Logistics service providers offering specialized fine-art logistics solutions: case study analysis

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Abstract:
The logistics activities regarding the movement of fine art have grown considerably in value, volume and complexity at global level, confirming its strategic and economic importance, referring both to art of ancient and priceless artistic heritage, and also the one by modern and contemporary artists. Those activities require considerable competence and extreme quality: specialized logistics solutions offered by specific logistics service providers (LSPs) are needed. The aim of the research is then to investigate what are the specialized solutions currently offered in fine art market by LSPs. Solutions for the movement of fine art were collected from the main LSPs on the field, analysed through a qualitative content analysis, and classified in an original framework. This study may be of particular interest to both academics and professionals in logistics and supply chain networks serving fine art markets.

Key words: Specialized logistics services; Fine-art logistics; Logistics service providers (LSPs); Supply chain network

Research paper

1. Introduction

The logistics outsourcing industry has experienced tremendous growth, intense competitive challenges, and more complex network relationships (Barker et al., 2021). So that to remain competitive, logistics services providers (LSPs) must continually develop capabilities and adapt their service portfolios in a wider service offering in scope: moving from "simply" offering transportation services to extended and integrated services as warehousing, contract carriage, supply chain consulting, including various and numerous complementary logistics functions (Semejin and Vellenga, 1995; Vaidyanathan, 2005; Maloni and Carter, 2006; Markides and Holweg, 2006; Rajesh et al., 2011; Grawe et al. 2012; Coyle et al., 2016; Marchet et al., 2017; Cozzolino, 2021, 2012, 2009). LSPs that aspire to become crucial partners moving towards more strategic and customer-facing services need to module their offering as "one-stop shop" solutions for their customers logistics needs, both if they offer very specialized functional services and more complete integrated solutions (Barker et al., 2021; Cozzolino, 2021, 2012, 2009).
In this competitive context tremendously specialized kind of logistics services and solutions have grown considerably in value, volume and complexity at global level: they are the activities regarding the movement of fine art, referring both to art of ancient and priceless artistic heritage,

and also the one by modern and contemporary artists. Despite the growing volumes and values surrounding the logistics of art, the attention of the specialized publications, the declarations of many professionals inside the sector on the crucial value of the logistics in the movement of art (as reported in Global Fine Arts Logistics Market 2021 by Cognitive Market Research, 2021; in Art & Finance Report by Deloitte, 2021 and 2019; in The Art Market 2021 by Clare McAndrew; in Artprice 2019 by Artmarket.com; Maggi, 2019), however the academic literature on the specific focus of logistics services for art offered by LSPs is lacking. The aim of the research is then to investigate what are the specialized solutions currently offered in fine art market by LSPs. This study may be of particular interest to both academics and professionals in logistics and supply chain networks serving fine art markets. The investigation is mainly based on data from sector studies and from single cases of Italian LSPs acting in the business of fine art: this first explorative investigation on the topic may represent an opportunity to inspire interpretative and/or explanatory future academic research based on it.
The remainder of this paper is organised as follows. In Section 2, we present the background. We then describe the empirical investigation in Section 3, with the research methodology (3.1) and some results in terms of sector analysis (3.2) and cases of LSPs in Italy (3.3). The related discussion is offered in Section 4, together with some conclusive considerations, limitations and suggestions for future research.

2. Logistics service providers' offering

2.1. Logistics services and solutions in outsourcing

The literature on logistics service providers has detailed the variables that need to be taken into account for a better understanding of what kind of logistics services are offered in outsourcing (Cozzolino, 2012; Marasco 2008; Selviaridis and Spring 2007). Notably, some authors (Berglund et al., 1999; Persson and Virum, 2001; Hertz and Alfredsson, 2003) have proposed a segmentation of the logistics industry in terms of strategic differentiation which laid the foundations for the development of further research works after them:

- Berglund et al. (1999) distinguished logistics providers that offer "services" from those offering "solutions"; they also distinguished those that offer "basic logistics" from those offering "value-added logistics";
- Persson and Virum (2001) identified "physical asset-based" and "non-physical asset-based" (also called "system-based" or "management based") logistics providers; in addition, they identified "variety-based" and "needs-based" logistics providers;
- Hertz and Alfredsson (2003) recognized the "ability of customer adaptation" ("high" or "low") and the "general ability of problem solving" ("high" or "low") as variables to describe logistics providers.

