The growing anisotropy of the multinational corporation in the "new normal"

Challenges for organizational architecture

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Abstract

Purpose – The purpose of this paper is to introduce a new research construct to depict more accurately organisational structure and the direction of organisational changes in large multinational corporations (MNCs).

Design/methodology/approach – The paper presents an overview of the existing literature on the phenomenon of anisotropy in natural sciences and the organisation of large corporations, and transforms an identified phenomenon into a research construct of organisational theory.

Findings – This paper demonstrates that anisotropy, that is, the differences in the speed and conductivity of the movement of capital (money), products (goods and services), ideas (knowledge) and talent (people) in different directions within the corporation (from the centre to the subsidiaries, from the subsidiaries to the corporate centre and between subsidiaries) is the normal state of the internal space of the MNC. Anisotropy is increasing with the on-going restructuring of the global economic order. This leads to the divergence of business units in MNCs into the core and the periphery.

Research limitations/implications – The paper outlines a series of promising research avenues in organisational studies.

Originality/value – The paper provides a novel treatment of the composition of MNCs.

Keywords Multinational corporations, Organizational change, Anisotropy, Corporate periphery, Internal organization

Paper type Research paper

> "Anisotropy [is] the quality of exhibiting properties with different values when measured along axes in different directions." Encyclopaedia Britannica

Introduction

It has become increasingly clear that a restructuring of the economic order has been taking place and, in particular, has affected multinational corporations (MNCs) and others doing business across borders. For example, after the 2008 crisis, capital flows between countries and trade in goods and services have retreated significantly to levels not seen in a quarter of a century (Sharma, 2016, p. 2). The evidence of a new era of "anti-globalisation" became evident to practitioners, policy analysts (Ludeña, 2017) and academics (Kobrin, 2017; Globerman, 2017; Meyer, 2017). The new economic order means costlier capital, an expanded government role, reinvented trade barriers, restriction of workforce movement between countries and a much larger regulatory and taxation burden as firms find it more difficult to shift activities and park funds in the most favourable locations. Our essay points

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out that the "new economic order" is merely a partial restoring of the state of the global economy which existed prior to 1992 and which was characterised by high anisotropy of the economic space that affected the structure and functioning of the (western) MNCs. We introduce the research construct and properties of anisotropy in the corporate space, and outline promising research avenues for organisational studies, especially research related to the changes in the organisation and functioning of large MNCs.

Anisotropy as a phenomenon

Anisotropy is the ability of objects, materials and substances (milieus) to be directionally dependent, or in other words, to exhibit different properties in different directions. This phenomenon was known and actively used in different crafts over the past 5,000 years. For example, various types of saws, which differed by the form of their teeth and methods of sharpening to be used for longitudinal and transverse sawing of wood, were invented in Ancient Egypt around 3,000BC. In Ancient China "magic mirrors" were made according to crystals' optical axes.

Modern science has devoted special attention to optical anisotropy and electrical conductivity anisotropy. The first available article on optical anisotropy appeared in 1922 (Raman, 1922), and with the invention of the semi-conductors, which by themselves are anisotropic devices, the number of articles on anisotropy increased exponentially between the 1960s and the 2000s, reaching a "plateau" in the 2010s (1,400–1,700 articles per year in 2014–2017).

Besides its applications to physical objects, anisotropy was a characteristic of the global economy for most of human civilisation. Endless trade barriers, customs points and the complete prohibition of exports or imports of particular goods were observed during most of the world's economic history. The Persian Empire (from Cyrus the Great (600–520 BC) to its destruction by Alexander of Macedon), the Roman Empire between Augustus (27 BC–14 AD) and Constantine the Great (222–337 AD) and a few Chinese dynasties (especially Tang and Yuan) were just long-lasting experiments to build and maintain isotropic economic spaces, in which goods, capital, people and ideas could move in any direction without restrictions, but within the clearly defined borders of the empire. Even the famous Ancient Silk Road, which was a transcontinental trade route, was designed to facilitate the transfer of valuable goods in only one direction – from China to the Eastern Mediterranean.

