

# Contractual Networks and the Access of Small and Medium Enterprises to Global Value Chains: The Case of the Brazilian Aircraft Industry<sup>1</sup>

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## ABSTRACT

In the last three decades, the organisation of production has undergone a major transformation from vertical integration towards de-verticalisation, with associated increases in outsourcing and the international fragmentation of production into global value chains (GVCs).

Among the most important consequences of GVCs are the creation of new opportunities for developing countries to participate in international markets and cross-border business networks, and the development of new contractual practices and new models of collaboration among firms, including network forms of organization.

This paper examines these two aspects of GVCs through a case study of the commercial aircraft industry in Brazil. First, I provide an analysis of the role of multilateral contractual networks as an instrument to promote developing countries' small and medium enterprises (SMEs) access to GVCs, and increase the benefits derived. Second, I examine the lack of the proper legal tools in Brazil to regulate the different forms of inter-firm collaboration that exist within multilateral contractual networks.

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## I. INTRODUCTION

### ***1.1. The Recent Trends of International Production Organisation***

The organization of global production has undergone major transformations over the past few decades. This raises the first-order question of what determines industrial organization. Transaction costs theory, developed mainly as an extension of the work of Ronald Coase by Oliver Williamson, posits two ways of organising production: through market relations or within vertically-integrated firms. In other words, economic activity can be organized through “markets” or “hierarchies”. According to this theory, when transactions involve uncertainty about their outcome, occur frequently and require high transaction-specific investments (of money, equipment, time, or energy), the risk of opportunism drives the parties of a supply-chain away from contracts (the market) and towards vertical integration (hierarchy).<sup>3</sup>

This was, in fact, what actually occurred for much of the twentieth century, which saw a strong tendency towards vertical integration in the main industries (such as automobiles, electrical machinery, food processing and aeronautics). Alfred Chandler has a broader view, that highly integrated firms were considered the most effective way of reaping the benefits of administrative co-ordination, economies of scale and speed, risk reduction, and access to larger and distant geographic markets.<sup>4</sup>

In the last three decades, however, things have changed considerably, and production organisation has been moving away from vertical integration towards a *de*-verticalisation, or vertical disintegration, at both domestic and transnational level.

This trend has been the object of study not only for many economists, but also for social scientists and lawyers, who have focused on different reasons for the drivers of disintegration, including contemporary technological and political changes.<sup>5</sup> Nevertheless, as

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<sup>3</sup> See O. Williamson, *The Economic Institutions of Capitalism*, New York, Free Press, 1985; O. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implications*, New York, Free Press, 1975; O. Williamson, ‘Transaction-cost economics: The governance of contractual relations’, *Journal of Law and Economics*, 22 (1979) pp. 233-61. Also in W. Powell, ‘Neither market nor hierarchy: network forms of organization’, *Research in Organizational Behaviour* 12 (1990) pp. 295-336; R. Gilson; C. Sabel & R. Scott, ‘Contracting for Innovation: Vertical Disintegration and Interfirm Collaboration’, *Columbia Law Review*, 109 (2009) pp. 431-502.

<sup>4</sup> See R. Gilson, C. Sabel & R. Scott, *op. cit.*, p. 437 and W. Powell, *op. cit.* p. 298.

<sup>5</sup> See F. Cafaggi, “Contractual Networks, Vertical Disintegration and Inter-firm Cooperation” in F. Cafaggi (ed) *Contractual Networks, Inter-Firm Cooperation and Economic Growth*, Cheltenham, Edward Elgar,

Gilson *et al.* argue, current business practices have led to a decrease in the proportion of economic activity co-ordinated within firms, and a corresponding increase in the proportion of economic activity conducted through contract in the market, not only within the traditional market contractual relation, but also within new forms of collaborative contractual practices, which go beyond the reach of the existing contract theory models.<sup>6</sup>

Companies that were once vertically integrated began to: (i) re-define their core competencies, focusing upon strengthening them and keeping them within the boundaries of the firm,<sup>7</sup> and (ii) reduce their direct ownership over the “non-core”, or peripheral, activities, outsourcing them, both domestically, and, for the most part, abroad.<sup>8</sup> In fact, according to Gereffi *et al.*, the globalisation of production and trade, together with vertical dis-integration, constitute two of the most important new features of the contemporary economy.<sup>9</sup>

As already mentioned, this process has been followed by many industries, especially those working with complex product systems, which are intensive in capital, engineering and information technology.<sup>10</sup> This was, in fact, precisely the case for the dominant companies of the commercial aircraft sector.

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2011; G. Gilson et al, *op. cit.*; W.W. Powell, *op. cit.* and also R. Feenstra, ‘Integration of Trade and Disintegration of Production in the Global Economy’, *Journal of Economic Perspectives*, 12 (1998) pp. 31-50.

<sup>6</sup> R. Gilson, C. Sabel, R. Scott, *op. cit.* p. 434. As affirmed also by Powell, “One route leads firms to a rediscovery of the market, to the hostile world of arms-length relationships. Associated with a greater reliance on external contracts are strong efforts at cost-cutting, and greater managerial freedom in the deployment of resources and personnel. Another route leads firms to try to reorganize production, not so much through eliminating jobs, but by searching for new methods of collaboration among formerly antagonistic and/or competitive parties (Walton, 1985, Weitzman, 1984). Both responses entail some form of vertical disaggregation, or the shrinking of large corporate hierarchies.” W. Powell, *op. cit.* pp. 319-320.

<sup>7</sup> According to Niosi and Zhegu, “From these firm’s strategic point of view, focalisation on these core activities corresponded to divestment from their ancillary and peripheral business, the merger and acquisition of other firms being presumed to reinforce the firm’s core capabilities and the finding of reliable subcontractors for the outsourcing of non-core but still closely related business”, J. Niosi, H. Zhegu. ‘Multinational Corporations, Value Chains and Knowledge Spillovers in the Global Aircraft Industry’, *International Journal of Institutions and Economies*, 18(2) (2010) pp. 109-141.

<sup>8</sup> G. Gereffi, J. Humphrey, T. Sturgeon, ‘The governance of global value chains’, *Review of International Political Economy* 12 (1) (2005) pp. 78-104 at p. 79. See also R.C. Feenstra, *op. cit.* p.31.

<sup>9</sup> G. Gereffi, J. Humphrey, T. Sturgeon, *op. cit.* pp. 78-79.

<sup>10</sup> J. Niosi, H. Zhegu, *op. cit.* p. 118; R. Quadros *et al.*, ‘Mapeamento da Cadeia Produtiva Aeronáutica Brasileira’, in G. C. F. Montoro; M. Migon, (org.), *Cadeia Produtiva Aeronáutica Brasileira: oportunidades e desafios*, Rio de Janeiro: BNDES, 2009, p. 76.

## ***1.2. The Re-structuring of Production Organisation in the Commercial Aircraft Industry***

In the last 30 years, the most important companies of the commercial aircraft industries (*i.e.*, Boeing, Airbus, and Embraer and Bombardier) have passed through a complete re-structuring of their organisation of production, which has been characterised by vertical disintegration, outsourcing, and the internationalisation of production.

After a long period, marked by strong concentration within lead firms, the main aircraft producers have significantly changed their production strategy.<sup>11</sup> They have started to focus on their core competencies (such as design, development and system integration) while outsourcing worldwide their non-core activities and sub-systems.<sup>12</sup>

In the aircraft industry, this re-structuring has also led to a re-organisation of the supply chain, with a reduction in the number of suppliers (from one-too-many to one-too-few) and the development of stronger ties to the remaining ones, also with new forms of collaborative contractual agreements; *i.e.*, in a risk-sharing partnership. This strategy has had a cascade effect, making first-tier suppliers concentrate on their own core business and establish their own supply chains, outsourcing, in turn, their non-core activities to second-tier suppliers worldwide.<sup>13</sup> As a result, many transactions that used to take place within firms, started to be supplied by other firms, or organised by agreements between firms.<sup>14</sup>

Among the drivers of this process are the liberalisation and privatisation of the air transportation industry, and the decrease in government support and public investment,<sup>15</sup>

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<sup>11</sup> Concentration is one of the main characteristics of the aircraft sector, and has been a continuous process both in the civil and military industry. Aircraft manufacturers, in fact, must have a powerful economy of scale and scope to meet the high costs of R&D, design, assembly, marketing, upgrading, and also to survive the cyclical downturns of the industry.

<sup>12</sup> J. Niosi; H. Zhegu, *op. cit.* p. 118.

<sup>13</sup> J. Niosi, H. Zhegu, *op. cit.* pp. 118-119. The Brazilian Embraer followed this process after the liberalization period and its privatization, as did the European companies in the nineties. Embraer created three levels of collaboration along the supply chain: risk partners, suppliers and subcontractors. UNCTAD, *Transfer of Technology for Successful Integration into the Global Economy*, Geneva and New York, United Nations, 2003, p. 50.