These studies highlight the same differentiation criterion, distinguishing between logistics providers as supplier of "services", meaning activities that focus on a single segment of the logistics process, or "solutions", meaning activities with "end-to-end" perspective, on the entire supply chain (Cozzolino, 2012) [Table 1].
Of particular interest are those logistics providers who offer "logistical 'solutions'" (Chapman et al., 2003) - or service systems - aimed at solving specific logistical problems to their customers (B2B and B2C) and capable of combining operational efficiency with always higher levels of service satisfaction along the supply chain.

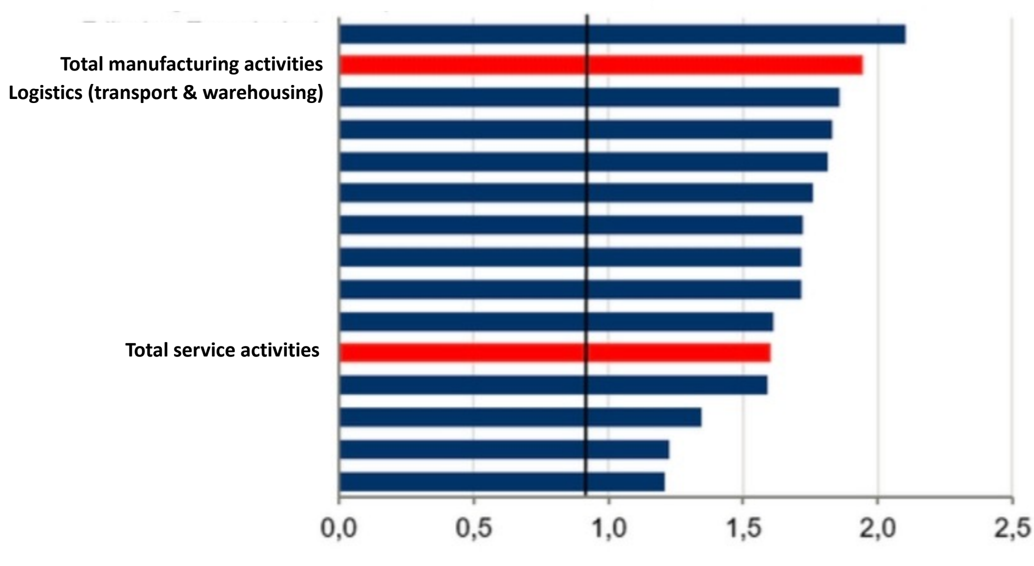
Table 1 – Strategic lines according to the definitions of Berglund et al. (1999), Persson and Virum (2001) and Hertz and Alfredsson (2003).

BERGLUND ET AL. (1999)	PERSSON E VIRUM (2001)	HERTZ E ALFREDSSON (2003)
Basic logistics Value-added logistics	Physical asset based Non- physical asset based	Low general ability of problem solving High general ability of problem solving
Services Solutions	Variety-based Needs-based	Low ability of customer adaptation High ability of customer adaptation

Source: Our elaboration from Cozzolino (2012).

The economic thrust of services in general and in particular those of logistics - with a focus on basic transport and warehouses services - is very important, also in comparison with manufacturing activities. Most service sectors, including logistics which is well above the total service average, are vital for other sectors (business-to-business) as well as for end consumers (business-to-consumer). Through a study reported by the Manageritalia Tertiary Observatory, and carried out with Oxford Economics, using the input-output tables that show the patterns of cross-sectoral purchases among all sectors of the economy, it is clear how important logistics services are, especially for business-to-business; the Figure 1 refers in particular to the Italian context in the most recent version which is from 2015.

Figure 1 - Incidence of the logistics sector compared to manufacturing and other services (in Italy).