In Western Europe, prior to the establishing and expansion of the European Union, the relative isotropy of the economic space could be observed only for a few decades, from around 1890 to 1914. During that period, capital, people and ideas moved relatively freely across borders in any direction, although trade barriers were not completely eliminated. This was the impetus for early MNCs (especially British, French, German and Belgian ones) to establish manufacturing subsidiaries outside their home countries or controlled territories (colonies or dominions).

The period between the two world wars was characterised by the growing anisotropy of the global economic space as stronger barriers to the movement of people and higher trade barriers were established. In addition, we should emphasise the use of economic sanctions against particular countries (the trade sanctions against the Soviet Russia ended peacefully in the 1930s, while the US sanctions against Japan were the pretext for Japan to attack Pearl Harbour).

From 1945 until 1992, we could see a largely divided world. The Soviet Block (which comprised of the Soviet Union and the countries of Eastern Europe) and Communist China imposed absolute state control on foreign trade and the complete prohibition of foreign direct investments and emigration and immigration. India, for 40 years after its independence and Postcolonial Africa, where many regimes aimed to get military and economic support from the Soviet Union and proclaimed their "socialist orientation" were the regions where western multinational companies could work only occasionally in these regions, within strong and often unstable regulatory regimes and with doubtful possibilities to repatriate invested capital.

The fall of the former Soviet Union, the termination of the communist rule in Eastern Europe, the opening up of China and the liberalisation of the economic regime in India created a completely new set of terrific opportunities for western corporations. "Managing across borders" by Barlett and Ghoshal (1987, 1989) were the "Capitalist Manifestos" calling for western corporations "to go internationally" in order to seize unique emerging opportunities in the less anisotropic global economic space. Barlett and Ghoshal proposed to introduce complexity inside the corporations to develop differentiation in their organisation and to move "from control to coordination and co-option".

However, Barlett and Ghoshal did not underestimate the complexity of the "transnational solution", as later studies on MNCs presented a MNC as an isotropic space in which capital (money), products (goods and services), ideas (knowledge) and talent (people) move at the same speed and with the same conductivity in any direction. This was a consequence of the simplistic view of multinationals' structure and modes of functioning due to the virtual absence of studies on corporations' organisational design and control systems in top management journals since the end of the 1980s (see Kostova *et al.*, 2016).

Anisotropy of the corporate space as a research construct

We redefined anisotropy of the corporate space as the difficulties or inability (due to objective and subjective obstacles) to move capital (money), products (goods and services), ideas (knowledge) and talent (people) at the same speed and with the same conductivity in any direction within the corporation (from headquarters to subsidiaries, from subsidiaries to headquarters and between different subsidiaries).

Transforming a detected phenomenon of real life into a scientific research construct needs to follow some rules (see Oswick *et al.*, 2011), especially if the research construct has been previously used in other scientific fields describing properties of largely different objects. Here we can refer to the most successful case of transferring the research construct from natural sciences to organisational theory – Cohen and Levinthal's (1990) "absorptive capacity", which was largely used in organisational studies, strategic studies and studies on international business (see Apriliyanti and Alon, 2017). The phenomenon of absorptive capacity has been known for several thousand years and was used in different crafts, such as the colouring of yarn or leather tanning. In chemical terminology, absorption means "the penetration of one substance into the inner substance of another, as distinguished from adsorption, in which one substance is attracted and held on the surface of another" (Larrañaga *et al.*, 2016, p. 45).

Cohen and Levinthal's (1990) definition emphasised the assimilation of external information (p. 128), so the basic meaning of the term remained unchanged. Our definition of anisotropy in the corporate space emphasises the corporation's properties with different values when measured along axes in different directions within the corporation, so the basic meaning of the term remained unchanged.

Second, some quantification of the construct should be provided. Cohen and Levinthal (1990) measured technological opportunity and spillovers. Technological opportunity was measured as the importance of external sources based on a seven-point Likert scale. Spillover effects were measured as the effectiveness scores of protecting competitive advantage.