<sup>14</sup> R. Gilson, C. Sabel, R. Scott, *op. cit.* p. 436.

<sup>15</sup> The liberalisation and privatisation of the air transportation industry has increased fragmentation and deverticalisation of supply chains. In the US, for example, the deregulation started in 1978, increasing the competition of the airline companies, and making them more cost aware, a concern later transferred to the aircraft manufacturers. T. Horng, 'A comparative Analysis of Supply Chain Management Practices by Boeing and Airbus: Long-term Strategic Implications', Massachusetts Institute of Technology, 2007, pp. 28-29.

which led to rationalisation and cost reduction.<sup>16</sup> In fact, within the cost rationalisation process, as affirmed by Gilson *et al.*, producers recognised that it would no longer be possible to maintain cutting-edge technology in every field required for the success of their product.<sup>17</sup>

Another important driver is the development of information technology, which, on the one hand, allowed the modularisation of components and systems, facilitating the transfer of parts of the project to sources outside the company, but on the other also allowed the development of mechanisms that facilitate the co-ordination of co-design relations.<sup>18</sup>

### ***1.3. Consequences of the Global Re-structuring of Production***

After these changes in global production organisation, production nowadays has become increasingly fragmented, both across geographic space and between firms.<sup>19</sup>

The consequences of this re-structuring are far-reaching, but two can be highlighted. The first is that vertical disintegration, and the increase in outsourcing and internationalisation of production, created the opportunity for many developing countries to become part of these new global value chains (GVCs) by specialising in just one or a few facets of the production activities involved in making the final product, activities which, as already mentioned, in most cases were once developed within the vertically integrated firm.<sup>20</sup> The second is that it also represented a “breach” with the dichotomy of “market” *versus* “hierarchy”, with the development of new contractual practices and new models of collaboration among firms, which includes the (re-) emergence<sup>21</sup> of network forms, both vertical and horizontal. These new forms for the co-ordination and organisation of

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<sup>16</sup> In fact, concentration, through mergers and acquisitions, were necessary, but not sufficient, to adapt industry to these new and particularly demanding conditions. J. Niosi, H. Zhegu, *op. cit.* p. 118.

<sup>17</sup> R. Gilson, C. Sabel, R. Scott, *op. cit.* p. 434.

<sup>18</sup> See R. N. Langlois, ‘The Vanishing Hand: The Changing Dynamics of Industrial Capitalism’, *Industrial and Corporate Change*, 12 (2003) pp. 351- 376, especially pp. 370-376; R. Quadros et al, *op. cit.* p. 77, and also R. Gilson, C. Sabel, R. Scott, *op. cit.*

<sup>19</sup> G. Gereffi, J. Humphrey, T. Sturgeon, *op. cit.* p. 80.

<sup>20</sup> According to the Inter-American Development Bank (IDB), “Fragmentation and vertical specialization eliminate the need to gain competency in all aspects of production and allow developing countries to enter into the network of cross-border production sharing by focusing on just one (or a few) facet(s) of production activities involved in making the final good”. Inter-American Development Bank (IDB), ‘International Product Fragmentation and the Insertion of LAC in Global Production Networks’, Call For Research Proposals, 2011, p. 1.

<sup>21</sup> On the argument, see S. Deakin, ‘The Return of the Guild? Network Relation in Historical Perspective’, in: M. Amstutz & G. Teubner (ed.), *Networks: Legal Issues of Multilateral Co-operation*, Oxford–Portland OR, Hart Publishing, 2009.

fragmented production do not, in fact, fit either in the category of market, or under the category of hierarchy.<sup>22</sup>

This paper will proceed by first analysing the opportunities created by granting the Small and Medium Enterprises (SMEs) of developing countries access to the GVC, and then by analysing the role of contractual networks as an instrument to facilitate this access and increase the benefits that the SMEs can derive from it, before concluding with an analysis of the *problématique* regarding the lack of proper legal tools to regulate access through contractual networks, using a Brazilian case study as the basis for this analysis.

## **II. THE OPPORTUNITY FOR DEVELOPING COUNTRIES TO ACCESS INTERNATIONAL MARKETS**

### ***II.1 The Access of SMEs to GVCs***

The changes in global production organisation have created new opportunities for developing countries to participate in the international market.<sup>23</sup> As affirmed by the Inter-American Development Bank (IDB), in the absence of vertical dis-integration, developing countries would have to master production processes in their entirety in order to become viable competitors in world markets. Instead, fragmentation and vertical specialisation eliminate the need to gain competency in all the aspects of production, allowing the firms from developing countries, especially SMEs, to gain access to international markets through GVCs.<sup>24</sup>

In fact, in the last three decades, firms from developing countries, especially SMEs, have significantly increased their participation in GVCs, gaining access to international markets. This is the case, for example, for the Brazilian SMEs of the commercial aircraft industry, upon which this paper is focused.

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<sup>22</sup> For the most prominent study on the different types of supply chain governance within this new form of product organization, see See G. Gereffi, J. Humphrey, T. Sturgeon, *op. cit.*

<sup>23</sup> The importance of the new opportunities created for developing countries by these changes has been underlined by different scholars. As affirmed by Athukorala, “Fragmentation of production and the emergence of new forms of international trade have begun to open up new opportunities for developing countries and transition economies to participate in a finer international division of labour”. P.Athukorala, ‘Product Fragmentation and Trade Patterns in East Asia’, Research School of Pacific and Asian Studies, Australian National University, Working Paper 2003/21, 2003, p. 8. It has also being the object of a research project of the Inter-American Development Bank (IDB) on ‘International Product Fragmentation and the Insertion of LAC in Global Production Networks’ in which I took part, and by which this paper is greatly inspired. See IDB, *op. cit.*

<sup>24</sup> IDB, *op. cit.* p. 2.

The benefits that local producers can have from accessing the international market through GVCs are many.<sup>25</sup> First of all, participation in GVCs not only allows an increase in the volume of trade but also multiplies business opportunities, even outside the chain. Second, it creates opportunities for faster technological learning, innovation and skill acquisition, which may allow SMEs to improve their performance and increase their competitiveness in both the domestic and international markets.

Being part of a GVC may, in fact, allow suppliers to gain access to new production process and technologies more easily and to receive chain-specific know-how from lead enterprises in GVCs. In fact, the trade-, investment-, and knowledge-flows that underpin GVCs can provide the mechanism for firms in developing countries to upgrade their activities in a variety of different ways.

Humphrey and Schmitz list four types of industrial upgrading associated with GVC: (i) in process upgrading (in order to increase the efficiency of the production process by re-organising the production system or introducing superior technology); (ii) in product upgrading (in order to move into more sophisticated product lines with higher added value per unit); (iii) a functional upgrading (to increase the overall skill content of its activities by engaging in new functions – or by abandoning existing ones); and finally (iv) inter-sectorial upgrading (to use the knowledge acquired from the access to GVCs to become a producer of new products in new sectors which require the related knowledge).<sup>26</sup>

It is also important to note that the suppliers in developing countries are often expected to meet requirements that frequently do not (yet) apply to their own domestic markets. In fact, GVC-linked transactions are normally accompanied with quality-control systems and prevailing global business standards (including regulatory ones)<sup>27</sup> that exceed those in developing countries. Once suppliers can meet the requirements of a GVC, it will

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<sup>25</sup> See J. Humphrey, H. Schmitz, 'How does insertion in global value chains affect upgrading in industrial clusters?' *Regional Studies* 36 (2002) pp. 10117-1027; D. Keesing, S. Lall, 'Marketing manufactured exports from developing countries: Learning sequences and public support', in G. Helleiner, (Ed.) *Trade policy, industrialisation and development*, Oxford University Press, Oxford, 1992, pp. 176-193, and also H. Schmitz, P. Knorringa, 'Learning from global buyers', *Journal of Development Studies* 37 (2000) pp. 177-205.

<sup>26</sup> For example, knowledge acquired in producing televisions might be used to make monitors and other computer equipment. J. Humphrey, H. Schmitz, *op. cit.* p. 1022.

<sup>27</sup> Ever more processes and products are subject to different regulatory regimes, operating both at the international and domestic level. Compliance with these regulations often requires high investments not only in knowledge but also in physical capital. The leading enterprise transfers regulatory capabilities to the participants of the chain in order to meet regulatory requirements, which the upstream firms can use even outside the relationship with the MNC. Access to GVC becomes an instrument to increase the skills to comply with international regulations.

open the opportunity to (i) participate on the international market also through other GVCs, both in the same and in other connected sectors of the economy; and (ii) achieve a greater success in their own market, spilling over into the domestic market the technological gains obtained from its participation in the GVC.

