are outlined below, to demonstrate its utility as a simplified representation of a complex, multidisciplinary literature (Nielsen, Asmussen, & Weatherall, 2017).

The overlap between economic geography and IB developed from early theories on location factors (Weber & Friedrich, 1929), with a major theoretical contribution being 'new economic geography' (Krugman, 1998), in which competing centripetal and centrifugal forces determine the spatial distribution of industrial activity. A branch of theory that has an additional overlap with government industrial policy is the 'diamond model' of

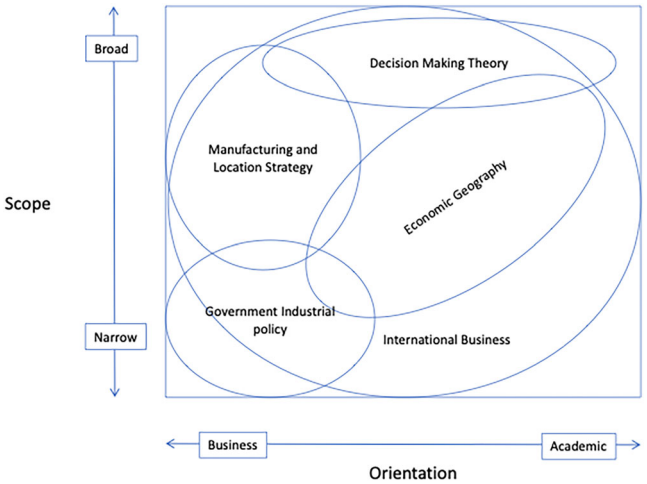

FIGURE 1 Overlapping literature fields for multinational company manufacturing location decisions

national or regional competitive advantage (Porter, 1998), which is the basis for the distinction between 'firm-specific' and 'country-specific' factors influencing manufacturing locations (Verbeke & Yuan, 2021). The manufacturing and location strategy field includes studies of the main drivers for companies to manufacture across international borders (MacCarthy & Atthirawong, 2003; Badri, 2007) and the literature on offshoring and reshoring patterns of relocation, which is linked with outsourcing and insourcing decisions (Fratocchi et al., 2016; Stentoft et al., 2016; Pereira, Munjal, & Ishizaka, 2019; Boffelli & Johansson, 2020). The decision-making field contributes studies exploring the decision-making process for international manufacturing location choices (Clark, Li, & Shepherd, 2018; Ambos et al., 2020; Cuervo-Cazurra, Doz, & Gaur, 2020) and overlaps with the literature on offshoring and reshoring (Bals, Kirchoff, & Foerstl, 2016; Theyel, Hoffman, & Gregory, 2018).

Theory on MNC location decisions and the role of government

Early industrial location theory, such as Weber's Location Triangle, was based upon micro-economic foundations and paid little attention to the role of government in locational decisions (Weber & Friedrich, 1929). However, increasing investments across national boundaries led to the development of theory on MNCs and foreign direct investment (FDI) from the 1960s onwards, with IB as the binding element, but drawing on all the different disciplinary backgrounds represented in Figure 1 (Buckley & Casson, 2009; Faeth, 2009; Nielsen, Asmussen, & Weatherall, 2017). The core theories on MNCs and FDI, including Internalisation Theory (Buckley & Casson (2009), the OLI eclectic framework (Dunning, 1998) and New Trade Theory (Krugman, 1979), all identify a key role for government in influencing locational decisions by MNCs.

The role of government in the factors explaining MNC behaviour is complex. For example, in the OLI eclectic framework, the role of government is mainly associated with 'L' (location), in the nature of the institutional and political environment, and specific national policies (Dunning, 1998; Dunning & Lundan, 2008). However, the 'O' (ownership) advantages generated by a firm's tangible and intangible resources are influenced by governments, for example, in the educational systems which have given employees in the firm the ability to innovate. Finally, the 'I' (internalisation) advantages are affected by legal and regulatory systems in any given country. Another example of the complexity of the role of government in core theory is the variety of ways in which governments can influence trade costs in Krugman's New Trade Theory, which in turn can have different effects upon FDI (Nielsen, Asmussen, & Weatherall, 2017). As these core theories are aiming to explain MNC behaviour, they do not address the role of government in a holistic manner—it is not their main focus of attention.

Theories on national competitiveness have a more central interest in the role of government, seeking to bridge the gap between economic theory on business and government (Porter, 1998). A key part of Porter's argument was that the four factors in the diamond of national advantage—factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry—are all influenced by government. Porter (1998:126) asserted that 'It is tempting to make government the fifth determinant. Yet this is neither correct nor the most useful way to understand government's role in international competition. Government's real role in national competitive advantage is in influencing the four determinants.' Porter (1998) identified the different ways in which government policy affects each of the four factors in the diamond. He argued that the combined effect of these influences are much more significant for long-term competitiveness than single policy initiatives to assist industry, in areas such as R&D, taxation, or regulation, which can even have detrimental long-term consequences. However, Porter's remit was much wider than locational decisions by MNCs; he was concerned with the development of national competitive advantage in an industry. Consequently, Porter (1998) does not provide a framework specifically for identifying the role of government in international investment decision-making by MNCs. The same lack of a specific focus on the MNC location decision applies more broadly to theoretical frameworks for national industrial investment strategies, such as Zhan's (2021) 'Industrial Policy Design and Investment Policy Framework.'

Common to the theories on MNCs and national competitiveness referred to above is that government interventions are an exogenous influence (Buckley & Casson, 2009; Buckley, 2021). This means that MNC locational decisions are influenced by governments but are made independently of them, based upon strategic and operational advantages for the business. This basic assumption is consistent with the respective roles of the state and the private sector in a mixed economy, which has become dominant in most parts of the world with the forces of globalisation and economic liberalisation in the late 20th and early 21st centuries (Stiglitz, 2017).

However, the assumption of the role of government being exogenous does not hold universally. It does not apply to state controlled MNCs, for example, as found in China, where political affiliations have been found to influence locational decisions for FDI directly (Ramasamy, Yeung, & Laforet, 2012). In many parts of the world, governments have stakes in MNCs, for example, through sovereign wealth funds, but their approach to their investments has traditionally been passive, typically holding minority stakes (Gospel et al., 2011). On this basis, it would be accepted that the running of the

MNC and, in particular, decisions on the countries where it decides to locate should be determined by business-related factors, rather than the political system of the host country. Therefore, the assumption of exogeneity is so widespread as to be a basis for theorising on the role of government in MNC location decisions, although the number of state-owned enterprises (SOEs) has increased globally in the last 20 years (Garrard, 2022).