Our quantification of corporate anisotropy is based on the taxonomy of value transfer between corporate headquarters and subsidiaries as proposed in Gurkov (2015) and later developed by Gurkov *et al.* (2018).

Gurkov *et al.* (2018, p. 29) presented a near-complete list of the forms of value transfer from headquarters to subsidiaries and from subsidiaries to headquarters, including the transfer of profits, revenues, equity, production capacity, knowledge, talent, current and long-term assets, and liabilities. We had to add to that list the ability to transfer raw materials and semi-finished and finished goods between subsidiaries, which should also be accounted in assessing the anisotropy of a corporation. As we will see later, this addition is very important for depicting the cases of radically increasing corporate anisotropy (see Table I).

Each type of value transfer has three measures of difficulties:

(1) legal difficulties for transaction;

(2) costs of a similar transaction effectuated in the opposite direction; and

(3) subjective obstacles to effectuate the transaction in a particular transaction.

The existing academic literature devoted a lot of attention to the difficulties of the "reverse" transfer of knowledge within MNCs (from subsidiaries to headquarters and to other subsidiaries) (see Achcaoucaou *et al.*, 2014; Andersson, 2003; Birkinshaw and Ridderstråle, 1999; Borini *et al.*, 2012; Cantwell and Mudambi, 2005; D'Agostino and Santangelo, 2012; Govindarajan and Ramamurti, 2011; Govindarajan and Trimble, 2012; McGuiness *et al.*, 2013; Yang *et al.*, 2008). The reverse transfer of talent within MNCs is only occasionally mentioned in books on "global talent management" (see Mupepi, 2017). At the same time, difficulties of repatriation of profits from different locations and real (official and unofficial) trade barriers for movement of goods to and from particular locations are mostly described in the literature with "the different shades of grey" (see Adams *et al.*, 2017), especially in countries' business guides or corporate presentations. Looking into such types of sources, we immediately recognise that MNCs put proper attention to the anisotropy of the economic space they operate in and shape their projects accordingly based on the chances of recuperating value in different forms from projects in different locations. For example, global oil companies have a clear criteria of in which countries it is possible to use profit sharing contracts for exploration and production projects (most of the OECD countries, Cameroon, Gabon, Nigeria, Argentina and Abu Dhabi), in which countries production-sharing contracts are a better option (Indonesia, China, Qatar, Egypt and Kazakhstan) and in which countries it is possible to use both types of contacts (Brazil, Russia and Angola) (see Gueritte, 2015).

Anisotropy and the structure of the mature corporation

The postulations that anisotropy is the normal state of the internal space of the MNC and that anisotropy is increasing with the on-going restructuring of the global economic order enable us to retrace the recent path and foresee the possible future direction of organisational change in MNCs.

Any mature MNC (and this itself can be a sign of maturity) is composed of two largely different areas – the core and the periphery. The core is the part of the corporation to which and from which the flow of capital, goods, ideas and talent move unobstructed in any direction (from the corporate centre to the corporate unit, from the corporate unit to the corporate centre and from one corporate unit to another). The corporate periphery is the part of the corporation from which the flow of capital, goods, ideas and talent to the corporate centre and other corporate units meets high objective and subjective barriers. Our definition of corporate periphery differs from that used in the international business literature which mostly repeats the definitions of a periphery borrowed from economic geography. These definitions refer to the periphery as a remote country, an underdeveloped economy (see Glückler, 2014; Wood and Demirbag, 2015). Only a few papers, aimed at a