Although accessing the GVC for SMEs in developing countries is often an opportunity for growth, it is not always an easy task (see Sturgeon, 2009 and Whittaker et al 2010 for a discussion). There are many factors which not only deter the access of SMEs,<sup>28</sup> but also determine both the modalities and the degrees of benefits that firms from developing countries can obtain from it.

In fact, access to the GVC may itself be beneficial only on certain conditions, which can be related (i) to the governance of the supply chain, (ii) to its length and where the access occurs, and (iii) to the mode of entering the GVC.<sup>29</sup>

## ***II.2. Conditioning Factor of a Beneficial Access***

### **II.2.a The Governance of the Supply Chain**

The type of governance of the supply chain is particularly important in determining the degree of generation, transfer and diffusion of knowledge leading to innovation, which, as already mentioned, is fundamental to enable firms to upgrade and benefit from GVC access.<sup>30</sup>

In fact, within GVCs, we can find different forms of governance that will lead to quite distinct implications for the learning and upgrading opportunities for firms in developing countries. In this sense, Humphrey and Schmitz make a very interesting analysis, which demonstrates that insertion in what they call the “quasi-hierarchical chain”<sup>31</sup> offers very

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<sup>28</sup> This is not the place to make a deep analysis of the obstacles. In a general way, they can be of different types: institutional, social, economic and technical. They are both dependent on the supply chain structure and choices made by the leading enterprise and/or correlated to the market structure. For example: ever more access to GVCs is made conditional upon meeting quality requirements, often associated to technical or private standards set above those mandated by public domestic or international legislation. Meeting regulatory requirements often calls for relevant financial and organizational investments, given that especially technical standards may require significant changes in the production process and certification of compliance by private bodies. Costs are often prohibitive for small enterprises, driving SMEs away from international markets.

<sup>29</sup> F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, ‘Accessing the GVC in a changing institutional environment: Comparing aeronautics and coffee’, Inter-American Development Bank Working Paper Series, IDB-WP-370, November 2012, pp. 5-7.

<sup>30</sup> J. Humphrey, H. Schmitz, *op. cit.* p. 1019.

<sup>31</sup> Humphrey and Schmitz presented in their papers four types of relationships in value chains:



favourable conditions for both fast process and product upgrading, but hinders functional upgrading. On the other hand, in chains characterised by market-based relationships, both process and product upgrading tend to be slower (not fostered by global buyers), while the road to functional upgrading is more open. Lastly, chains characterised by “networks” offer the most ideal upgrading conditions, but are the least suitable for the producers in developing countries because of the high level of (complementary) competences required.<sup>32</sup>

## II.2.b The Length of the GVC and where Access Occurs

The length of the supply chain varies both across, and within, sectors; at which point of the GVC entry occurs, and with what kind of contractual arrangement, is extremely relevant with regard to the benefits that SMEs from developing countries can obtain from GVC entry.

In our example of the GVC of the commercial aircraft industry, we can identify at least three levels with very distinct types of contractual arrangements, governance and interaction, in terms of technological flow and value flow among the firms.<sup>33</sup>

The first, which is the closest to the Multinational Corporation (MNC), is that of risk-partners, which combines risk sharing, co-financing, and co-development, with intense co-operation among the firms, not only with regard to the development of the product supplied, but also of the entire aircraft programme. Firms are linked through bilateral and exclusive

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“• Arm’s length market relations: Buyer and supplier do not develop close relationships. This implies that the supplier has the capacity to produce the product the buyer wants, and also that the buyer's requirements (including quality, reliability, etc.) could be met by a range of firms. The product should be standard or easily customised and any process requirements can be met by non- transaction specific standards of the sort verified by independent certification.

• Networks: Firms co-operate in a more information-intensive relationship, frequently dividing essential value chain competences between them. The relationship is characterised by reciprocal dependence. In this case, the buyer may specify certain product performance standards or process standards to be attained, but should be confident that the supplier can meet them.

• Quasi hierarchy: One firm exercises a high degree of control over other firms in the chain, frequently specifying the characteristics of the product to be produced, and sometimes specifying the processes to be followed and the control mechanisms to be enforced. This level of control can arise not only from the lead firm's role in defining the product, but also from the buyer's perceived risk of losses from the suppliers’ performance failures. In other words, there are some doubts about the competence of the supply chain. The lead firm in the chain may exercise control not only over its direct suppliers but also further along the chain.

• Hierarchy: The lead firm takes direct ownership of some operations in the chain.” J. Humphrey, H. Schmitz, *op. cit.* p. 1025.

The more recent literature, (See G. Gereffi, J. Humphrey, T. Sturgeon, *op. cit.*) developed a more complete typology of value chain governance, identifying five basic types of value chain governance (market, modular, relational, captive and hierarchy), which I adopt in this paper.

<sup>32</sup> J. Humphrey, H. Schmitz, *op. cit.* p. 1026.

<sup>33</sup> See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, T.A.; *op. cit.* pp. 14-18.

contracts, and their relationship is characterised by mutual dependence and a high exchange of technological and tacit knowledge.

The second is that of suppliers that, in contrast to risk partners, do not participate in the airplane-development process, or in the financing of the programme, and do not share any direct risk. Instead, they supply components or sub-systems with relatively high technological and economic value directly to the MNC, following its specifications and taking on the responsibility for the competences relating to the production technology. They can have contracts which are either exclusive or non-exclusive.

The third level is that of sub-contractors, who, in general, receive the raw materials, moulds, specifications, and design from the lead firm, and perform activities, or supply parts, with lower economical or technological value, charging on an employee-hour or machine-hour basis. They normally do not have exclusive contracts and their relationship with the MNC is characterised by a high dependence on the MNC and a high degree of control on the part of the MNC over the activities performed by the sub-contractor.

The entry location in the supply chain determines the degree of the expected benefits, which tend to diminish the further the firm is from the MNC.

### **II.2.c The Different Modes of Access**

Another very important point, which may determine the benefits of access with regard to the modalities of access, can be done by the enterprise either individually or via a network.

Access to the GVC, especially through a direct contract with the MNC, pre-supposes compliance with a set of thresholds, related to both financial and technological capabilities, designed by the MNC, to start a contractual relationship with its suppliers or to determine their position in the supply chain.

Empirical research shows that firms can access GVCs in different ways. Less competent suppliers, especially SMEs, can access the GVC by becoming an independent sub-contractor or supplier of other firms engaged in a contractual relationship with the MNC in question, even if they do not have the capabilities needed to comply with the specific requirements of the MNC for a direct contractual relationship. The *problématique* with regard

to this form of access is that the suppliers mediate their relationship between the SME and the MNC, and often the benefits of accessing the GVC are “filtered” by these intermediaries.<sup>34</sup>

Second, suppliers can try to access the GVC by means of a direct contract with the MNC. However, SMEs may not have the scale or scope of competencies needed to meet the requirements of the lead firm. They can solve this problem in two different ways. First, suppliers can undertake an individual growth strategy, often through mergers, in order to meet the MNC’s requirements and access the GVC directly. Second, they can create a collaborative venture to generate economies of scale, scope and specialisation, which may allow the firms not only to meet the thresholds designed by the MNC to start the contractual relationship, but also to access the GVC in a better position. In other words, firms can access the GVC via networks.<sup>35</sup>

The remainder of this paper is primarily focused on the second approach, namely, an analysis of the use of contractual networks not only as one of the modes of access to the GVC, but also as an instrument to promote a more beneficial way of access for the SMEs of developing countries.

### **III. THE ACCESS TO THE GVC THROUGH CONTRACTUAL INTER-FIRM NETWORKS**

#### ***III.1. The Network Phenomena***

In the last three decades, scholars from different subjects, including economists, political scientists and lawyers, have paid significant attention to the network phenomena.<sup>36</sup>

This particular interest can be justified both by the massive increase in contractual networks in the period, due to the already mentioned changes in production organisation worldwide and its actual importance, and, especially, because of its particular and conflicting

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<sup>34</sup> F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, T.A., *op. cit.* p. 68.

<sup>35</sup> Ibidem.