Role of government and factors affecting industrial location

Based on the assumption of exogeneity, government-related factors can be considered on a par with all the other influences on MNC manufacturing location decisions. There are two studies from the turn of the 21st century that sought to identify a comprehensive set of

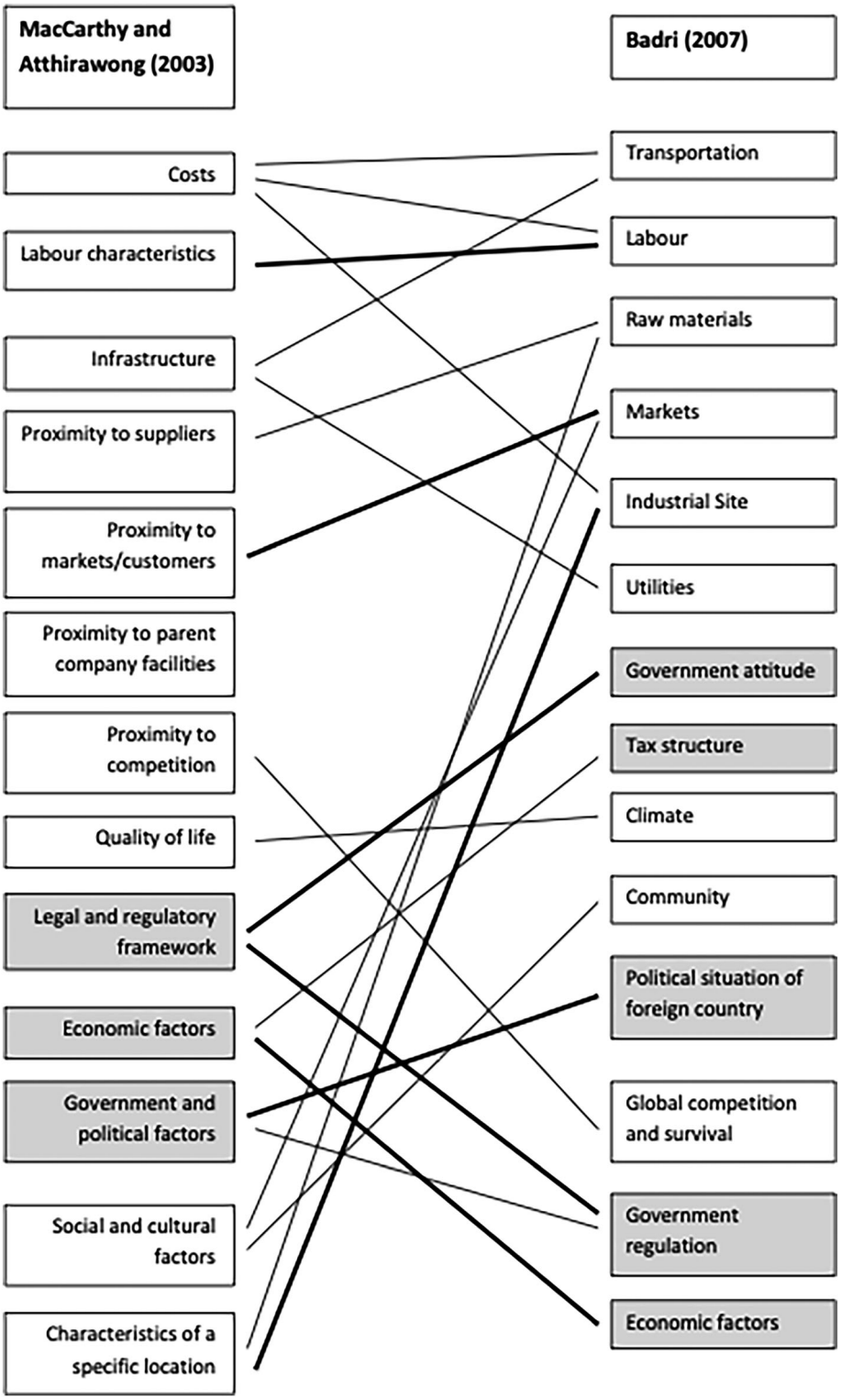

FIGURE 2 Comparison of the lists of factors affecting manufacturing location decisions, in MacCarthy and Atthirawong (2003) and Badri (2007). Government-specific factors are shaded in grey. Thick lines indicate full or close correspondence between two factors, and thin lines indicate partial correspondence

factors and sub-factors on international location decisions (MacCarthy & Atthirawong, 2003 and Badri, 2007). Figure 2 compares the main factors identified in these two publications, demonstrating that while many of the category names are different, they cover a very similar range of factors.

Highlighted with grey shading in Figure 2 are the factors directly concerned with the role of governments and the economic and regulatory/legal policy areas which are their responsibility. These will be called *government-specific factors* in this paper. A composite list of sub-factors from the two studies includes government stability, government structure, policy consistency, attitude to inward investment, state subsidies, tax structures and incentives, customs and tariffs, interest rates, exchange rates, and laws and regulations on industrial relations, environment, compensation, insurance, health/safety, planning, joint ventures/acquisitions/mergers and transfers of earnings. Although this list is quite comprehensive, there are other specialist areas regulated by government, an example being intellectual property, which could be added.

Within FDI theory, there is a branch which has sought to relate government policy variables to investment decisions, often involving negotiations between host countries and MNCs in a co-evolutionary relationship (Faeth, 2009; Cantwell, Dunning, & Lundan, 2010). Table 1 provides a typology of investment incentives covered in this literature stream.

All the listed investment incentives, with the exception of equity participation, preserve the exogenous role of government. Equity participation would involve a host government body taking a financial stake in the MNC, and thereby becoming a decision-making partner. All the other incentives can be linked back to the classification of *government-specific factors* in MacCarthy and Atthirawong (2003) and Badri (2007), as indicated in Table 1.