Source: [*https://www.manageritalia.it/it/economia/spinta-economica-settore-servizi.*](https://www.manageritalia.it/it/economia/spinta-economica-settore-servizi)

Logistics companies serve a critical role in achieving effective logistics integration as well as intra- and inter-organizational connections for the members of the supply chain (Barker et al., 2021; Christopher, 2005). This is extremely useful in very complex logistics activities and when many different actors are involved in the supply chain. This is particularly important in a very specific sector: the one relating to the fine-art logistics, where LSPs deal with the movement of the works of art, whether it is from one museum to another or which is sold to a private individual, and they usually manage the collection, ending with the final installation where it is directed (Canali and Puglisi, 2005).

2.2. Logistics services providers offering fine-art solutions

LSPs in the fine art sector offer fine art logistics services to the market segmented into the macro-categories of transportation, packaging, storage and other accessorize services, including lugging transportation and security warehouses (Cognitive Market Research, 2021). LSPs are at a central point of contact with numerous other actors involved in the demand or offer of fine art logistics services. They serve a multitude of clients also with different characteristics and requests, and -in offering their services- they need to collaborate with other actors operating in the sector contributing to the composition of the fine-art logistics solutions. Moreover, they have to respect some important rules regulating the sector that has many different legal limits of circulation in case of the National cultural goods (Canali and Puglisi, 2005).

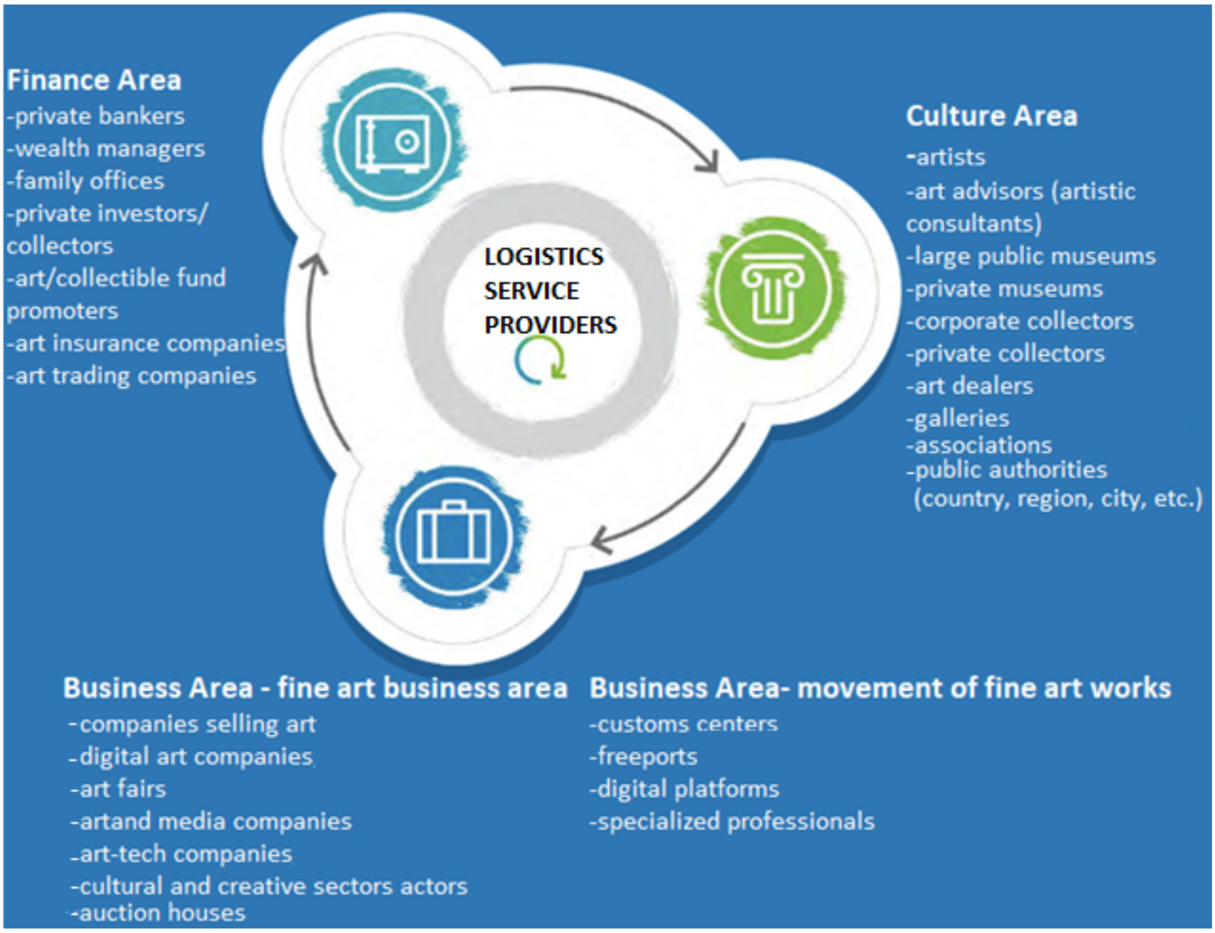
The other actors involved in the fine art business are: companies selling art; digital art companies; art fairs; art and media companies; art-tech companies; auction houses; cultural and creative sectors actors. They are intersected in their business of fine art with, at least, other actors belonging to the culture area, such as: artists; art advisors (artistic consultants); large public museums; private museums; corporate collectors; private collectors; art dealers; galleries; public authorities (country, region, city, etc.); also associations, that promote the art produced, help young artists to establish themselves on the market by making them known, organizing, for example, events, fairs, etc. These two sectors are interconnected with another important area related to finance interested in fine art, that also underlines how valuable is this business; the actors in this area are (Deloitte, 2019): private bankers; wealth managers; family offices; private investors/collectors; art/collectible fund promoters; art insurance companies; art trading companies.