Value type	Ways to "pour" value into corporate subsidiaries	Ways to extract value from corporate subsidiaries
Financial resources		
Profits		Dividends paid by the subsidiary to the parent company
Gross revenue		Fees for the use of trademarks owned by the parent company (royalties) Excessive payments for goods and services supplied by other divisions of the parent company Excessive payments for services provided by the head office
Equity	Capital infusions into the subsidiary's authorised capital by the parent company	The subsidiary buys shares of the parent company or other firms owned by the parent company
Current and long-term liabilities	Reduced-rate loans granted to the subsidiary by the parent company or its other divisions Parent company's or its divisions' guarantees on bank loans granted to the subsidiary	The subsidiary excessively borrows from banks, handing the loans over to the parent company
Current and long-term assets	Preferred (exclusive) rights to use patents owned by the parent company	Reduced-rate loans granted by the subsidiary to the parent company or to other firms it owns The subsidiary guarantees bank loans provided to the parent company or its divisions
Deadweight loss		Intentional reduction of the output below the level of demand
Liquidation value		Discontinuing the subsidiary's operations (closure, sale or liquidation)
Material assets		
Production facilities	Transfer of equipment from the parent company's other divisions for permanent or temporary use, at prices below the market level	Transfer of equipment from the subsidiary to the parent company's other divisions for permanent or temporary use, at prices below the market level
(Raw) materials and finished products	Transfer of raw materials, semi-finished and finished products from the parent company's other divisions at prices below the market level	Transfer of raw materials, semi-finished and finished products from the subsidiary to the parent company's other divisions at prices below the market level
Knowledge		
	Free transfer of codified knowledge (technical documentation, procedures) from the parent company to its subsidiaries	Free transfer of codified knowledge (technical documentation, procedures) from the subsidiary to the parent company
	Free transfer of tacit knowledge (work methods) from the parent company to its subsidiaries	Free transfer of tacit knowledge (work methods) from the subsidiary to the parent company
	The subsidiary is granted access to the corporate databases of reliable suppliers and contractors	The corporation is granted access to the subsidiary's databases of reliable suppliers and contractors
	Subsidiaries patent valuable solutions discovered by the parent company	The parent company patents valuable solutions discovered by its subsidiaries

(*continued*)

Table I.
An incomplete list of value types and ways to transfer value within corporations

Value type	Ways to "pour" value into corporate subsidiaries	Ways to extract value from corporate subsidiaries
	Subsidiaries are granted access to the parent company's patent databases	The parent company is granted access to the subsidiary's patent databases
	Internships for the subsidiary's employees at other divisions of the parent company	Internships for employees of other parent company divisions at the subsidiary
	The parent company subsidises the subsidiary staff's participation in meetings, conferences, and other knowledge and skill transfer events	The subsidiary subsidises the parent company staff's participation in meetings, conferences and other knowledge and skill transfer events
Talent		
	Temporary project teams comprising staff of the parent company and other divisions take part in projects implemented by the subsidiary	Temporary project teams comprising the subsidiary staff take part in projects implemented by other divisions of the corporation
	Transfer, on a temporary or permanent basis, of the head office's or other divisions' staff into the subsidiary	Transfer, on a temporary or permanent basis, of the subsidiary's staff into the head office or other divisions of the parent company
	The parent company helps the subsidiary with recruiting, selecting and hiring staff	The subsidiary helps the parent company with recruiting, selecting and hiring staff for its other divisions or the head office

Table I.

business-oriented audience, escape the temptation to relate the corporate periphery with geography and, instead, present casual and more realistic treatments of this topic. For example, Regnér (2003, p. 63) refers to a peripheral group as any group (department, subsidiary or network) that is peripheral, both in terms of its hierarchical location and its remoteness from dominant practices and beliefs. Following Regnér (2003), we insist that the corporate periphery not only pertains to remote subsidiaries, but also embrace corporate units within walking distance from the corporate centre or even particular departments of the corporate centre itself. Using Moreno's (1934) "sociometry" approach, we can even identify top corporate executives losing their weight, voice and power in corporate affairs – outlaw candidates – as part of the corporate periphery. We also can affirm that the corporate periphery – often without properly naming that phenomenon – has been intensively studied during the past two decades. Studies on "subsidiary initiatives" (Dörrenbächer and Gammelgaard, 2016) and "fighting for corporate attention" (Conroy and Collings, 2016) describe the actions of the corporate periphery units. Finally, most studies on the politics and power within MNCs (see Geppert and Dörrenbächer, 2014) and on agency problems (Kostova *et al.*, 2018) pertain to relations between the corporate centres and the periphery units.