Although the literature on investment incentives acts as a useful reference point on the variety of different measures being employed, it does not link those incentives to the wider roles of government, in influencing the whole range of factors in MNC locational decision-making. There are also indirect effects of government policy (Porter, 1998), which to a greater or lesser degree impact on all the other factors listed in Figure 2, whether this is labour costs and skills, transportation, market access, infrastructure and utilities, social and community factors, quality of life, or the availability of industrial sites. By listing *government-specific factors* alongside these other factors, MacCarthy and Atthirawong (2003) and Badri (2007) fail to incorporate these inter-connections into their analytical frameworks.

A further shortcoming in the treatment of government-specific factors and sub-factors by MacCarthy and Atthirawong (2003) and Badri (2007) is the failure to distinguish broad government characteristics from specific policy measures and theorise how they are related. One of the main ways in which broad characteristics, such as political stability, affect specific policies is in the degree and frequency of changes in regulatory frameworks. Under conditions of exogeneity, MNCs would primarily be worried about the manifestation of political instability in ways that would directly affect their operations, such as sudden changes in export regulations, rather than being concerned about the political situation per se.

Institutional theory

The role of governments falls within the multidisciplinary theoretical construct of *institutions*, which is a key concept for research on international location decisions (Dunning & Lundan, 2008; Kim & Aguilera, 2016; Donnelly & Manolova, 2020). Within the theory on *formal, regulative institutions*, governments are responsible for rules and laws, while themes such as political instability, policy changes and government effectiveness are also explored in the literature on institutional influences on location decisions (Donnelly & Manolova, 2020). Although this literature stream has the advantage of linking government influences to the wider social and cultural context, Donnelly and Manolova (2020) identify a gap in the institutional literature in researching how the

TABLE 1 Government investment incentives to encourage FDI (adapted from Faeth, 2009)

Types of incentive	Examples	Categories in MacCarthy and Atthirawong (2003)	Categories in Badri (2007)
Fiscal	Related to: profits, capital investment, labour, sales, value-added, imports, exports, expenses	Legal and regulatory framework *and* economic factors	Tax structure *and* government regulation
Financial	Grants, credits at subsidised rates, equity participation, insurance at preferential rates	Legal and regulatory framework *and* economic factors	Economic factors *and* government regulation
Others	Dedicated infrastructure, subsidised services, market preferences, foreign exchange	Infrastructure *and* economic factors	Utilities *and* economic factors

Note: FDI, foreign direct investment.

influence of institutions is linked to investment motivations. New theories on how the drivers for MNC international manufacturing are related to the range of different *government-specific* influences would provide a framework to help the institutional literature address this opportunity through further empirical research.

Post-Covid 19 theories and research directions

Recent policy-oriented journal articles have reviewed trends in international manufacturing, and how these are being influenced and often accelerated by the Covid-19 pandemic (Verbeke & Yuan, 2021; Buckley, 2021; Elia et al., 2021; Sauvant, 2021; Zhan, 2021). These publications suggest a forthcoming era of transformational change in international manufacturing, in which government policies will play a crucial role. Zhan (2021) proposes a comprehensive investment policy framework, to address the five driving forces for global value chain transformation of economic governance realignment, technology and the new industrial revolution, sustainability imperative, corporate accountability and resilience-oriented restructuring. Elia et al. (2021) compare the pre- and post-pandemic policies of a sample of countries towards reshoring, listing a range of different policy instruments. Sauvant (2021) suggests different ways in which governments can enhance the benefits of FDI, linked to negotiations on the World Trade Association (WTO) Investment Facilitation Framework for Development. These sources demonstrate the volatility of the business environment and the importance of a 'whole of government' approach (Zhan, 2021: 214). However, amongst these sources, there has hitherto been no attempt to categorise the various direct and indirect influences of government on the contemporary drivers of international manufacturing location decisions.

Research gap

This overview of the literature on MNC locational decision-making has identified a gap in the theorisation of the role of government. The existing literature either includes government as a part of a broader theoretical framework (Porter, 1998; Nielsen, Asmussen, & Weatherall, 2017; Donnelly & Manolova, 2020) or focuses in on government incentives for relocation, rather than the full range of relevant policies (Faeth, 2009). There is a lack of theory that analyses the role of different levels of government policy, from general attitudes down to specific incentives for relocation. There is also a gap in theory on how the contemporary drivers for international manufacturing and other current factors influencing locational decisions relate to the range of government policies that influence those decisions in direct and indirect ways.

RESEARCH ASSUMPTIONS AND METHOD

Research philosophy

The research sought to develop theoretical frameworks for use by stakeholders in MNC international location decisions. Amongst different types of theory, the aim was to produce *descriptive theory*, in this case of the factors influencing location decisions, based on the ontological assumptions of critical realism, that there is a social reality which is independent of the actors involved in those decisions (Danermark, Ekstrom, & Karlsson, 2019). The social structures underpinning government intervention may vary, for example, regarding the assumption of exogeneity, so context will determine the mechanisms involved in any individual case. Descriptive theory provides a platform for primary research and complements theories with a normative element (Archer et al., 1998; Danermark, Ekstrom, & Karlsson, 2019).

Delphi method

The Delphi method is an established approach for industrial location studies (MacCarthy & Atthirawong, 2003; Pal, Harper, & Vellesalu, 2018). More generally, it is regarded as a suitable method for researching global issues where the focus is on forecasting the future (Culot et al., 2020). Nielsen and Thangadurai (2007) claim that the Delphi method has many advantages for international business research, including engaging stakeholders with diverse perspectives, exploring complex global interrelationships and forecasting future 'Big Questions'.

The research broadly followed the method used by MacCarthy & Atthirawong (2003) but with some differences. Rather than the Delphi participants being academics, government representatives and consultants, as in their research, our study engaged senior industrialists to obtain directly the views of those responsible for future international location decisions, overcoming the challenges of accessing organisational elites (Aguiar & Schneider, 2012). Another difference was that our study had a research focus on the future of manufacturing in Europe, so the participants were drawn from there, whereas MacCarthy and Atthirawong (2003) had no specific geographical focus.