<sup>36</sup> See M. Amstutz, V. Karavas, G. Teubner, ‘Preface’, p. VII in M. Amstutz, G. Teubner (ed), *Networks: Legal Issues of Multilateral Co-operation*, Hart Publishing, Oxford and Portland, 2009. Among the economists, the most prominent, O. Williamson, *op. cit.* Among the sociologists, the most prominent W. Powell, *op. cit.*

characteristics, which undermine not only the traditional distinction between the market and hierarchy, but also the distinction between contract, torts, and corporation.<sup>37</sup>

Empirical observation demonstrates, in fact, that, in the last three decades, there has been an increasing spread of contractual network arrangements between organisations in many branches of business. In effect, as already mentioned, one of the results of the re-organisation of production undergone by the main industries over the last decades is precisely the (re-) emergence of the network phenomenon, translated in a different and separate mode of production organisation.<sup>38</sup>

Currently, contractual business networks constitute, together with pyramidal groups, one of the most diffused forms of production organisation, present in the most economically important and diverse markets, from energy to telecom, from banking to transport and aviation.<sup>39</sup>

But, as suggested also by Marc Amstutz, Vaios Karavas and Gunther Teubner, the fascination with the network phenomenon is explained not only by its empirical frequency but also because the contractual network goes beyond the scope of the forms of action, established in both the economy and in society, which should be considered as crucial: the network fits neither in the category of market, nor in that of the organisation.<sup>40</sup>

As affirmed by Fabrizio Cafaggi, contractual networks cannot be subsumed in the market category because the participants are not impersonal agents but well-identified players, chosen upon the basis of resource complementarities. They permit the resource bundling that market relations are unable to achieve. On the other hand, they cannot be subsumed under the category of hierarchies because the firms are autonomous and legally-independent entities.<sup>41</sup>

In the same way, networks fit neither into the market nor the hierarchy category, and they also fail to fit into the most traditional categories of private law: contract and corporate law. In fact, networks pose remarkable challenges to law, as they are located precisely at the

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<sup>37</sup> G. Teubner, 'Coincidentia Oppositorum: Hybrid Networks Beyond Contract and Organization' in M. Amstutz, G. Teubner (ed), *Networks: Legal Issues of Multilateral Co-operation*, *op. cit.* p.3.

<sup>38</sup> On the subject see S. Deakin, *op. cit.*, R. Gilson, C. Sabel and R. Scott, *op. cit.* p. 448, W. Powell, *op. cit.*; F. Cafaggi, 'Contractual Networks and the Small Business Act: Towards European Principles?' *European Review Contract Law*, 49 (2008) pp. 493-539, among many others.

<sup>39</sup> F. Cafaggi, 'Contractual Networks and the Small Business Act: Towards European Principles?' *op. cit.* p. 538.

<sup>40</sup> M. Amstutz, V. Karavas, G. Teubner, *op. cit.* p. VII.

<sup>41</sup> F. Cafaggi, 'Contractual Networks and the Small Business Act', *op. cit.* p. 496.

intersection between contract and organisation.<sup>42</sup> Neither one of the two traditional private law concepts are able, alone and in their traditional conception, to explain in its entirety the network phenomena or to deal with the problems which it poses, especially those concerned with solidarity among network participants, and liability towards third parties.<sup>43</sup>

Consequently, lawyers, as well as scholars of other subjects, have increasingly dedicated themselves to the study of the network phenomena, to the definition of its legal concept,<sup>44</sup> as well as to the legal issues that it poses, regarding both its internal and its external relations.<sup>45</sup> An analysis of contract networks under a law perspective follows, in order to focus on its multilateral form and to analyse its use as an instrument of access to GVCs and the *problématique* that it poses.

### **III.2. Contract Networks**

Contractual networks, as already mentioned, are hybrid forms of organisation located between markets and hierarchies, which represent a form of co-ordination of the economic activities of legally-independent parties who co-operate in order to achieve a common objective.<sup>46</sup>

Despite the great doctrinal discussion about the possibilities of defining a legally-specific concept for the contractual network, and its absence in domestic or international law,<sup>47</sup> some scholars, such as Cafaggi, based upon the empirical evidence of the existence of

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<sup>42</sup> *Ibid.*, p. 503.

<sup>43</sup> As affirmed by Teubner, “any attempt to subsume networks simply under traditional private law concepts is, to cut a long story short, doomed to failure. First, company law is inappropriate for market networks, since the pooling of resources and joint decision-making do not suit the decentralized network structures. Secondly, given the radical individualism of the single nodes in networks, contract law is, indeed, the correct systematic arena, but needs to be considerably transformed for the opportunities and risks of market networks.” G. Teubner, *op. cit.* p. 13.

<sup>44</sup> On the argument, see R. M. Buxbaum ‘Is “Network” a Legal Concept?’, *Journal of Institutional and Theoretical Economics* 149 (1993) pp. 698-705 at 698, and, following the debate, G. Teubner, *op. cit.*

<sup>45</sup> See M. Amstutz, G. Teubner (ed.), *Networks: Legal Issues of Multilateral Co-operation*, Hart Publishing, Oxford and Portland, 2009, and F. Cafaggi, *op. cit.*

<sup>46</sup> F. Cafaggi, ‘Contractual Networks and Contract Theory: A Research Agenda for European Contract Law’ in F. Cafaggi (ed) *Contractual networks, Inter-Firm Cooperation and Economic growth*, Edward Elgar, 2011, p. 66.

<sup>47</sup> On the argument, see R.M. Buxbaum, *op. cit.* p. 698 and, following the debate, G. Teubner, *Coincidentia Oppositorum op. cit.*; J. N. Druey, ‘The Path to the Law: The Difficult Legal Access of Networks’ in M. Amstutz, G. Teubner (ed), *Networks: Legal Issues of Multilateral Co-operation, op. cit.*; M. Amstutz, ‘The Constitution of Contractual Networks’ in M. Amstutz, G. Teubner (ed), *Networks: Legal Issues of Multilateral Co-operation, op. cit.*

large contractual networks as formalised arrangements, argue that a formal concept of contractual networks is both theoretically possible and empirically accurate.<sup>48</sup>

According to both this author and Paola Iamiceli's definition, which we share, the contractual network is:

“a collaborative structure, governed through a multilateral contract, a set of bilateral linked contracts and/or a new entity (a corporation, association, foundation, etc.) in which two or more enterprises participate without being incorporated into it.”

Through the network, parties – that can even be competitors – pursue a common objective and aim to conduct one or more projects of common interest. To do this, they share their strategic objectives and critical resources by co-operating with each other and co-ordinating their activities in order to achieve the common goal.<sup>49</sup>

With regard to the governance of the structure of the contractual network, it can occur mainly,<sup>50</sup> (i) by a set of bilateral contracts (in which case, the contractual network is also known as a *network of contracts*), or (ii) by multilateral contract (also known as a *network of enterprises*).

Although most of the doctrine pays attention to the first typology in particular, which is the most common one, and is present, in general, in the supply chain, with sequential contracting, and is often deployed when several bilateral contracts which are functionally linked in order to contribute to a single production process, it is precisely in the second type that we can identify the most suitable instrument of access for the SMEs into new GVCs.

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<sup>48</sup> F. Cafaggi, 'Contractual Networks, Vertical Disintegration and Inter-firm Cooperation' in F. Cafaggi (ed) *Contractual networks, Inter-Firm Cooperation and Economic growth*, *op. cit.* p. 12.,

<sup>49</sup> F. Cafaggi, P. Iamiceli, 'Introduction' in F. Cafaggi, P. Iamiceli (ed) 'Inter-Firm Networks in the European Wine Industry', EUI Working Paper, 2010.

<sup>50</sup> As affirmed by Cafaggi, contractual networks can take at least two other different legal forms. The first one is an intermediate form which consists in a multilateral contract as a framework contract and bilateral executory contracts between parties to regulate the specific elements of the transaction. The second one is based on a series of interrelated contracts for the benefit of a third party. F. Cafaggi, *Contractual Networks and the Small Business Act*, *op. cit.* p. 509.

### **III.3. Contractual Network of Multilateral Contracts (Network of Enterprises)**

According to Cafaggi's definition, a network of multilateral contracts occurs when a group of enterprises co-operates to perform a common objective and creates a co-operative venture by way of a multilateral contract combining input, output, or both.<sup>51</sup>

Among its distinctive characteristics, there are<sup>52</sup> (i) the plurality of parties (at least three); (ii) the pursuit of common objectives; (iii) the stability of the multilateral contractual relationship; and (iv) the high interdependence among legally-independent parties.<sup>53</sup> This model of the contractual network also implies some degree of jointly-made decisions regarding investments and the pooling of resources.<sup>54</sup>

Networks of enterprises can be used, according to the literature, to achieve different common objectives: to access new forms of technology, to benefit from economies of scale in joint research and/or production, and to access new markets.<sup>55</sup> In fact, the contractual network of multilateral contracts can be an important instrument for enabling enterprises to coordinate their activities and thereby gain access to the international market.

In addition, it can be used to produce a common and more complex product, assimilating complementary forms of input, which may allow them to access a new market through a GVC, or to achieve a better position in the supply chain. A significant example can be found in the aeronautic industry, where the MNC in question prefers to have a direct relationship with suppliers who are able to supply a "complete solution", in general, sub-systems, and not small and separated parts. The possibility of producing a more complex product would allow the SMEs to achieve not only a direct contract with the MNC, but also to achieve a much better position within the GVC.