The core and the periphery radically differ in the ways they are managed by the corporate centre. These differences pertain to the "hard" part of the corporate management system (the formal control mechanisms) and to the "soft system" – managing through common beliefs, trust and empathy. For the core, if there is an unobstructed flow of capital, goods, ideas and talent, the standard control systems are applied. The standard control systems application implies that a satisfactory level of trust exists between the corporate centre and such subsidiaries. This trust is usually reinforced by strong empathy between managers of core subsidiaries and corporate executives. They share the same (sometimes very specific) language, have common open and tacit beliefs and generally have similar mental models. High trust minimises most of the negative elements of the agency problem ("calculation with guile" or "unpredictable and inconsistent behaviour, including constrained opportunism and strategic errors") in headquarter–subsidiary relations. The core does not meet the problems of "headquarters knows best" (Bouquet *et al.*, 2016) and usually does not experience "attention dissonance in communications with the corporate centre" (ul Haq *et al.*, 2017). Moreover, the corporate centre does not pay too much attention to the corporate core except through the standard reporting mechanisms and ritualistic, rather formal meetings between top corporate executives and the subsidiary managers (sometimes heads of large subsidiaries from the core hold titles as senior or even executive vice-presidents and are members of the executive board). Even the innovation activities of the core are performed as corporate routines within predetermined patterns of behaviour and formal procedures (see Gurkov and Filippov, 2013). In addition, because separate elements of the core (regional subsidiaries or product groups) also intensively exchange capital, ideas and talent, vertical flows of value between the corporate centre and the core are supplemented by the horizontal flows of value within the core.

We should stress that the core can be physically quite distant from headquarters. For example, offshore tax havens that perform the function of corporate treasury can be thousand miles from the home country or the country of the official domicile of the corporation. Another example of remote corporate core units are R&D centres. For example, in Oriflame Holding AG, a company of Swedish origin incorporated in Switzerland, one of the major R&D centres is located in Ireland. Finally, recent successful acquisitions and greenfield investments of leading MNCs in the Central and Eastern Europe, such as Škoda Auto, became core units of their corporate parents.

However, only a few corporations are lucky to be composed only from the core. One way in which a core unit degrades to the periphery is when the unit has been too successful and has delivered results that exceeded expectations. This can provoke excessive "talent drain". An especially capable head of a successful core unit is promoted to a higher-ranking position in the corporate hierarchy and usually takes with him or her the most talented co-workers. Another way how a core unit moves to the periphery is when the corporation's core business is the object of negative public attitudes (such as what currently is happening to tobacco companies). Thus, the corporation wishes to create the distance between such a unit and the rest of the corporation. Some core units are simply "burned out" and decrease their capabilities to produce valuable ideas to be used across the corporation. There can be the loss of empathy after the appointment of a new CEO from outside the corporation as a reason for moving some core units to the corporate periphery. We can also point out cases in which managers of core units simply outpace corporate executives through the development of distinctive, more "neoteric" mental models. If managers of core units cannot assert (or force) top corporate executives to amend corporate wide mental models in a new direction, the core units lose trust and – in particular – empathy, and are "exorcised" into the periphery. Finally, if there is quick, unanticipated worsening of business conditions (in the market and/or host country) and the unit is not divested in a timely manner (because of high sunk costs of liquidation, the absence of acquirers or simply the hubris of the CEO who initiated the project and is unwilling to acknowledge the complete failure of his or her idea), the unit moves into the periphery area.

Validation the model – a case of massive peripheralisation of Russian subsidiaries of MNCs in 2014–2018

The massive peripheralisation and previously moving quite successful subsidiaries into the corporate periphery can be observed in Russia since 2014. There were three types of anisotropy which suddenly increased in 2014–2017 – anisotropy in movement of goods from other subsidiaries to Russian subsidiaries, anisotropy in equity and fixed assets movement (inability to exit from Russian assets) and anisotropy in current assets and liabilities movement.

The first type of anisotropy, which suddenly gained traction, was the self-imposed Russian embargo on imports of food products from the European Union, USA, Canada and some other countries. The embargo had terrible consequences for some MNCs.