The logistics service providers of fine art are uniquely positioned at the intersection of these three interconnected areas; and moreover, inside the area of business, they are in a central position in a sub-area related to the movement of fine art works, such as:

- customs centers, that as public body that deals with the entry and exit of goods from a territory of a nation pose regulations and procedures to be assured in the logistics service;
- freeports, that in addition to offering huge tax-saving potential, they also have controlled climates which ensure that high-value buyer works are protected in air-conditioned environments, usually under video surveillance and behind fire resistant walls, insured and monitored for a relatively low cost, i.e. the one in Ginevra that is huge;
- digital platforms, technological tools that allows to receive and compare offers for all services that revolve around the handling of works of art (Breidbach and Brodie, 2017);
- many other very specialized professionals that realize complementary outputs.

The Figure 2 synthetize the LSPs position. They play a pivotal role in this network, composed by clients, suppliers, partners, and other stakeholders.

Figure 2 – The fine-art actors' system.



Source: Our elaboration from Deloitte (2019).

So that LSPs are playing a central role in managing the movement of fine art around the world both for:

- primary art market, where the works of art come directly from the artist and are put on the market for the first time (also on-line);
- secondary one, where the purchase, exchange and sale takes place between private entities such as collectors or public entities such as museums.

3. Case study analysis: an Italian perspective

3.1. Case study approach

Case study is useful both in logistics/supply chain management topic, and in social sciences and management (Ellram, 1996; Voss et al., 2002; Patton and Appelbaum, 2003; Seuring, 2008; Stuart et al., 2002; Yin, 2003): this approach, more than other methods, facilitates an in-depth understanding of complex phenomena and also provides a better understanding of events regarding concrete context-dependent knowledge (Eisenhardt and Graebner, 2007; Voss et al., 2002; Yin, 2003; Flyvbjerg, 2006; Ridder, 2017).
The empirical investigation was based on sector data that illustrate the European outlook of the fine art sector (considering data from the Global Fine Arts Logistics Market 2021 by Cognitive Market Research) and on a qualitative desk analysis of Italian LSPs acting in the business of

fine-art (considering data from istitutional websites and public documents, searching through ICEFAT-International Convention of Exhibition and Fine Art Transporters Website, ARTIM Website, and completing on Google). The approach to the study of the cases is qualified as explorative and qualitative, and it may represent an opportunity to inspire interpretative and/or explanatory future research based on it.