In addition, networks of enterprise can also be used, within the broader objective of market access, in the case of activities that can be performed separately, for joint-purchasing

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<sup>51</sup> *Ibid.*

<sup>52</sup> For an overview of the distinct characteristics of contractual networks that we share, see F. Cafaggi, 'Contractual Networks and the Small Business Act', *op. cit.*, p. 496-497 and also P. Iamiceli, 'Le reti di imprese: modelli contrattuali di coordinamento', in F. Cafaggi (ed), *Reti di imprese tra regolazione e norme sociali*, Bologna, Il Mulino, 2004, p. 125.

<sup>53</sup> As affirmed by F. Cafaggi, the relationships among the parties should be characterized by a certain degree of stability (unlike those relationships which dissolve once the economic operation for which they have been set up has been concluded) F. Cafaggi, *op. cit.*, p. 515.

<sup>54</sup> F. Cafaggi, 'Contractual Networks and the Small Business Act', *op. cit.* p. 513.

<sup>55</sup> See. O.Powell, *op. cit.*

purposes, to develop a joint-marketing strategy, for example, to produce joint international publicity, to participate in international trade-fairs, to form a united front in the negotiation of raw materials, *etc.*, and to acquire jointly the financial and technological capabilities designed by the MNC. It also constitutes an interesting instrument to share the risks among the participants when the uncertainties regarding the final outcomes are high.

The use of multilateral contracts to co-ordinate the economic activities performed by each autonomous participant is not limited to only one type of enterprises. In fact, companies and firms of different sizes, ranging from SMEs to MNCs, can use multilateral contracts to constitute a network.

It is important, however, to mention that not all multilateral contracts among enterprises amount to a network. There must be a certain degree of stability, complementarity and high interdependence among the performances that characterise the contractual relationship.<sup>56</sup>

Despite the common features of the network of enterprise model, in practice different types of legal structures can be used to co-ordinate the activities of the parties.

In most cases, pure contractual instruments are deployed and, in such cases, the contractual network does not imply the creation of an independent legal entity. Some examples here include the networks formed through contractual joint ventures and, most commonly, through consortiums in the legal systems, as in Brazil, where this legal institute is regulated as a contract.

However, multilateral contracts can also generate more structured forms of co-operation, which present organisational characteristics, such as the consortium in the Italian legal system. In fact, according to Article 2620 of the Italian Civil Code, the consortium gives birth to a *common organisation*, and is not considered only as a contractual agreement. Another example is the European Economic Interest Grouping (EEIG) introduced by Council Regulation 2137/85.<sup>57</sup>

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<sup>56</sup> As affirmed by Cafaggi, “Multilateral contracts constitute networks when the level of interdependence among performances is such that the contract is not easily divisible and the purpose would be frustrated if one party does not or cannot perform and cannot be substituted. Parties’ obligations in contractual multiparty networks are mutually dependent and not easily severable. Not only is each party’s obligation dependent upon all the others but substitutability is difficult and costly.” F. Cafaggi, ‘Contractual networks and contract theory: a research agenda for European Contract Law’, in F. Cafaggi (ed), *Contractual Networks, Inter-Firm Cooperation and Economic Growth*, *op. cit.* p. 88.

<sup>57</sup> See F. Cafaggi, ‘Contractual Networks and the Small Business Act’, *op. cit.* p. 514.



In other cases, although the parties maintain their independence, a completely new entity is created, such as a limited liability company. Often this choice is made due to the inadequacy of the contractual instruments to govern the network structure and comply with its exigencies, forcing the parties to resort to company law, which, as already mentioned, presents significant limits to the governance of the network model.<sup>58</sup>

The lack of a proper legal tool to govern contractual networks may pose significant problems, which may limit its utility and restrict its function as an instrument of access to new GVCs, as we can see in the Brazilian aircraft industry example.

#### **IV. ACCESS VIA NETWORKS IN THE BRAZILIAN AIRCRAFT INDUSTRY: THE CASE OF THE CONSORTIUM, *HIGH TECHNOLOGY AERONAUTICS***<sup>59</sup>

##### ***IV.1. The Brazilian Aircraft Industry and the “Emancipation” of its SMEs***

The Brazilian aircraft industry provides an interesting example not only of the use of the contractual network as an instrument to access GVCs, but also of the *problématique* regarding its regulation.

In the last three decades, the aerospace sector has grown significantly in Brazil. Although the sector is still principally connected to the main Brazilian aeronautic producer *Embraer (Empresa Brasileira de Aeronáutica S.A.)*, in recent years, there has been significant growth also among new small and medium firms, which specialised in the supply of high-tech components and services. With the recent introduction of such components and services into the different GVCs, Brazil is becoming part of this global market, increasing its exportation of these new niche products and services.<sup>60</sup>

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<sup>58</sup> As affirmed by G. Teubner, “company law is inappropriate for market networks, since the pooling of resources and joint decision-making do not suit the decentralized network structures.” G. Teubner, ‘Coincidentia Oppositorum’, *op. cit.* p. 11.

<sup>59</sup> For a complete overview of the HTA case study, see F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

<sup>60</sup> For a more substantial overview, see R. P. Dagnino ‘A indústria aeronáutica. ECIB – Estudo da Competitividade da Indústria Brasileira’, *Nota Técnica Setorial*, IE/Unicamp/FINEP/PADCT, Campinas, 1993; ABDI, *Estudos Setoriais de Inovação: setor aeronáutico*. Belo Horizonte, 2009; R. Bernardes, M. Pinho, ‘Aglomeración e Aprendizado na Rede de Fornecedores Locais da Embraer’, Research Report, Redes de Sistemas Produtivos e Inovativos Locais, University of Rio de Janeiro, Rio de Janeiro, 2002.

A key development in the Brazilian aerospace sector occurred with the privatisation of *Embraer* in 1994, which was acquired by a consortium of local enterprises and pension funds led by the *Bozano Simonsen* Group. Following the privatisation, *Embraer* has passed through the process of vertical dis-integration and re-structuring of its production organisation, in conformity, as already mentioned, with a wider global trend. It led to the focus on its core activities as system integrator,<sup>61</sup> to an increase in its outsourcing of peripheral activities and the re-structuring of its supply chain into three levels of collaboration: risk partners, suppliers, and sub-contractors.<sup>62</sup> It results in *Embraer* being one of the largest commercial aircraft manufacturers in the world (the fourth largest western aeronautics firm, after *Boeing*, *Airbus*, and *Bombardier*).<sup>63</sup>

One of the most important consequences of *Embraer*'s vertical disintegration was the promotion of the establishment of new enterprises to be its suppliers and main sub-contractors. Most of them are owned by former *Embraer* employees who lost their jobs during the privatisation, and were created with the direct support of the MNC for the supply of parts and services, such as machine parts, printed pieces, composite material, engineering, software, management, thermal treatment, *etc.*<sup>64</sup>

These new firms were initially predominantly small- and medium-sized family-run enterprises, characterised by significant fragilities.

Their relationship with *Embraer* occurred mainly through a direct sub-contract system, in which *Embraer* provided the raw materials, moulds, specifications and designs,

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<sup>61</sup> *Embraer*'s strategy became based on the added value principle and therefore the focus was not on being able to produce a whole aircraft from scratch, but on the capacity of combining and adapting subsystems according to the needs of the projects. Lima *et al.* J. C. Lima, M. A. Pinto, M. N. Migon, G. C. Montoro, M. F. Alves, 'A Cadeia Aeronáutica Brasileira e o Desafio da Inovação', *BNDES Setorial*, 21 (2005), p. 45.

<sup>62</sup> On the restructuration of the *Embraer* production organization, see R. Bernardes, M. Pinho, *op. cit.*, R. Bernardes, 'O caso Embraer – privatização e transformação da gestão empresarial: dos imperativos tecnológicos à focalização do mercado', *Cadernos de Gestão Tecnológica*, 46, CYTED, PGT/SP, São Paulo, 2000; Quadros, *op. cit.*

<sup>63</sup> UNCTAD, *op. cit.* p. 6.

<sup>64</sup> *Ibid.*, 68. Nowadays the Brazilian Aerospace Industry is the largest in the Southern Hemisphere, with more than 70 SMEs (based on 2007 data). They offer a variety of products, including airplanes, helicopters, structural segments, engines, aircraft/engines components, on-board systems and equipment, and air traffic control systems. Maintenance, repair and overhaul (MRO) services are provided to civil and military aircraft of all sizes including major checks, structural modifications, as well as engine and components overhaul. In addition, some Brazilian firms are FAA Approved Repair Stations and EASA Approved Maintenance Organizations (AMO). In: Brazilian Aerospace Industry, [http://www.aiab.org.br/english/index.php?option=com\\_content&task=view&id=13&Itemid=26](http://www.aiab.org.br/english/index.php?option=com_content&task=view&id=13&Itemid=26).

and the SMEs undertook activities such as machining, printing, and parts assembly, charging on employee-hour or machine-hour basis.