The anisotropy of capital movement became apparent in 2015–2016. The sudden two-fold devaluation of the local currency not only significantly impaired the tangible and intangible assets of foreign companies operating in Russia (so-called foreign exchange effects), but also severely eroded the local consumer and industrial markets. However, in such a situation only a few MNCs dared to divest their Russian subsidiaries – due to the absence of potential acquirers in declining markets, most divestments had to be carried out in a very costly manner as plant closures. Instead, the multinationals tried to complete on-going investment projects. Between January 2015 and March 2017, western MNCs opened 90 new plants in Russia (see Gurkov *et al.*, 2017). The preference for completing on-going investment projects in falling markets and with totally unclear cash-back period was mostly due to the very low liquidity of manufacturing facilities' "construction-in-progress" projects during the economic recession. In such a situation, abandoning "construction-in-progress" usually meant that the entire amount of the investment should be written off, so moderate losses from operating new production facilities at low capacity utilisation was considered a better option. Moreover, the transfer of talent was also obstructed by tighter immigration legislation. Regarding the transfer of knowledge, most of solutions developed by Russian subsidiaries in 2015–2017 were totally local solutions (import substitution, i.e. the greater use of local suppliers (contractors), specific pricing techniques, measures to maintain motivation of the key personnel) designed to cope with very specific local conditions (see Gurkov *et al.*, 2017; Gurkov and Saidov, 2017). Thus, there was not much willingness among top corporate executives to transfer such solutions to other parts of corporate parents.

Finally, since the second half of 2017, after the amendment of the local tax legislation, Russian tax authorities imposed stronger control on profit repatriation from subsidiaries of western MNCs. For example, the interest paid on credits offered to Russian subsidiaries by the headquarters or by other subsidiaries came under stricter scrutiny of the local tax authorities, especially if such credits were originated from locations with preferential tax regimes (the Netherlands, Luxemburg). The same scrutiny became applicable to dividends and trademark royalty payments (see Netupsky, 2018).

As a result, most western MNCs' Russian subsidiaries moved into the corporate periphery experiencing growing compounded anisotropy (objective obstacles of profit and revenue movement from subsidiaries to the corporate centre and objective and subjective obstacles for the movement of goods from local subsidiaries to subsidiaries in other countries). Table II presents the assessment of different transactions to and from Russian subsidiaries of MNCs taking into account legal difficulties, relative costs of transactions and subjective willingness to perform particular transactions.

Challenges for corporate architecture of MNCs

The permanent existence of numerous peripheral units creates several challenges for corporate architecture. First, the corporate centre usually does not accept that the possibilities of appropriation of value from the peripheral units are indeed so low. Thus, the standard control systems are perceived by the corporate centre as applicable but insufficient, and the management of peripheral subsidiaries has to be strengthened by expatriate (or just trusted) managers who occupy key positions regarding strategic decisions and financial control. This task itself is not easy as the pool of trusted executives capable to work effectively in "difficult locations" is always shallow. The second challenge is related to the radical change of "pastime" of top corporate executives. They should shift their attention and schedules from formal, ritualistic and psychologically comfortable interactions with heads of core units to highly uncomfortable encounters to the persons they do not trust and to whom they have no empathy.