The Delphi technique is suitable for research with senior industrialists because of the measures to protect anonymity (Linstone & Turoff, 1975). Recently, the opportunity to use e-Delphi methods (Donohoe, Stellefson, & Tennant, 2012) increases the convenience of the technique for busy managers, because the timing of their input is flexible, and the feedback process can be managed online. A more difficult problem is how to persuade top industrialists to devote the time to participating in the research, particularly because the Delphi rounds mean that their

input is not a 'one-off' task. To address this, a website was launched, featuring a promotional video aimed at potential panel members and a specific section on the question 'why join?' The registration process was conducted through the website. Using a personal ID and password, the individual panel member then accessed the questionnaire and, after Round 1, was able to review both their personal responses from the previous round and the aggregated results from the full group.

Industrial sectors

It was recognised that manufacturing industries differ greatly in their characteristics, leading to variations in the relative importance of industrial location factors. This study sought to focus on the most dynamic, economically significant industrial sectors, while also ensuring that a large proportion of manufacturing industry employment in the EU was covered. In line with Weiss and Tribe's (2016) categorisation, four sectors were included, representing the more capital intensive and complex technology side of manufacturing, comprising

1. Metals and Machinery (basic and fabricated metals and machinery)
2. High Tech (electrical, computer, electronic and optical products and equipment)
3. Chemicals (petroleum, chemical, rubber, plastic and other mineral products)
4. Automotive (motor vehicles and other transport equipment).

Questionnaire design and analysis

The questionnaire was divided into different parts, aiming to provide a longitudinal comparison with the results of MacCarthy and Atthirawong (2003) and Badri (2007). The key questions were as follows:

1. Strategic and Operational Drivers:
   Considering the manufacturing industry has now entered the fourth Industrial Revolution, what do you currently consider to be main strategic and operational drivers for manufacturing companies working across borders for the coming decade?
2. Manufacturing location:
   Based on your professional experience, how would you rate the critical location factors for industrial location of the European manufacturing industry in the coming decade?

For the first question on 'strategic and operational drivers', MacCarthy and Atthirawong (2003) used an open question format to ask about the motivations of firms manufacturing internationally. Our Delphi Study sought to identify if the main motivations are still the same, or whether technological advancements and changes in supply chain management are now the main drivers. For the second question on 'industrial location', a pre-determined list of factors was rated on a Likert scale, like MacCarthy and Atthirawong (2003), but the list of factors was based on Badri (2007) because his categorisation was validated. As demonstrated in Figure 2, the two lists are similar.

Each question began with an introduction section, so the participant could get acquainted with the topic and review relevant data from supporting secondary research before answering. This approach was used because it follows the way that senior industrialists tend to operate in decision-making, receiving briefing papers and then forming their own opinions on a given topic (Wolfe, 2020).

The responses in Round 1 to Question 1 were grouped into categories, using open, manual coding methods (Easterby-Smith, Thorpe, & Jackson, 2015). The results for both questions were presented in charts and tables for subsequent rounds, so the participants could review their own answers in the light of the aggregated results.

Recruitment of the Delphi panel

The 'search' facility in LinkedIn was used for approaching individual executives fitting the expert profile, using memberships of industry associations for the four target sectors to identify MNCs operating globally and with manufacturing facilities in Europe. Email invitations were sent out to 128 potential candidates, based on their LinkedIn profile, introducing the study with a link to the research website. The main criteria for inclusion were seniority of position and relevant experience in manufacturing strategies and location decisions in one of the four sectors. Thirty-nine people met the criteria and were admitted to the Delphi panel. The group had an average of over 22 years of manufacturing industry experience. The distribution of the panel between sectors was High Tech, 15 (38%); Metals and Machinery, 10 (26%); Chemical, 7 (18%); and Automotive, 7 (18%). The position of the participant was 'C' level, 10 (26%); Vice President level, 8 (21%); Director level, 16 (41%); and Manager level, 5 (13%).

The participants therefore met the requirements for a Delphi expert panel, in terms of the criteria of knowledge, experience and self-motivation (Linstone & Turoff, 1975). The numbers recruited were well above the minimum threshold for such panels; the number of participants was more than in six out of the eight examples of Delphi studies from international business research summarised by Nielsen and Thangadurai (2007).

Data collection

The Delphi research was conducted between March and September 2017. It took three Delphi rounds to finalise the research results. The online completion of the questionnaire and provision of feedback enabled the process to be carried out effectively and speedily. When each respondent received the invitation to participate in Rounds 2 and 3, they could see their own previous response together with aggregated data from the whole panel, making it easy to compare the two and decide if they wished to change their opinion or add further views.

In Round 1, 32 participants responded through the online questionnaire, giving a response rate of 82%. In every sector and every level of participant, the response rate was over 70%, so the balance of the responses reflected that of the panel as a whole. In Round 2, a total of 31 participants responded to the questionnaire, of whom 28 respondents had also participated in Round 1, giving a response rate for both rounds of 72%. Three participants who did not participate in Round 1 did participate in Round 2.

Of the 28 who responded on both Round 1 and Round 2, 14 (50%) provided additional input or changes to their original input from Round 1. All other respondents from Round 1 confirmed their original input. All inputs, feedback and comments received in Round 2 were collated and analysed. Round 3 took the form of a 'wrap up' report with the aggregated results from Rounds 1 and 2 and an invitation to submit any further comments. Nineteen participants responded, but no significant changes were made to their previous answers.

RESULTS AND DISCUSSION

In this section, the results of the Delphi exercise are presented, focusing on those findings related to the role of government. Links are made with MacCarthy and Atthirawong (2003) to demonstrate the changes compared to their study. Comparisons are also made with more recent literature, such as the evidence from offshoring and backshoring studies.

Strategic and operational drivers

In the introduction for participants to this section, the top five motivations for manufacturing internationally from MacCarthy and Atthirawong (2003) were listed and then more recent factors, including the increasing globalisation of supply chains and technological advances, such as 'The Internet of Things' (Brennan et al., 2015; Culot et al., 2020; Zhan, 2021). The aim was to identify the relative importance of longstanding drivers as against more recent influences.