3.2. The Italian outlook in European fine art logistics

Table 2 shows the European fine arts logistics market. In particular, in 2016 the European market was worth USD 428.80 million while in 2028 based on a forecasting it will be worth USD 586.24 million with an overall growth of 36.72% (2028/2016). The market records an annual growth rate of more than 3%, with the exception of the year 2020 (-4.35%) affected by the COVID 19 health emergency.

Table 2 - Europe Fine Arts logistics Revenue.

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
USD Million	428,80	442,69	457,44	473,08	452,50	453,39	466,95	481,57	497,93	516,27	536,87	560,07	586,24
YOY	3,12%	3,24%	3,33%	3,42%	-4,35%	0,20%	2,99%	3,13%	3,40%	3,68%	3,99%	4,32%	4,67%

Source: Global Fine Arts Logistics Market 2021 (Cognitive Market Research).

Tables 3 and 4 go more in-depth by considering the fine art logistics market relating to the main European countries, underlining the importance of Italy as the main value market in revenue, holding the highest revenue market share for all the years analysed from 2016 (20,59%) to 2020 (20,93%), and maintaining this record also in the forecasts up to 2028 (21,62). It does not surprise as Italy is cradle of history and art in an unrivalled manner. The second in position is France with 17,68% in 2016 and 17,95% in 2020, and a forecast of 18,79%.

Table 3 - Europe Fine Arts Logistics Market by Country Revenue, 2016-2028.

	Germany	France	UK	Italy	Russia	Spain	Rest of EU	Total
2016	58,27	75,81	70,37	88,29	61,45	22,43	52,18	428,80
2017	60,26	78,67	72,57	91,52	62,63	22,80	54,24	442,69
2018	62,36	81,70	74,90	94,96	63,89	23,21	56,41	457,43
2019	64,60	84,92	77,38	98,60	65,24	23,64	58,69	473,07
2020	61,88	81,64	73,94	94,70	61,61	22,27	56,46	452,50
2028	*81,19*	*110,15*	*94,97*	*126,75*	*72,05*	*25,56*	*75,57*	*586,24*

Source: Our elaboration from Global Fine Arts Logistics Market 2021 (Cognitive Market Research).

The data show also a growing historical and outlook trend for Italy, but also for the other countries: that confirming the interesting sector and its potential.

Table 4 - Europe Fine Arts Logistics Revenue Market Share (%) by Country, 2016-2028.

	Germany	France	UK	Italy	Russia	Spain	Rest of EU	Total
2016	13,59%	17,68%	16,41%	20,59%	14,33%	5,23%	12,17%	100,00%
2017	13,61%	17,77%	16,39%	20,67%	14,15%	5,15%	12,25%	100,00%
2018	13,63%	17,86%	16,37%	20,76%	13,97%	5,07%	12,33%	100,00%
2019	13,66%	17,95%	16,36%	20,84%	13,79%	5,00%	12,41%	100,00%
2020	13,68%	18,04%	16,34%	20,93%	13,62%	4,92%	12,48%	100,00%
2028	*13,85%*	*18,79%*	*16,20%*	*21,62%*	*12,29%*	*4,36%*	*12,89%*	*100,00%*

Source: Our elaboration from Global Fine Arts Logistics Market 2021 (Cognitive Market Research).

Furthermore, the overall market value per year in Europe can be considered by emphasizing the different types of services offered in Table 5: "transportation" is the most important service, and also the one that grows more than the others: it is followed by the "packaging" and "storage" ones. The transportation service actually refers to numerous other operations that allow the artwork to be effectively transferred from one place to another under very specific conditions. It is the very critical part of the entire fine art logistics: for each work of art transported it is essential to prepare a complete travel "project" (Canali and Puglisi, 2005). This consists of different phases – from the evaluation of the transportability of works of art, to the choice of means of transport, and others), and involves different professionals within and outside the company itself: influencing the complexity of the supply chain.

Table 5 - Europe Fine Arts Logistics Market (USD Million) Size by Type, 2016-2028.

