M-Art-keting:
Adding Value Through Multimedia Technology to the Museums Industry

A Network Marketing Approach to the Cultural Industry

Paper presented at the IMP Conference, Lugano , September 2003

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Introduction

No museum is an island; no more. Sometimes ago museums leveraged their geographical position, resources directly owned and their reputation to prosper in a stable environment. Relations with external entities were not crucial, and a few museums dominated the market. Nowadays successful museums are focal institutions within a network of suppliers and communities of consumers. Success derives from strengthening the museum strategic position vis a vis several old and new competitors. In such a game, a museum must resort to complementary resources of suppliers and other actors (such as public institutions or NGOs) *and* build, maintain and leverage long lasting relationships with communities of consumers (Scheff and Kotler, 1996; Davis and Meyer, 1999; Sawhney and Parikh, 2001).

Such a shift from a stable to a turbulent environment, from a "passive" to an "active" role, from an "all-in" to an "in and out" approach has several possible explanations. With no doubt, at least in the European countries this shift is paralleled and reinforced by a growing deregulation, affecting also industries and activities once considered as quasi public goods.

However, the activity of a museum was and is being dramatically changed by new technologies, enabling museums precisely to set up their web of external connections in rather different way from the past

In this paper, we want to explore the impact of multimedia technologies (MMT from now on) over museums' activity. In particular we are interested in understanding if and how Multimedia Technologies are changing the competitive advantage source of museums.

Very few it was written about the impact of MMT on museums from the competitive advantage point of view. Generally MMT was looked at for their influence on museums' information systems and eventually for influence on internal organizational structure (Orna and Pettitt, 1980 and 1998; Hoffos, 1992; Fahy, 1995; Fahy and Subdury, 1995). On the other hand, management studies until now were oriented to explore the applications of marketing and OB tools to the museums industry, despite some different streams of thought (Kotler1990; Hendon, 1979; Fronville, 1985; Ames, 1988; Lewis, 1992; McLeane Combe, 1993). Only recently some authors have begun to study the competitive environment in the museums industry, using network approaches (Kavanagh, 1995; Soda and Salvemini, 2000; Bagdadli, 2001). Here we seek to explore MMT implications on competitive environment, showing the effectiveness of a network

approach in understanding museums industry dynamics. We maintain that MMT play a crucial role in making new relationships viable and in reconfiguring the old ones. As we will elaborate later on, MMT are both cause and effect of this augmented network attitude.

We start examining the nature of Multimedia Technologies and their contributions to the industry; from the awareness of MMTs' characteristics, it will be possible to propose a new paradigm to explain competition dynamics in the museums industry, based on a network approach (Nohria and Eccles, 1990; Johansson and Mattsson, 1992).

1. Museums: from a quiet to a turbulent environment

In the cultural industry, competition among institutions --such as museums, theatres, galleries and so on— has become very strong in the last years. Institutions compete in rising founds to finance cultural activities, that asks them to use all the management patterns to win the race. Institutions compete in reaching a growing number of visitors, both because of their institutional goals (reputation, support from stakeholders and so on) and also to strengthen their economic and financial position by collecting money from various sources (visitors paying for tickets, secondary sources, merchandising, etc). The monopolistic era, where a few museums controlled the market just because of their "strategic heritage", is almost over.

Museums' heritage is still important, but what is more important is to offer a multifaceted service, built around a great product (a drawing, a sculpture), that becomes an event to be perceived by consumers as unique.

Direct ownership of "fixed" resources is not enough: after all, MMT allow people to look at the Gioconda staying at home: a museum must offer something more than just a single picture (of course, seeing the Gioconda remains an unforgettable experience!) to convince them to travel to Paris.

MMT are not only a bridge over the space constraint: they are also tools that enhance consumers' autonomy in using cultural products. Through Multimedia Technologies, especially through internet, consumers can prepare their own visit to a museum or to an exhibition, plan their own trip, interact with other people who are interested in the same topics and become member of a virtual community.