TABLE 2 Summary of responses on drivers for cross-border manufacturing

Strategic and operational drivers	Round 1 + 2 frequency and percentage of comments	Ranking
MacCarthy and Atthirawong (2003)		
Access to low labour cost and labour skills	24 (22%)	2
Access to markets	17 (15%)	3
Access to raw materials and technology	13 (12%)	5
Tax incentives	8 (7%)	6
Counterattack against competitors	2 (2%)	7
Other drivers mentioned in briefing material		
Access to cost effective, flexible supply chain	25 (23%)	1
New manufacturing technologies	16 (14%)	4
Other drivers - unprompted		
Stable (ICT) infrastructure, CO_2 footprint, access to energy, cost of transport, adaptability	6 (5%)	
Total	111 (100%)	

A total of 111 factors were mentioned as strategic and operational drivers for manufacturing companies working across borders in the coming decade (94 in Round 1 and 17 in Round 2). The frequency of each factor is provided in Table 2, sub-divided into the top five factors from MacCarthy and Atthirawong (2003), the other factors mentioned in the introduction to this section of the Delphi questionnaire and other unprompted factors.

The findings confirm how the new factors of 'access to cost effective, flexible supply chain' and 'new manufacturing technologies' have become highly ranked drivers of change, reflecting changes in manufacturing strategies over the last 20 years. Of the five top factors in MacCarthy and Atthirawong (2003), two which our Delphi panel mentioned much less frequently were 'tax incentives' and 'counterattack against competitors'.

The downgrading of tax incentives in the ranking of motivations to manufacture internationally in our Delphi study, compared to MacCarthy and Atthirawong (2003), provides some evidence that industrialists are taking a more long-term, strategic stance now, seeing tax incentives within a broader costs and benefits framework. Such a change over time would be consistent with the progressive decoupling of the interests of MNCs and nation states identified by Iammarino and McCann (2013). It would also be consistent with the shift identified in the literature on offshoring and backshoring, for narrow cost considerations to be less significant and value creation through the supply chain and use of new technology to

be more significant amongst the strategic and operational drivers for manufacturing location changes (Ellram, Tate, & Petersen, 2013; Brennan et al., 2015; Fratocchi et al., 2016). In the backshoring literature, financial incentives do not seem to be a key driver in most cases (Bals, Kirchoff, & Foerstl, 2016; Fratocchi et al., 2016; Stentoft et al., 2016; Di Mauro et al., 2018). For example, amongst the motivations for backshoring identified by Fratocchi et al. (2016), *government-specific factors* are rare, with the highest frequency for this type of reason for backshoring being 'subsidies for relocation', mentioned only 28 times out of 377 cases.

Although government policies are generally not direct motivations for MNC international manufacturing strategies, all the most frequently mentioned drivers in Table 2 are affected by the policies of one or more government departments. Examples of such policies include facilitating or hindering cross-border flexibility in supply chains, investing in labour force skills, regulating technology use and setting standards for market access. Therefore, governments can help to make their countries more attractive for investment in manufacturing through appropriate policies in these areas, even if direct interventions are of limited impact (Porter, 1998; Pereira, Munjal, & Ishizaka, 2019).

Manufacturing location decision factors

This section of the Delphi questionnaire moved on from strategic and operational drivers for cross-border manufacturing to the specifics of industrial location factors, which determine where economic activity takes place. The list of 14 critical location factors from Badri (2007) was presented in the introduction to the section, with each factor being illustrated with practical examples so there was common understanding of the differences between similar sounding factors, such as 'government attitude' and 'government regulation'. This was also required to provide clarity where terms might be interpreted in different ways, such as climate, which refers to physical living conditions rather than the business climate in this instance. It also assisted the participants where there are connections between factors, such as the size of 'markets' being affected by 'economic factors', including per capita income and strength of currency. Finally, it ensured that respondents were clear about the scope of each term, such as 'labour' including both costs and skills.

Each of the 14 factors was ranked on a Likert Scale, with four points because a neutral position was not appropriate for this question (Table 3). The participants were also invited to add further factors not in the list, although these were not rated on the Likert scale. Further factors mentioned were environmental regulations (three times); IT infrastructure (twice); education and skills (twice); and IP protection, quality, workforce ethics, social innovation, company culture and location of direct customer/original equipment manufacturer (all mentioned once).

In order to turn the results into a relative ranking of the importance of the 14 location factors, scoring was applied, from '0' for *unimportant* to '3' for *very important*, to produce Figure 3. This exercise highlighted the importance of *government-specific factors*. The 'political situation in a foreign country' was considered to be the single most important location factor for manufacturing industry, while amongst the top six factors in Figure 3 are three other government-specific ones—'government regulation', 'government attitude' and 'tax structure'.

The results are very different from the equivalent question in MacCarthy and Atthirawong (2003), where

TABLE 3 Ratings of critical industrial location factors: Final results after round 2

Location factors	Unimportant	Slightly important	Fairly important	Very important
Transportation	0	5	17	10
Labour	1	4	13	14
Raw materials	1	12	9	10
Markets	0	6	9	17
Industrial site	2	13	11	6
Utilities	3	9	11	9
Government attitude	0	4	16	12
Tax structure	0	6	14	12
Climate	7	12	11	2
Community	1	11	17	3
Political situation of foreign country	0	1	14	17
Global competition and survival	0	7	15	10
Government regulation	0	3	16	13
Economic factors	0	7	17	8

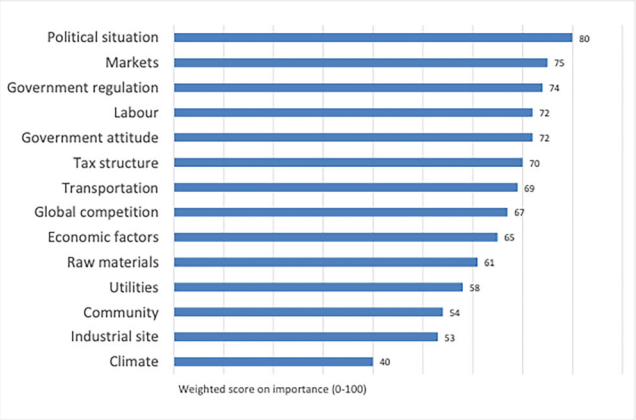

FIGURE 3 Ranking of manufacturing location decision factors (high to low)

the top three ranked factors were 'costs', 'infrastructure' and 'labour characteristics'. The highest ranked *government-specific factor* in their study was 'government and political factors', which was ranked fourth, with 'economic factors' fifth and 'legal and regulatory framework' sixth.