	Transportation	Packaging	Storage	Other	Total
2016	203,72 (47,51%)	120,62 (28,13%)	69,72 (16,26%)	34,73 (8,10%)	428,79 (100,00%)
2020	217,72 (48,12%)	127,96 (28,28%)	71,56 (15,81%)	35,25 (7,79%)	452,49 (100,00%)
2028	*289,31 (49,35%)*	*167,55 (28,58%)*	*87,7 (14,96%)*	*41,68 (7,11%)*	*586,24 (100,00%)*

Source: Our elaboration from Global Fine Arts Logistics Market 2021 (Cognitive Market Research).

Table 6 shows Europe fine art logistics revenue market by application. The most important applications are in descending order the following: art dealers and galleries, museum and art fair and auction houses, and the others. Solutions are tailor-made and vary from work to work: they are individually created for each of these specific clients (Canali and Puglisi, 2005).

Table 6 - Europe Fine Arts Logistics Revenue Market by Application, 2016-2028.

	Art Dealers and Galleries	AuctionHouses	Museum and Art Fair	Others	Total
2016	175,89 (41,02%)	88,63 (20,67%)	130,04 (30,33%)	34,23 (7,98%)	428,79 (100,00%)
2020	190,65 (42,13%)	90,83 (20,07%)	140,03 (30,95%)	30,98 (6,85%)	452,49 (100,00%)
2028	*260,58 (44,45%)*	*110,98 (18,93%)*	*177,81 (30,33%)*	*36,87 (6,29%)*	*586,24 (100,00%)*

Source: Our elaboration from Global Fine Arts Logistics Market 2021 (Cognitive Market Research).

3.3. The Italian fine art logistics service providers

Table 7 shows the Italian LSPs. In particular, out of total 104 global LSPs found in our desk analysis, it was possible to identify 8 LSPs with headquarters in Italy.
The transportation service emerges as the most important, followed by packaging and storage services, and other complementary services, as also underlined from the data in Section 3.2 showing the more general Europe outlook. The most important applications refer to the same main group described in the previous section and in particular to art dealers, galleries and museum and following to art fair and auction houses. From the description of their services on the institutional websites emerges that each LSPs analysed is very specialized in fine art services, with an attention for a complete solution proposal for their clients.

Table 7 – The Italian LSPs cases.

ID	Short description	Main Services	Clients
2	*The company offers the transport service of works of art, dedicated both to private owners of goods with a high artistic value, and to museums, auction houses, art galleries, public bodies and companies that operate in the cultural field.*	Transportation	private collection, museum, gallery, artist's legacy or company collection
7	*Specialized in the management of transport in the exhibition field, of any kind, it offers the handling of goods including a section particularly dedicated to works of art, with constant monitoring of the goods and related safety procedures.*	Transportation	private collection, museum, gallery, artist's legacy or company collection
22	*The company personally takes care of all stages of the transport of works of art, from the handling of customs procedures and permits from the Superintendency and the Ministry of Fine Arts to the stipulation of a comprehensive "nail by nail" insurance.*	Transportation	private collection, museum, gallery, artist's legacy or company collection
30	*With passion and respect for this prestigious sector, the group has created a complete service that deals with the transfer, thanks to specialized means, of sculptures, installations, paintings and archaeological finds, so as to become a point of reference for international institutions and commissions. .*	Fine Arts and Art Exhibition Removal; Special Transportation; International transport; Relocation; Warehouse and storage facilities; Packaging	private collection, museum, gallery, artist's legacy or company collection
47	*Company specialized in the handling of works of art able to follow the path in all its delicate phases "from nail to nail".*	Transportation	Museums, Galleries, Artists, Collectors and Auction Houses
67	*For over twenty years we have been working to make life easier for our customers. A works transport company that also provides upon request the cataloguing of works and the creation of specific chronograms for transport logistics, as well as a series of additional services to implement the highest levels of effectiveness in the transfer of works of art from one place to another.*	Fine Art Logistics; Exhibition management; Handling and packaging; Storage and security; Transport and insurance; Showrooms; Specific services	Private Collector, Museums, Galleries, Artists, Collectors and Auction Houses, theatres
88	*Company with specific skills, equipment, vehicles and packaging. For packaging and safety measures, custom-made wooden crates or fireproof containers certified and approved according to standards are generally used. The*	Transportation	Museums, Galleries, Artists, Collectors and Auction Houses