Value type	Ways to "pour" value into corporate subsidiaries	Ways to extract value from corporate subsidiaries
Financial resources		
Profits		Dividends paid by the subsidiary to the parent company
Gross revenue		Fees for the use of trademarks owned by the parent company (royalties)
		Excessive payments for goods and services supplied by other divisions of the parent company
		Excessive payments for services provided by the head office
Equity	Capital infusions into the subsidiary's authorised capital by the parent company	The subsidiary buys shares of the parent company or other firms owned by the parent company
Current and long-term liabilities	Reduced-rate loans granted to the subsidiary by the parent company or its other divisions	The subsidiary excessively borrows from banks, handing the loans over to the parent company
	Parent company's or its divisions' guarantees on bank loans granted to the subsidiary	
Current and long-term assets	Preferred (exclusive) rights to use patents owned by the parent company	Reduced-rate loans granted by the subsidiary to the parent company, or to other firms it owns
		The subsidiary guarantees bank loans provided to the parent company or its divisions
Deadweight loss		Intentional reduction of the output below the level of demand
Liquidation value		Discontinuing the subsidiary's operations (closure, sale or liquidation)
Material assets		
Production facilities	Transfer of equipment from the parent company's other divisions for permanent or temporary use, at prices below the market level	Transfer of equipment from the subsidiary to the parent company's other divisions for permanent or temporary use, at prices below the market level
(Raw) materials and finished products	Transfer of raw materials, semi-finished and finished products from the parent company's other divisions at prices below the market level	Transfer of raw materials, semi-finished and finished products from the subsidiary to the parent company's other divisions at prices below the market level
Knowledge		
	Free transfer of codified knowledge (technical documentation, procedures) from the parent company to its subsidiaries	Free transfer of codified knowledge (technical documentation, procedures) from the subsidiary to the parent company
	Free transfer of tacit knowledge (work methods) from the parent company to its subsidiaries	Free transfer of tacit knowledge (work methods) from the subsidiary to the parent company
	The subsidiary is granted access to the corporate databases of reliable suppliers and contractors	The corporation is granted access to the subsidiary's databases of reliable suppliers and contractors
	Subsidiaries patent valuable solutions discovered by the parent company	The parent company patents valuable solutions discovered by its subsidiaries

(*continued*)

Table II.
The increased barriers to transfer value between Russian subsidiaries and their corporate parents and sister-subsidiaries in 2015–2017

Value type	Ways to "pour" value into corporate subsidiaries	Ways to extract value from corporate subsidiaries
	Subsidiaries are granted access to the parent company's patent databases	The parent company is granted access to the subsidiary's patent databases
	Internships for the subsidiary's employees at other divisions of the parent company	Internships for employees of other parent company divisions at the subsidiary
	The parent company subsidises the subsidiary staff's participation in meetings, conferences and other knowledge and skill transfer events	The subsidiary subsidises the parent company staff's participation in meetings, conferences and other knowledge and skill transfer events
Talent		
	Temporary project teams comprising staff of the parent company and other divisions take part in projects implemented by the subsidiary	Temporary project teams comprising the subsidiary staff take part in projects implemented by other divisions of the corporation
	Transfer, on a temporary or permanent basis, of the head office's or other divisions' staff into the subsidiary	Transfer, on a temporary or permanent basis, of the subsidiary's staff into the head office or other divisions of the parent company
	The parent company helps the subsidiary with recruiting, selecting, and hiring staff	The subsidiary helps the parent company with recruiting, selecting, and hiring staff for its other divisions or the head office

Note: Legally risky, increasingly costly or undesirable actions are shown in grey

Table II.

The third challenge is related to amendment of subsidiary mandates accordingly to the low possibilities of value appropriation. Here, we anticipate some paradoxical development – the corporate mandates and operational autonomy of peripheral units can be broader than those of core units (see Belizón *et al.*, 2014) to enable them to reach higher local embeddedness (see Meyer *et al.*, 2011) as a substitute for the limited embeddedness in the parent's network (see Scott-Kennel and Michailova, 2016).

Discussion

The peripheralisation of Russian subsidiaries due to the radically increased compounded anisotropy can be seen as an extreme example of the sudden expansion of the corporate periphery, partially caused by political factors. However, we can anticipate quick expansion of the corporate periphery in many countries in the years to come due to other factors contributing to the increase of anisotropy in the corporate space. First, there are raising barriers for capital movement, supported by massive advocacy against transfer pricing techniques and offshore tax heavens employed by leading MNCs (see Phillips *et al.*, 2016). Second, they are raising tariff and non-tariff barriers for the movement of goods (like the prohibitive tariffs on imports of Bombardier jets to the USA or the developing trade war between USA and China). Third, there is a quick erosion of the global mindset (see Javidan *et al.*, 2007) as corporate executives should adapt their way of thinking and acting to largely different institutional environments in various host countries. More importantly, the growing economic nationalism enforces exit barriers for both assets and people from "difficult locations" (we can mention here "the travel ban" on foreign nationals that can be imposed in China, prohibiting a foreign national involved in any kind of business or legal dispute from leaving China until the matter is resolved which, in some cases, can take years, see Foreign and Commonwealth Office, 2017).