Studies that have focused on the choice of location have identified government policy as playing an important role. For example, Lawless et al. (2018) found a strong negative but nonlinear effect of corporation tax affecting the likelihood of a particular country being chosen for FDI, although there were differences between sectors. Specific geographical designations, such as Free Trade Zones, influence backshoring location choices, but this occurs not as a simple economic decision; rather, it is tied into an interactive process of business network changes (Lavissière, Mandják, & Fedi, 2016). The linkage between government policy and wider considerations is also illustrated in the finding that tax arbitrage as it affects supply chains is an important aspect of location decisions (Brennan et al., 2015). However, it is often difficult to judge how far government incentives were the decisive factor for the location choice (Bartik, 2020), in particular because of the variety of direct and indirect ways in which government policies influence the decision. For example, Spalanzani, Ageron and Zouaghi (2016) found that the role of government was most influential in the development of the local territory's 'business climate', which includes global competitiveness and dynamism of the territory, as well as local labour. The importance of the role of local government in developing an entrepreneurial climate for clusters of innovation and enhancing the quality and availability of local labour has also been identified in other studies (Dziemianowicz, Lukomska, & Ambroziak, 2019; Ferras-Hernandez & Nyland, 2019).

The broader *government-specific factors* of 'political situation in a foreign country' and 'government attitude' have been studied in a number of different disciplines, but these literature fields do not always focus on the location decision. For example, there is a growing literature on political risk in relation to global markets, but publications have tended to focus on the effects of political risk on firms already located in a country and their responses, rather than the original decision to invest in that location (Jimenez & Bjorvatn, 2018). There have also been studies of the correlation between economic policy uncertainty and variations in levels of MNC FDI, such as Hsieh, Boarelli and Chi Vu (2019), but such studies do not place *government-specific factors* within the wider range of factors influencing location decisions.

The significance of factors such as 'political situation in a foreign country' and 'government attitude' is affected by the global context. The Delphi Study took place in early 2017, when disruptive events had recently occurred with major implications for MNCs with operations in Europe. There was disquiet about Brexit and possible trade wars initiated by the United States, voiced by business leaders and employers' federations from countries such as Holland (VNO-NCW, 2017; VNO-NCW, 2018) and Germany (Wilson, 2017). These events may have influenced the Delphi Panel in the high ranking given to *government-specific factors*, but as manifestations of the tensions between MNC strategies and national policies (Cuervo-Cazurra, Doz, & Gaur, 2020), they are part of a broader movement. Indeed, the further uncertainties generated by Covid-19, continuing tensions between superpowers and the role of government in the sustainability agenda are amongst the factors that reinforce the importance being attached to government policy (Buckley, 2021; Elia et al., 2021; Zhan, 2021).

Strategic and operational drivers for international manufacturing and the influence of government on location decisions

The key finding of the Delphi research is that while *government-specific factors* are not a critical driver for international manufacturing strategies, they are very important for decisions on final locations. These two results can be explained by the major bearing government policies have on the drivers for international manufacturing, including those that have become increasingly important in recent times—cost effective, flexible supply chains and the use of the new technologies of Industry 4.0.

Public policy and government regulations play a key role in shaping supply chain management practices (Fugate, Pagell, & Flynn, 2019; Tokar & Swink, 2019; Buckley, 2021; Zhan, 2021). The fragmentation of supply chains means that MNCs are reliant on trade policy, exchange rates and taxation regimes of many different countries (Brennan et al., 2015), making supply chains vulnerable to changes in government policy in areas such as foreign trade restrictions, regulation or deregulation and innovation (Tokar & Swink, 2019). Therefore, it would be in accord with evidence from the literature for

the Delphi panel to have ranked *government-specific factors* highly for the location decision because government policies affect the development of cost effective, flexible supply chains.

Government-specific factors are also crucial for the introduction and use of the technologies of Industry 4.0. Although there are huge opportunities for innovation in market development and higher levels of integration and flexibility within global supply chains, maximising the potential of these technologies requires working across sectoral, institutional and geographical boundaries (Schwab, 2018; Dachs, Kinkel, & Jager, 2019; Cuervo-Cazurra, Doz, & Gaur, 2020; Culot et al., 2020; Buckley, 2021). Where new technologies can be used in supply chain management, such as blockchain-based systems (Chang & Chen, 2020; Zhan, 2021), lack of understanding of the role of governments may hold back innovation (Casey & Vigna, 2018). Therefore, when the Delphi panel ranked *government-specific factors* highly for the location decision, they are likely to have made the links from these factors to the utilisation of new technologies.

The increased importance of *government-specific factors* for MNC location decisions can therefore be linked to the new strategic and operational drivers for international manufacturing, at a time of political uncertainty. A further reason for the primacy of *government-specific factors*, also linked to political uncertainty, could be the interconnections with other key factors for location decisions. Of the top six ranked factors in Figure 3, those not specifically about the role of government are markets and labour. As market access and labour skills and availability are strongly affected by government policies (Porter, 1998), the high rating given to *government-specific factors* may partly reflect recognition of the influence of government on these longstanding key location factors.

A NEW THEORETICAL FRAMEWORK: THE MNC MANUFACTURING LOCATION *DECISION ONION* AND *GOVERNMENT POLICY MATRIX*

The findings of the Delphi study identify significant changes from MacCarthy and Atthirawong (2003) in the role of government, and some explanations for the results have been provided. In line with the literature gap identified earlier, the *government-specific factors* can be recategorised into a layered approach, moving from general attitudes to policy instruments and incorporating both direct and indirect influences. A further step, based on the exogeneity assumption (Buckley, 2021), is to link the range of *government-specific factors* to the drivers for international manufacturing and other factors influencing location decisions. This will meet the gap for theoretical frameworks which are centrally concerned with government policy, rather than government being just part of a wider theory to explain location decisions.

The first element of the theoretical framework is the *decision onion* for the role of government in MNC manufacturing locations (Figure 4). It illustrates how broad, general aspects of the role of government feed into specific policy areas, which in turn influence the international drivers (see Table 2) and other location factors affecting the MNC location decision (see Table 3). The layers of the *decision onion* reflect the inference made in the discussion of the importance of industrial location factors in our Delphi study that the top ranking given by the panel to 'political situation of foreign country' amongst the factors affecting locational decisions does not stem from an interest in politics per se. Instead, it is because the political climate feeds through the layers of the onion to affect the central concerns of MNCs—location decisions which will enable the business to thrive.