	company equipment and vehicles allow perfect handling and transport: this is why they are equipped with hydraulic tail lifts, pneumatic suspensions and locking and alarm systems.		
93	*Company specializing in safe transport services, also offering its customers an internal logistics service and a warehouse with a covered warehouse of 4000sqm protected by private security and law enforcement. The pieces of particular value are kept in a 200sqm vault equipped with security and air conditioning systems, in order to ensure optimal conservation of the works.*	Transportation	Museums, Galleries, Artists, Collectors and Auction Houses

Source: Our elaboration from companies' institutional websites.

These preliminary results have helped at mapping some first insights on data and situations that concern the offering of fine art services by LSPs.

4. Some preliminary insights, conclusions and future directions

By matching the issues arising from the background and from the empirical analysis, it has possible to identify which are some preliminary insights that could be useful for both theory and practice and for academia and the business context; they tend to underline at least two important key implications, that deserve also to be more deepened in future research:

a) serving complete and composited-specialized logistics service solutions;
b) managing complex network relationships by system approach.

Referring to the service science focus (point a), also if it is not possible to generalise the results of this preliminary case study, we may propose a LSPs positioning inside the Assologistica and the Politecnico of Milan matrix (cited in Cozzolino, 2012) which distinguishes on the number of services offered, on the one hand, and the number of product categories served, on the other hand, so that four types of subjects emerge from the conceptualization:

- traditional category providers, those who perform a single family of activities for a single production chain;
- traditional providers, which carry out a single family of activities serving a variety of supply chains;
- logistics integrators, which perform for a single supply chain all (or almost all) the logistics activities;
- "global" logistics integrators, those who perform all the phases of the logistics process for a multiplicity of supply chains; with the "global" referring to both to the variety of services offered and breadth of the market served, increasingly also on international scenarios.

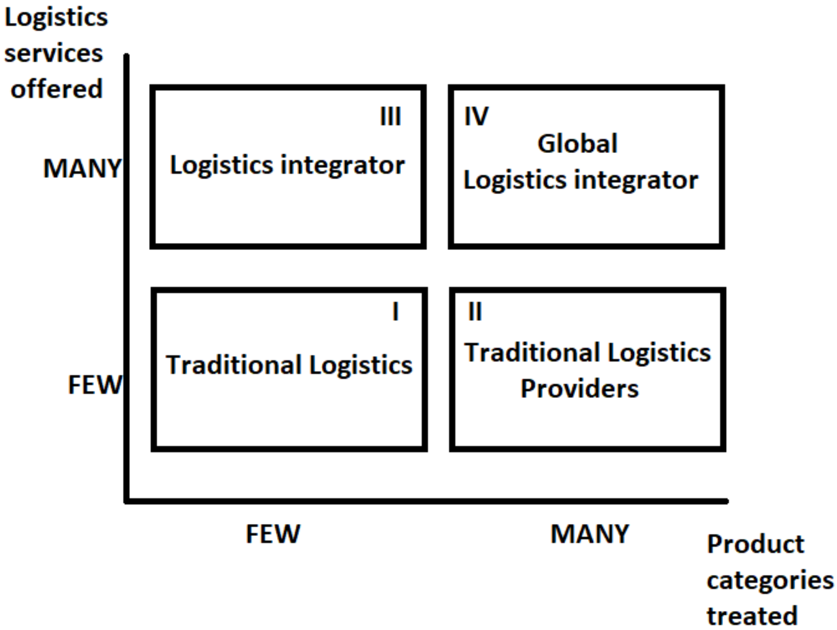
The LSPs offering fine art specialized solutions may collocated in (Figure 3):

- quadrant I, as simple contributor of a specific single service that should be composed to offer a complete solution;
- quadrant II, as the quadrant I as simple contributors of a specific single service that should be composed to offer a complete fine art solution, but differently they have the possibility to promote similar services for other "product categories" (i.e. removals business, fair or events ones);
- quadrant III, as fine art logistics integrators, capable to offer and manage a total fine art offering for their clients;

- quadrant IV, as global providers, but they have specific divisions for art business (so that we may say that specific division acts as quadrant III).