There are two additional arguments in favour of the expansion of the corporate periphery. One argument is based on the increasing anisotropy in knowledge movement.

The development of the "global factory" (see Buckley, 2009) is really taking place in many industries such as consumer electronics. This development largely decreases the possibilities of knowledge movement from the subsidiaries to the corporate centre and to other subsidiaries of the corporations. Reilly and Sharkey Scott (2013, pp. 11-12) argue that "the disaggregation of global value chains and the resulting narrower subsidiary roles that are emerging are likely to have a significant impact on a subsidiaries ability to augment knowledge and contribute collectively to the organisation. […] In addition, a growing tendency of headquarters to outsource and/or relocate activities to lower cost locations reflects a worrying shift for subsidiary based innovation as the focus moves from responsiveness at a local level towards a preference for short-term exploitation efforts".

The second argument towards increasing the overall level of corporate anisotropy is the unwillingness and/or inability of "new multinationals", especially Chinese corporations, to orchestrate the talent movement from overseas subsidiaries to the home country's subsidiaries and/or to the headquarters. Thereby, despite the Chinese corporations' massive acquisitions of assets in both developing and developed countries, the mastery of the Chinese corporations in the reverse transfer of knowledge and production facilities (equipment) from subsidiaries in developed countries, and the ability for repatriation of revenues from subsidiaries in developing countries, overseas subsidiaries of Chinese corporations can be considered (and presumably indeed viewed by Chinese corporate executives) as corporate periphery.

Finally, the combination of obstacles of expatriations of profits or revenues from overseas subsidiaries (or unmet performance targets of domestic subsidiaries) with the high anisotropy in knowledge and talent movement (unwillingness to capture ideas from subsidiaries and unwillingness to promote managers from subsidiaries to positions in the corporate centre) is a ready culture medium (if we use a term from microbiology) for the emergence of "core-less corporations". In such corporations, all corporate units (except for the corporate centre, the adjacent R&D centre and the overseas corporate treasury located in tax heavens) are considered as corporate periphery. In those corporations the agency problem is indeed severe, the "calculation with guile" or the "constrained opportunism and strategic errors" of subsidiaries are considered as subsidiaries' expected behaviour; therefore, neither empathy nor trust exist between the corporate centre and the management of subsidiaries. Relocation of an executive from the corporate centre to a subsidiary is considered either as a "sentence by exile" or as temporary mission to serve as an interim head of a subsidiary with unacceptable performance or mutiny behaviour. We do not wish to provide examples of such corporations, but in reality, there are numerous, especially in industries where the total offshoring of operations is a norm and the share of home country sales is negligible.

Conclusions and suggestions for further studies

We introduced a new research concept of anisotropy of the corporate space and demonstrated how this research construct can provide a fresh look on a number of issues in the organisation and functioning of MNCs – from presenting a new way for the desalination between the corporate core and the corporate subsidiaries to providing a more balanced view of the organisational consequences of "building the global factory". We should indicate promising avenues for further use of the proposed research constructs in organisational studies.

First and foremost, it can enrich the studies on distance in international business. The last studies in that area (Verbeke *et al.*, 2017) strived to identify and quantify the cost and value of various forms of distance. The use of the proposed new research construct can facilitate the solution of those problems. The second promising research avenue is the proper identification of the corporate periphery and the ability to depict peculiarities in the organisational characteristics of such corporate units. This can provide valuable insights on the organisational climate, leadership style, incentive schemes and other important elements of organisational design in the peripheral corporate units. Finally, the proper acknowledgement of the concept and construct of corporate anisotropy can help "new multinationals" to identify objective and subjective barriers in internal value transfer and assist them to eliminate some of the barriers.

In general, we consider the proposed research construct as a valuable addition to the research repertoire of theoretical and especially empirical studies on organisation and functioning of MNCs.

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