The second element of the new theoretical framework is the *government policy matrix* (Table 4), which covers the relationships between the middle two layers of the *decision onion* (Figure 4). Table 4 synthesises previous research and the Delphi study results to devise a matrix of the links between government policy areas and both international manufacturing drivers and other factors influencing locational decisions. Government policy areas are listed on the vertical axis with international manufacturing drivers and additional location factors on the horizontal axis of Table 4. Government policy interventions to attract international manufacturing industry are divided into two categories—government regulations

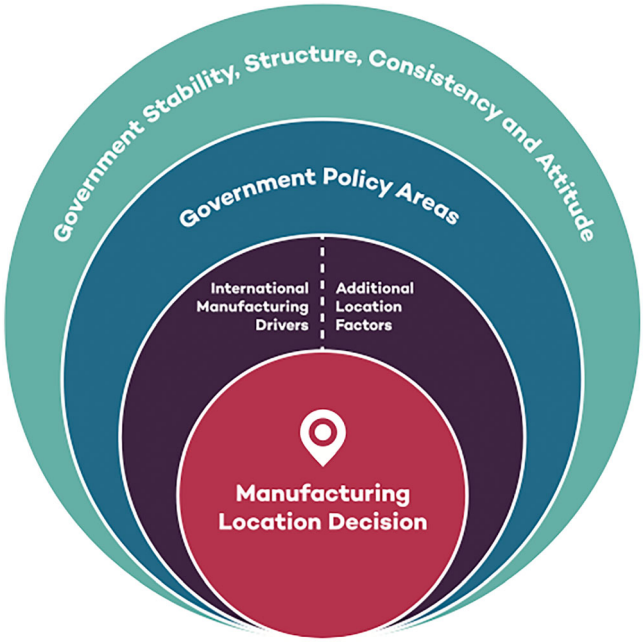

FIGURE 4 The role of government and the multinational company location 'decision onion'

TABLE 4 Government policy matrix for multinational company location decisions

Government overview		**International manufacturing drivers**			
	Government policy areas	Upstream value chain, incl. access to raw materials	Labour skills, costs and availability	Capital investment, incl. new technologies	Downstream value chain, incl. access to markets
Government stability, structure, consistency and attitude	**Government regulations and laws**				
	Employment and industrial relations	■	■	■	■
	Environment	■		■	■
	Insurance	■	■	■	■
	Health/safety	■	■	■	■
	Planning	■		■	■
	Foreign and national/local ownership	■		■	■
	Joint ventures /mergers/acquisitions	■		■	■
	Transfer of earnings		■		
	intellectual property			■	
	Economic policies				
	Customs and tariffs	■			■
	Exchange rates	■			■
	Interest rates	■		■	■
	Subsidies	■	■	■	■
	Tax structures and incentives	■	■	■	■
	Key additional government infrastructure and policy areas	Transportation, technology	Education, work and pensions, immigration	Technology	Transportation, technology

Note: MNC, multinational company.

TABLE 4 (Continued)

Government overview	**Additional location factors**					
	Global competition	Utilities	Business community	Social/cultural community	Environment/ climate	Industrial land/property
Government stability, structure, consistency and attitude	**Government regulations and laws**					
	Economic policies					
	Business support	Energy, technology	Innovation, business support, regional policy	Education, health, culture, housing, crime	Environment	Regional policy

Note: MNC, multinational company.

and laws, and economic policies. This list is a synthesis of the interventions identified by MacCarthy and Atthirawong (2003) and Badri (2007) and Faeth (2009). All these individual policy areas are then linked to the 'international manufacturing drivers', derived from Table 2, and the 'additional location factors', derived from Table 3. The international manufacturing drivers in Table 4 have been rearranged from the categories used in Table 2, so they better reflect the nature of value chains, in particular separating raw materials and markets because they are at the opposite ends of the supply chain. On the right-hand side of Table 4, factors from Table 3 which are not government specific and are also not covered by the international manufacturing drivers form the basis for 'additional location factor' categories. There is some amalgamation and rationalisation of the categories used by Badri (2007), upon which Table 3 is based.

Expected causal links from each government policy intervention to all the international manufacturing drivers and additional location factors are represented by solid shading in Table 4. However, this aspect of Table 4 is illustrative, as causal links will be contingent on the specific context in which the theoretical framework is being applied. Along the bottom row of Table 4 are the additional areas where governments invest in infrastructure and implement policies which have an indirect effect on manufacturing location decisions. According to Porter (1998), these areas are more significant for long-term investment in industry than direct interventions to attract MNC manufacturing facilities.

Table 4 illustrates the current significance of the different government policy areas compared to previous eras. For example, it is noteworthy how many of the international manufacturing drivers and additional location factors in Table 4 are affected by infrastructure and policies for technology. This reflects the significance of technological advances for the strategies being adopted by manufacturing industry (Tokar & Swink, 2019; Culot et al., 2020; Buckley, 2021), which is being accentuated by the experience of the Covid-19 pandemic (Magableh, 2021). The dynamism of the relationships between government policy and factors influencing MNC location decisions reflects the outcomes of processes of co-evolution between public bodies and MNCs, as they map their paths through the changing macro-environment (Cantwell, Dunning, & Lundan, 2010; Lundan & Cantwell, 2020).

THE MNC MANUFACTURING LOCATION *DECISION ONION* AND *GOVERNMENT POLICY MATRIX*: APPLICATIONS, LIMITATIONS AND POTENTIAL FURTHER DEVELOPMENTS

The MNC location *decision onion* (Figure 4) and the *government policy matrix* (Table 4) constitute a new descriptive theoretical framework with potential for many practical applications and for links to be made to normative theory (Danermark, Ekstrom, & Karlsson, 2019). Potential users include MNCs and public bodies, as well as consultants and researchers, while the range of uses includes evaluation of previous decisions and policies as well as the development of new policies. Because of the complexity of Table 4, it might be used to construct a database or provide the structure for a full report on a location decision or set of national policies. The matrix itself would then be used as a summary tool, cross-referenced to the accompanying analysis. For example, it might be colour coded to illustrate variations in policies in different countries, in terms of how they affect the international manufacturing drivers and other location factors for a specific company or industrial sector.