The most frequent and suitable positioning analysing the Italian sector seems to emerge the one in quadrant III, also if further research is needed to improve the generalisability of the findings related to this results in the fine-art logistics services.

Figure 3 - The positioning of the Logistics Service Providers providing fine art services.



Source: Our elaboration from Cozzolino (2012).

Referring to the system theory focus (point b), the cases analysed underline how the complexity of the network and the role played by LSPs in the sector need to be approached with a more holistic perspective, in terms of systems management (Barile and Polese, 2010; Mele et al., 2010; Vargo and Akaka, 2012; Carrubbo et al, 2017; Polese at al., 2018; Polese at al., 2021). That could be useful to the LSPs that can better compose their offering valorising both internally the single components and externally the other partners/suppliers contributions. In our opinion, one of the most significant options that management receives, compared to a business structure that develops more and more internally, is the opportunity to create coordination between the parties that tend to become autonomous, but which in any case have a strong internal synergistic effect (Wieland et al, 2012).

The network logic is both strategic (instrumental schemes), informational and value-based (Gebauer et al., 2010), which functions as a sort of symbolic meta code which the system appropriates to develop identity and at the same time preserve its own differentiation (Barile and Saviano, 2013). The interdependence between the different actors ensures an endogenous force capable of pushing the system towards a more or less acceptable rebalancing, but which in any case gives rise to something different than the initial problem from which it started (Barile et al, 2012; Barile et al., 2015). The advantages of networking are numerous (Barravecchia et al., 2018):

- allows you to adopt a strategy-oriented development method for managerial skills, and such as to ensure perfect homogeneity of programs and priorities with the constantly evolving needs of the company (Kiely and Armistead, 2004);

- the network also contributes to creating a vision and commitment common to all key participants. This is of vital importance to ensure that strategic priorities are respected in daily practice (Pels et al., 2014);
- the network makes it possible to respond to the continuous evolution of business and context needs (Enquist at al., 2015).

A network strategy can be understood in terms of structures and dynamics, according to the idea that a network structure composed of relationships and external resources needs to emerge before a company can use the network in its daily interactions with counterparts, and it comprises three structural components -defining relationship contents, forming the network structure, evaluating goal matching with the network- and two types of dynamic interactions, that refers to the combination of resources: interacting via inter-organizational routines, and interacting via joint projects (Baraldi, 2008). The latter is especially the solution mainly adopted by LSPs in fine art sector.
All the problems that we can observe, even today, are due, at least in part, to the management of companies as if they were mechanical or biological systems. If the various purposes of the company, its subsystems and parts are not recognized and managed properly, organizations will experience high employee turnover, internal functional struggles, and a host of other problems (Spohrer et al, 2007; Maglio and Spohrer, 2008). To effectively govern the company viable system, managers must understand the motivation behind the behaviour of the various elements of the system (Barile and Polese, 2010). Understanding why parts of the system behave the way they do allows decision makers to recognize the concerns of these various subsystems. By recognizing these concerns, managers reduce fears that their interests are being overlooked or ignored. In addition, the "governing body" must communicate the reason why it is taking specific actions (Simone et al., 2018). Understanding and communication are also essential to create the changes needed to remain agile and competitive in today's global economy (Maglio et al, 2009). In short, decision makers need to take a systems approach to understanding situations, communicating how and why they are prioritizing various goals and making decisions (Badinelli, et al, 2012). These considerations may help LSPs in the fine-art sector competition to better facing future challenges in a more complex context of business in their sector, coming at least from the choices of their competitors, the raising of e-commerce solutions, and the introduction of technological innovations.
The paper permits some preliminary consideration on the topic, they may be useful as basis for necessary further investigation and future steps of the research, especially in term of the analysis of the cases. The analysis should be developed including a higher number of cases, representative of a more holistic perspective, and some more investigations in terms of systems management.

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