They usually participated almost exclusively within *Embraer's* production chain in a relationship characterised by its high dependence. For most of the SME sub-contractors, around 90 per cent of their revenues come, or used to come, from the relationship with the anchor enterprise.

This dependence on one main MNC makes the SMEs extremely vulnerable.

Although the international market for intermediary input in the aerospace industry had grown significantly in the last decades after the de-verticalisation of the main firms in the sector, which presented a great opportunity for growth, most of the Brazilian SMEs were not able to access the international market through other GVCs. In fact, although the global trade of components for the aerospace industry, including the value of the services provided in the sector, such as those related to the manufacturing of components, assembling, surface treatment and machining, reaches around 35 billion USD per year, the participation of the Brazilian SMEs in this amount was almost zero.<sup>65</sup>

In the last two decades, however, the situation has evolved significantly, and Brazil has started to take its first steps towards the promotion of the access of its aircraft-industry SMEs to the international market. In fact, the SMEs in the sector started to adopt new strategies in order to insert themselves in the international market through the GVC of other aircraft producers or sub-system manufacturers.<sup>66</sup> In this process, they could also count on government support, especially through the BNDES (*Banco Nacional do Desenvolvimento Econômico e Social* – National Bank of Economic and Social Development)<sup>67</sup>, the ApexBrasil (*Agência Brasileira de Promoção e Exportação de Investimentos* – the Brazilian Trade and Investment Promotion Agency),<sup>68</sup> and the ABDI (*Agência Brasileira de*

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<sup>65</sup> Data from the Brazilian Ministry of Science and Technology available at: <http://www.mct.gov.br>.

<sup>66</sup> F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, T.A. *op. cit.* p. 19.

<sup>67</sup> The BNDES is a company wholly owned by the federal government and supervised by the MDIC – Development, Industry and Commerce Ministry. It has been the main Brazilian long-term financial bank since its foundation in 1952, investing in all segments of the economy, within a policy that includes social, regional and environmental dimensions. (BNDES website)

<sup>68</sup> Apex-Brasil is a private agency with public functions under the supervision of the Ministry of Development, Industry and Foreign Trade (MDIC) created to (1) promote exports of Brazilian products and services; (2) contribute to the internationalization of Brazilian companies; and (3) attract foreign investment to Brazil (Apex website).

*Desenvolvimento Industrial* – the Brazilian Agency for Industrial Development).<sup>69</sup> In fact, the development of the national suppliers with a global reach, and an increase in the exportation of parts, structures and aeronautic systems, have become two of the five specific goals of the government’s industrial policy stipulated for the sector in the Aeronautic Production Development Policy (PDP).<sup>70</sup>

Among the different modes of access promoted and undertaken by the Brazilian SMEs,<sup>71</sup> there is the contractual network. In fact, a very interesting experience in the sector was provided by the creation of a multilateral contractual network among the Brazilian SMEs: the “consortia to export” entitled *High Technology Aeronautics* (HTA).

#### **IV.2. The High Technology Aeronautics (HTA)**

The HTA represents an enterprise network created by a group of Brazilian SMEs in the aeronautic sector, with the aim to co-ordinate their activities in order to achieve two common objectives: to access the international market through other GVCs, and to achieve a better position in *Embraer*’s GVC, becoming a direct supplier, instead of a sub-contractor.<sup>72</sup>

Because of the high dependence on a single client, and the vulnerability that characterized the relationship among most of *Embraer*’s sub-contractors, a group of 8 SMEs, direct sub-contractors to *Embraer*, decided to join together, maintaining, however, their status as independent legal entities, but creating a network to facilitate their access to new GVCs and, therefore, decreasing their dependency on the single client. In the year 2000, *High Technology Aeronautics* was born.<sup>73</sup>

It is important to mention that the idea of creating a network as an instrument to promote the access of SMEs to the external market was at the base of the ApexBrasil

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<sup>69</sup> The Brazilian Agency for Industrial Development (ABDI) is a private agency with public functions that has as its main objectives to provide a network that brings together federal ministries, state funding agencies, private sector representatives, civil society, and universities to promote technological and economic development in sectors of Brazilian industry.

<sup>70</sup> This specific industrial policy established 5 goals to be achieved in the aeronautic sector: (i) maintaining the third position in the global market of commercial airplanes; (ii) doubling the global participation in executive airplanes until 2015; (iii) consolidating Brazil as a centre of production and maintenance of helicopters for/in South America; (iv) developing national suppliers with a global reach; (v) increasing the export of parts, structures and aeronautic systems.

<sup>71</sup> The strategy of merging to access alone was supported particularly by the BNDES.

<sup>72</sup> HTA Statute.

<sup>73</sup> HTA interview. See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.* p. 34

programme, titled *Consórcio de Exportação* – “Export Consortia”, within which the HTA itself was formed and received important support.

The *Consórcio de Exportação* programme was created by ApexBrasil in 1999, with the aim of “sustainably [promoting an] increase of Brazilian exports, by improving the exporting capacity of SMEs, increasing the number of new exporting companies and creating conditions for a cultural change in the development of companies’ strategic plans”.<sup>74</sup>

According to the ApexBrasil project, export consortia constitute the most intelligent way for most of the SMEs to export, and the best instrument through which SMEs can optimise their efforts to produce and commercialise their products on the international market.

According to ApexBrasil, in fact, the export consortia allows the SMEs to keep their independence in the domestic market, on the one hand, and to benefit from the consortia’s operational efficiency and low production costs, on the other, thus being able to export their products to different markets, even competing with bigger suppliers.

ApexBrasil not only promoted the creation of a network model, but also gave important support for its development, both with legal, administrative and knowledge support, within the structure of the government agency, as well as important financial support.<sup>75</sup>

The creation of a network such as that suggested by ApexBrasil played a fundamental role in allowing SMEs in Brazil to access new GVCs.<sup>76</sup>

At first glance, the network model allows a considerable reduction in the costs to be undertaken by individual firms in order to be able to access the international market. In fact, on their own, each SME would have had to invest individually in order to participate in international fairs (considered to be of particular importance in establishing and developing contact with new MNCs), to undertake an international marketing strategy, to administer the

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<sup>74</sup> ApexBrasil, *Consórcio de Exportação Project*. Published at *Diário Oficial de 9 de Maio de 1999*, n. 94, seção 3, pp. 65-66.

<sup>75</sup> Once the project was approved, Apex-Brasil would support the consortium through three phases: a) the definition of composition, with activities of evaluation and selection of the firms b) the creation of legal and administrative activities for the formation of the consortium and c) the maintenance of activities to consolidate and strengthen the consortiums, with a focus on actions to improve export supply and export promotion activities. Once all of the requisites were met, ApexBrasil would financially support the consortium to export for the first three years (in general, ApexBrasil would enter with R\$ 1, for each R\$ 1 invested by the SMEs), and then, for each additional year, a separate plan was required to be sent for additional financial approval.

<sup>76</sup> See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

new international contracts, to develop a logistics department, *etc.* Most of these are fixed costs that could be shared among the other firms of the network, and which would also be significantly decreased through the support of ApexBrasil.<sup>77</sup>

But one of the most important aspects is that the network form also allows the SMEs to supply jointly a more complex product to MNCs, even an entire sub-system, produced through the complementary performance of the parties. In this case, each participant is responsible for a part of the production, according to its capabilities and competences. In the commercial aircraft industry, this represents an important issue, in convergence with the MNCs exigencies which, as already mentioned, have changed their strategy by giving preference to the supply of complex and complete products, abandoning their direct relationships with the suppliers of small parts or partial products.

Thus, the idea is that, through the network, the SMEs of the aircraft sector can combine their capabilities, share investments, and together meet the thresholds designed by the MNC, not only to access new GVCs, but also to achieve a better position in the supply chain. From the sub-contractors of small parts or services, the SMEs can become a direct supplier or, as aimed at by the HTA, even a risk partner, which, undoubtedly, represents a much more beneficial form of relationship in the supply chain.<sup>78</sup>

Within this perspective, the HTA was created with the aim of operating as an intermediary between the individual SMEs and the foreign contractors, and to then coordinate all the activities regarding the contract and the production to be performed among the individual parties.<sup>79</sup>

The HTA represents a common brand to be promoted in the foreign market. In its original plans, it would make direct contact and sign the contract directly with the client,<sup>80</sup> and would then sub-contract the production to the members individually.

The contract could both be related to a specific product and/or service, which one single party could perform individually, or could, as mentioned above, be related to a product to be produced through the complementary input of several parties. The performance of the

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<sup>77</sup> T. Quintanilha, M. Almeida, 'Redes Sociais e Empreendedorismo em Pequenas Empresas de Base Tecnológica no Brasil', *Revista Digital Efdeportes*, 13 (119) (2008) p. 13.