For MNCs, this framework could be used to review previous location decision processes and introduce a more systematic approach, in view of the tendency to fall back on country familiarity (Clark, Li, & Shepherd, 2018) and enduring heuristics for decision-making (Ambos et al., 2020). In comparing different countries and regions, it could help MNCs to look beyond specific interventions to consider the wider policies (bottom row of Table 4) that, based on Porter (1998), will be more significant for their long-term prospering.

For public bodies, the *government policy matrix* provides a tool for taking a 'whole of government' approach (Zhan, 2021) to the policies that influence manufacturing location decisions. It could be used as an evaluation tool for existing policies and as an aid to policy development. A key finding of the Delphi study for governments is that stability and consistency in their policies may be more critical to attract MNCs than specific interventions. Where a new policy change is being proposed, the *government policy matrix* could be used to check its alignment with other policies in a systematic manner to achieve the consistency sought by MNCs.

Table 4 provides a checklist of interventions and location factors against which to evaluate recent normative models for government industrial strategies. For example, the *government policy matrix* (Table 4) provides a checklist against which to evaluate Zhan's (2021) Comprehensive Investment Policy Framework (his Figure 3). One immediate observation, in the light of the *government policy matrix*, is that although 'technology and the new industrial revolution' is one of Zhan's five driving forces for Global Value Chain transformation, the Comprehensive Investment Policy Framework does not specifically refer to government policy on technological development.

Amongst the contributions to theory, the *decision onion* and *government policy matrix* provide a systematic, layered categorisation of the formal institutional variables that influence location decisions. In their review of

the different strands of institutional theory, Donnelly and Manolova (2020) incorporate 'levels of analysis' purely in terms of administrative areas (their Table 3). The *decision onion* and *government policy matrix* enable 'levels of analysis' to be applied to formal institutional variables, distinguishing overarching factors such as government stability from legal and regulatory instruments. They also provide a framework for further research to help address the evidence gap identified by Donnelly and Manolova (2020) on the linking of investment motivations to institutional influences on location decisions.

The matrix of links between government policies and the international manufacturing drivers and additional location policies in Table 4 is complex, but there are aspects of these relationships which it simplifies. In particular, it is based on the national level of government, rather than also incorporating supra-national, regional and local levels. Much of Table 4 would transfer to other levels of government, but the significance of different parts of the matrix would vary. For example, support from more local levels of government can be most effective when focused on industrial land and property, development of the local labour market and integration into the business community for supply chain purposes (Delis, Driffield, & Temouri, 2019; Dziemianowicz, Lukomska, & Ambroziak, 2019). At the supra-national level, organisations may be focused on specific public policy areas in Table 4, such as the WTO's role on customs and tariffs (Sauvant, 2021). However, with institutional linkages becoming recognised as key to the impacts on MNCs (Elia et al., 2021; Verbeke & Yuan, 2021; Zhan, 2021), the vertical relationships between levels of government, as well as the horizontal relationships between different national governments, become of critical importance. Therefore, further elaborations in Table 4 which incorporated vertical and horizontal relationships between public bodies would be useful.

Another limitation is that Table 4 covers influences on the initial decision to locate and is not specifically concerned with the post-entry relationships with government during production (Jacob, Svystunova, & Rao-Nicholson, 2022). An example of a current development affecting existing MNCs in a particular country is the potential for national government regulations and laws on insurance and contract management to become increasingly important, as international contracting and even a resurgence in cartels occurs as a result of the current changes in the international business environment (Buckley, 2021). For MNCs applying the *government policy matrix*, the potential for further changes in policy needs to be taken into account, especially in view of the time lag between decisions being made and new plant becoming operational.

A further question is the extent to which the findings of the Delphi Study and the theoretical frameworks derived from it are specific to the capital intensive, complex technology industrial sectors from which the participants were drawn. The emphasis on technological advances in the drivers for international production is unlikely to be so great in other manufacturing sectors, so the threat of 'techno-nationalism' (Buckley, 2021) may be less severe for other sectors. The *decision onion* and *government policy matrix* are generic and draw from sources in the literature, such as MacCarthy and Atthirawong (2003) and Badri (2007) and Faeth (2009), which were not sector-specific, but the degree of attention paid to different parts of Table 4 might vary between sectors. Some aspects of the theoretical framework, such as the layering in the decision onion, could apply to purely service sector MNCs, although the focus on supply chains for goods is specific to manufacturing.

A review of post-pandemic national policies for reshoring has identified some common features, including sectoral targeting, policies aiming to relocate consortia of value chain-linked companies and incentives to locate in regional groupings of political allies (Elia et al., 2021). The types of incentives used fall with the categories listed in Table 4, but they are being applied and combined in innovative ways. The theoretical frameworks developed in this paper provide a basis for exploring how policies can be integrated and aligned for greatest impact in packages, such as those introduced in 2020 by the Republic of Korea and by France (Elia et al., 2021). A further development of the theoretical framework would be to explore the translation of policies into legal and other means of influence used by public bodies at global, supranational, national and local levels, and the way that these instruments balance different policy objectives and the interests of foreign and local enterprises (Kenneth-Southworth, Watters, & Gu, 2018; Sauvant, 2021; Zhan, 2021). Linking the *government policy matrix* to these research fields might lead to typologies of locations based on geographical variations in government strategies and their mechanisms for implementation.

With the recent increase in global political conflicts and tensions (OECD [Organisation for Economic Co-operation and Development], 2022), the relative importance of different policy areas in the government policy matrix is changing, for example, with the heightened significance of energy policy and utilities. At an even more fundamental level, there may emerge variations in the degree to which the assumption of exogeneity of government interventions assumed by the *decision onion* and *government policy matrix* holds, by country or by industrial sector. Adaptations to the theoretical framework to reflect such changes is a further research theme for the future.

AUTHOR CONTRIBUTIONS

Gerard Ekhart initiated and managed the Delphi Study research. Richard Breese was mainly responsible for the development of the contributions to theory of the article and draft preparation. Other tasks were shared.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

DATA AVAILABILITY STATEMENT

The primary data are not available because of anonymity commitments made to the participants, but the analysis processes and the results are available from the authors.

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