<sup>78</sup> F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

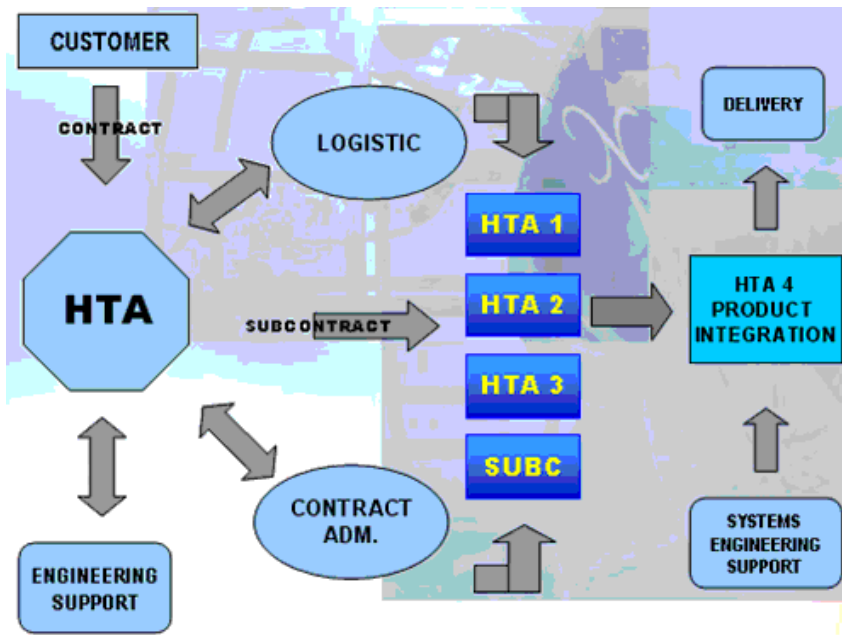
<sup>79</sup> *Ibidem*

<sup>80</sup> HTA Statute, Article 30.

contract would, therefore, be provided by the members separately, co-ordinated by the HTA. The selection of the contractual performers by the HTA would occur through an internal competitive process based upon the best bid, as the consortium was formed with SMEs of complementary ability, as well as competitiveness.<sup>81</sup> (see Figure 1 below)

Among the co-ordination activities provided by the HTA, there are, according to its statute: the control and administration of contracts; the technical management of projects; the marketing and the sale of the products and services compatible with the capabilities of the parties; as well as aspects regarding the general logistics; import and export; acquisition of equipment and raw material; and to acquire the complementary products or services of other suppliers not available among the HTA members.<sup>82</sup>

Figura 1. Principal Fluxo de Operação



Fonte: HTA - High Technology Aeronautics

<sup>81</sup> T. Quintanilha, M. Almeida, *op. cit.* p. 16.

<sup>82</sup> HTA statute.

### ***IV.3. The Legal Structure of the HTA***

The name adopted by the ApexBrasil programme “exporting consortia” would lead us to think that the legal form to be adopted by the network promoted by the governmental agency would be exactly the “consortium”.

The consortium is recognised, in fact, by the Brazilian legal system and is regulated by the law 6.404/76 of the “*Lei das Sociedades por Ações*”. The two articles dedicated to this legal form basically limit themselves to establish (i) its definition as a contractual agreement among enterprises which have the aim of undertaking a specific project; (ii) the lack of legal personality; (iii) the lack of joint liability of the participants to third parties, unless otherwise established by the contract; and (iv) the formal elements that the contract may contain. The lack of appropriate legal support of the consortia in Brazil is widely recognised.<sup>83</sup>

ApexBrasil, however, did not recognise the consortia, as established by the Brazilian legislation, as the best legal tool to govern the model of networks proposed. It established in its project its own definition for “*consórcio de exportação*”, as a “plurality of enterprises with common interest, grouped together in an entity legally established”, and has defined that this entity would have to adopt the legal form of a non-profit association, through which the enterprises would have the “mode to work jointly and co-operate to pursue the common objectives of improving and promoting their exporting activities”.<sup>84</sup>

The non-profit association is regulated by the Brazilian civil code (Articles 1093-1096) and by the Constitution (*Constituição Federal*, Article 5, XVII-XXI). Unlike the consortium, however, it has a distinct legal personality, and an administrative structure, with administrative and deliberative organs. It also has a formal statute, which establishes the obligations and rights, both on the part of the members and of the association.

Therefore, according to ApexBrasil, the association constituted the most suitable legal tool to govern the “*consórcio de exportação*”.

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<sup>83</sup> It is interesting to note that in 2006, the Brazilian Congress passed a general law for SMEs (LC 123/2006), which, in the art. 56, provided the creation of new form of consortia: the “*consórcio simples*”. It was directed to SMEs that adopted the “*Simples*” national tax regime, and had as its aim precisely to increase competitiveness and the SMEs’ entry into new domestic and foreign markets through economy of scale, cost reduction, strategic management, easier access to credit and new technologies. However, there was only a single provision and the “*consórcio simples*” was poorly regulated, generating a high level of uncertainty. In 2008, the Lei Complementar 128/08 changed this provision, eliminating the “*consórcio simples*” and replacing it with a different legal instrument, the SPE (“*Sociedade de Propósito Específico*”).

<sup>84</sup> ApexBrasil Consórcio de Exportação project, *op. cit.* p. 66.



However, in practice, this was not what happened in the case of the HTA. Practice demonstrates that the legal form of a non-profit association was incapable of being adapted to all the functions and activities that the HTA was expected to perform. Most of them, indeed, were specifically commercial and profit-aimed activities, which were incompatible with the non-profit association regime, which does not allow the distribution of any of the profits among its members. As a non-profit association, the aim of the HTA to sign the contract directly with the MNC was also compromised.

In order to perform all the above-mentioned activities, other than a non-profit association requested by the ApexBrasil programme, the HTA members also had to establish a limited company (the “*HTA Indústria Comércio Importação e Exportação Ltda*”) because of the difficulties of the associational model.

This new company was formed with 99% of its shares by the “non-profit association” HTA, and 1% was owned by its former president, as, prior to 2011, the single-member limited company was not recognised by the Brazilian legal system.<sup>85</sup>

According to an interviewee, the first idea was to establish a limited company among all the HTA members. However, this solution appeared too risky and inappropriate, both under the liability regime of the limited company, and with regard to the pooling of resources and the procedures of joint decision making. The solution found by its members, therefore, was to make a non-profit association, which was almost the single/sole owner of the limited liability company.<sup>86</sup>

In this way, the HTA had to resort to a complex legal architecture to govern the contractual network using non-profit models combined with companies, because of the inadequacy of the Brazilian legal framework.

#### ***IV.4. Successes and Quiescence of the HTA***

The HTA played a significant role in promoting access to the international market and to new GVCs for most of its members. However, it did not succeed in achieving all its aims. In fact, while, initially, the HTA was envisaged to play a direct role, as it was to sign the contract

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<sup>85</sup> HTA interview.

<sup>86</sup> In this sense, 99 per cent of the profit earned by the limited company went to the non-profit association. As it could not be distributed among its members, a reserve was established to be used to deduct the monthly fee that each member would have to pay and also to finance the consortium after the end of the APEX support (that was, in general, provided, for the first three years).

directly with the MNC and then co-ordinate its performance among its members, it, instead, ended up having the function of an intermediary, with foreign firms concluding supply contracts directly with the individual firms.<sup>87</sup>

Among the successes of the Brazilian network, we can mention a contract signed directly between the HTA and the EADS/CASA, within an offset agreement promoted by the Brazilian government.<sup>88</sup> The ten-year contract, for the supply of parts, was signed directly by the HTA and the production was sub-contracted among some of its members, in particular, the *Autômata ThyssenKrupp Industria de peças Ltda* and *Grauna Aerospace S.A. (Grauna)*. In fact, through this contract, these Brazilian enterprises were able to gain access to a new GVC via the network.<sup>89</sup> Although access to the EADS/CASA GVC did not proceed exactly as was initially expected, the network model adopted by the HTA was evaluated both by the *EADS/CASA* and the Brazilian Ministry of Development Trade and Industry (MDIC), as an excellent one for the assignment of compensation schemes within offset agreements.<sup>90</sup>

With regard to the aim of upgrading in *Embraer's* supply chain, becoming a risk partner, the HTA was not successful. However, it is important to mention that the HTA almost achieved this aim.

The HTA, in fact, participated in *Embraer's* selection for the PHENON programme to supply the central fuselage. Their proposal was second to ENAER's after the initial selection procedure. Although both started to work in a joint project, it was a change of strategy on the part of *Embraer*, which decided to produce this system internally, that ended the project. In fact, according to the HTA ex-president, the network had the technological and administrative capacity to perform the series of activities involved in being a sub-system integrator.

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<sup>87</sup> F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

<sup>88</sup> The contract agreed between HTA and EADS/CASA, was part of an offset agreement established by the Brazilian Minister of Defense for the acquisition of light airplanes for transportation (C-295BR) from the European group. Among the compensation required, such as transfer of technology and the provision of support to the Brazilian company ELEB in selling its products to other enterprises of the group EADS, it was specifically requested that the EADS had to buy parts manufactured in Brazil to the amount of at least US\$ 30 million (BNDES website).

<sup>89</sup> Some factors, such as the financial crisis of 2009, that strongly affected the sector, in fact, significantly reduced the purchased orders from the EADS/CASA, and consequently the benefits of the contractual agreement for the Brazilian SMEs.

<sup>90</sup> MDIC interview.

Although HTA did not completely succeed in its aims to provide directly for the insertion into new GVCs, its role as an intermediary was fundamental for the success of many of its members to (i) access other GVCs, (ii) to acquire a better position in other supply chains and (iii) to reduce their dependence on *Embraer*.<sup>91</sup>

A significant case is that of the *Grauna Aerospace S.A.*, one of the founding members of the HTA. Through its participation in the HTA it was able to sign direct contracts and access the GVC of other MNCs, such as *Pratt & Whitney*, *ASCO*, and *TESCO*, most of them as a supplier and not as a subcontractor. All these MNC, in fact, first approached the HTA, and successively chose *Grauna*, allowing the company to access these GVCs and acquire many of the benefits that, as mentioned before, the access to the international market through GVC can bring to SMEs of developing countries.<sup>92</sup> The joint market, participation in international fairs, the support of ApexBrasil, and many other activities co-ordinated by the network, were fundamental for the success of the company in accessing new GVCs.

#### ***IV.5. Analysis of HTA Difficulties and Quiescence***

Many causes contributed to undermine HTA's aim of playing a more direct role as a direct contractor with the MNC and to its quiescence. In fact, although the HTA still formally exists, it no longer operates in practice. The causes range from external ones, such as (i) the end of the ApexBrasil Programme in 2009,<sup>93</sup> which was considered to be one of the main causes of its quiescence, as, without the financial support of the agency, the cost of the consortium for its members doubled, becoming too high for some of its members, and (ii) the

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<sup>91</sup> See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

<sup>92</sup> The benefits of *Grauna's* access to other GVCs were many and of great importance. The access to *Pratt & Whitney* GVC, for example, allowed *Grauna* to learn about new technologies and know-how. This new knowledge, not only allowed *Grauna* to have a product up-grade (to supply higher added value and complex components) but also an inter-sectorial upgrading. In fact, in this case, the Canadian company transferred to *Grauna* the technology necessary to deal with a nickel alloy. This transfer of technology allowed *Grauna* to produce for other sectors, such as for the petroleum industries, which also demand this kind of high technology. Another very important benefit of the company access to other GVCs is the diminished dependence on *Embraer*. The actual production output of *Grauna* can currently be divided as 65% to *Embraer*, 25% to *Pratt & Whitney* and 10% to other MNCs (such as *ASCO* from Belgium and *FAAC* from Austria) and to other economic sectors (such as the industry of petroleum and defense). See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.*

<sup>93</sup> His decision was a result of a restructuring of Brazilian agencies' policies that, due also to resource problems, decided in all sectors of the economy to give priority to Integrated Sectorial Programs (PSI) of national range. Therefore partnerships with associations that represented entire sectors of the economy were prioritised.

significant crisis that the entire sector has faced since the 2009 financial crisis, which led to breach of contracts, the reduction and suspension of product orders (such as those from EADS/CASA) and, together with the devaluation of the dollar which made Brazilian products more costly for international buyers, decreased the probability of achieving new international supply contracts and significantly reduced the revenues generated from those already in existence.<sup>94</sup> But they also comprise causes related to the regulation and governance of the HTA, in particular, from a law point of view, the inadequacy of the legal tools deployed to govern the network.

The HTA experience is a significant example of the difficulties regarding the lack of a proper legal tool to regulate the hybrid form of organisation that characterises the contractual networks.

In fact, the combination of non-profit association with a limited liability company, which is almost 100 per cent owned by a non-profit association, formed by several limited liability companies, worked as a hindrance for the contractual relationship between the HTA and the MNC.

Practice demonstrated that the MNC did not feel sufficiently secure in establishing a contract with a company formed essentially by a non-profit association, without any significant assets, and also without knowing at the outset the party who would effectively be responsible for the production of the components.

Factors regarding its governance can also be pointed out. Being formed by SMEs that were engaged in competitive activities, the competition process for the sub-contracting mainly favoured enterprises with better structures and higher production capabilities, to the detriment of smaller ones, which became dissatisfied.<sup>95</sup>

It is important to mention, however, that, despite the difficulties faced by the HTA and its actual quiescence, most of the public and private actors in the sector (such as the BNDES, the ABDI, MDIC, and HTA's ex-president, and some of its members) believe that the network is a valid model. With some alterations to its governance structure, with the

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<sup>94</sup> See F. Cafaggi, L. F. J. Swensson, R.P. Macedo Junior, C. P. Gross, T.A. Silva, L. G. Almeida, T.A. Ribeiro, *op. cit.* pp. 38-39.

<sup>95</sup> MDIC interview.

appropriate public support, and adequate legal framework, it could be an efficient instrument to facilitate the access of the Brazilian SMEs to new GVCs in the aeronautic sector.<sup>96</sup>

In fact, the network model is still promoted by the Brazilian government through a new programme between ApexBrasil and CECOMPI (Competitiveness and Innovation Centre of the Northeast Region of São Paulo State), which has, as one of its main goals, the development of “collaborative networks” in order to allow the SMEs to supply a complete and more complex final product to MNCs and to acquire a better position within the GVC.<sup>97</sup>

## **V. CONCLUDING REMARKS**

Although the network phenomenon has existed as an economic reality for decades, it still poses many challenges to the law. The issues regarding its legal form and the instrument to regulate, or even locate, this complex phenomenon among the concepts of traditional law, is the subject of discussion among many international scholars.

In fact, finding itself at the intersection between contract and organisation, none of these two traditional private law concepts are able, alone and in their traditional conception, to explain entirely, and adequately regulate, the different types of networks that are present in practice.

The HTA is, in fact, an excellent example of these difficulties, which can also be found in the Brazilian legal system. In fact, although the network phenomenon is explicitly promoted by public programmes, the ApexBrasil project demonstrates the difficulties of finding an effective framework to regulate the inter-firm collaboration proposed. Despite the official name “export consortia”, the “consortia” was not the legal form chosen, but instead a “non-profit association”.

The inadequacy of the choice, at least in the HTA case, is demonstrated by the network’s necessity to adopt a second legal structure to perform its activities, the limited liability company, which was also an operation performed in order to bypass the non-recognition of the single member company, at that time, by the Brazilian legal system.

However, even the limited liability company did not turn out to be the best legal framework for the pursuit of HTA’s aims. In fact, practice demonstrates that the MNCs did

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<sup>96</sup> ABDI, MDIC, HTA interviews.

<sup>97</sup> ApexBrasil-CECOMPI’s PSI contract for 2011/2012. Currently, most of the HTA members participate in the CECOMPI programme with ApexBrasil, which undertakes some of the activities once performed by the HTA, such as participation in international fairs.

not feel secure enough to conclude contracts with a company formed by a non-profit association, with no particular assets, without particular guarantees and without the possibility of knowing beforehand and assuring the liability of the individual enterprises effectively in charge of production.

This can be attributed, in fact, to be one of the main causes of the partial failure of HTA as a direct contractor and in gaining direct access to GVCs. Nonetheless, it played a fundamental role in promoting the access of its associates.

The HTA example demonstrates, on the one hand, the difficulties of the proper regulation of the network phenomenon, and also, on the other, the utility of the model, especially to allow SMEs to take advantage of the opportunity that the recent changes in the global production organisation had brought to a developing country, also represented by the access to new GVCs.

These assertions lead us to affirm the urgency of the development of a proper legal framework for the network model, translated into the recognition of its hybrid characteristics and the consequent adaptation of the traditional contractual theory to encompass the particularities of the model.<sup>98</sup> In developing countries such as Brazil, networks can play an important role in helping these countries to participate in the international market, in allowing its enterprises access to new GVCs, and, therefore, in taking advantage of the opportunities for development that it embraces. A proper legal framework for the network model, however, is fundamental for these achievements.

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<sup>98</sup> For a similar observation regarding the European context, see F. Cafaggi, Contractual Networks and the Small Business Act , *op. cit.*

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