Museums must adopt a marketing-oriented approach in the management of their offers, mimicking private companies competing in a market arena. At the same time,

however, museums must stick to their institutional goals: conservation of artistic heritage and education toward cultural goods.

There's a growing debate about the topic arisen from this double faces of museum as player in a competition arena and as public institution with social and educational goals. One part of literature wants to translate directly to the museums industry tools from marketing of for-profit organizations (Kotler, 1990; Kotler and Kotler 1997; Hendon, 1979; Fronville, 1985). A different approach comes from authors who stress the peculiarities of museum as a non-for profit organization characterized by specific goals of conservation, education and promotion of culture (Ames, 1988; Lewis, 1992; McLeane Combe, 1993). We agree this second approach (so called "mission-driven approach", Ames, 1988): it means that museums have not to propose just what consumers want, because by doing so they could loose their role of repositories of culture, selectors of new artistic expressions and educators. But the goal of being an educator asks museums to propose their artistic heritage just in the way consumers can appreciate and understand. In other words, if a museum wants to win the race of collecting a large number of visitors, reaching a mass-known brand, becoming a benchmark in the industry without losing the role of educator, it has to use all kind of tools in order to "talk" with people in *their own* language transmitting them *its own* message.

Museum marketing approach doesn't mean complying with what people in general prefer: it means proposing artistic heritage in different ways in order to reach different segments of people with the "same" message and the same educational goal. In other words, museums have not to abdicate to their own institutional educational role in order to follow some kind of success measured by the pure number of visitors, without understanding what visitors had learnt. Museums have a mission, and their success and their effective have to be measured according to this mission (Ames, 1988). Mission is diffusing culture, and specifically art, the larger than possible. Marketing teaches that consumers are different, because they have different interests, different cultural backgrounds, different learning commitment, and we can segment them choosing some dimensions. So museums can use segmentation (and others marketing tools) in order to reach their mission in the more effective way could be possible: that means to give to every segment the right way of approaching art according to its characteristics in term of commitment, background, interests. We think this is the right approach to museum marketing.

MMT can play a key role in allowing museums to get an effective marketing approach. In fact, as we will see, MMT offer several possibilities of approaching cultural products, a lot of teaching tools and learning facilities. But, because of these enormous potentialities, MMT require many specific resources, in terms of competences, skills, financial investments. So museums are forced to do expensive investments or to get involved into deep relations with other actors following a "network" behaviour (Burt, 1982 and 1992; Nohria and Eccles, 1990; Johansson and Mattsson, 1992). In other words, in order to enhance the value of its artistic heritage, every museum can choose to invest directly in MMT (but we will see that this choice is quite uneffective and unefficient) or to manage deep relations with several actors, both private and public, in order to get access to their own resources which are consistent with its MMT projects. This second option is quite induced by the nature of MMT: in fact a large part of their contributions are directed to communication area, offering several tools for interaction.

So we can observe that MMT are both cause and effect of network orientation by museums: they make connections easier and more effective, though fostering relations with third parties which can add value to the museum "business" proposition. MMT also may open up new possibilities to exploit existing relationships with other players (such as museums, public institutions, and others), and help in building up new ones with suppliers and specialized organizations (e.g. relational marketing through internet services).

So MMT become more than a tool: they are changing the museums' business because they contribute to change the structure of competition. MMT play a central role:

- both on the product side, for they make a fashionable offer possible (pre and post visit tools, teaching supports, information, in preparing the visit and, then, in maintaining a continuous access to the museum database)
- and on the business organization side, for they favor cooperation in a network of actors centered around the museum offering several possibilities to foster interactions with suppliers and consumers.

We cannot distinguish actors of the "museums' value network", such as suppliers and consumers, using the demand/supply concept, because in this case we could miss the understanding of the network. Actors could be single consumer or communities of consumers unified by the common passion for one stream of art; they could be the academic community, which supplies deep knowledge competences; they could be the local geographical actors, which supply the logistical patterns; they could be the finance community, which can sponsor the initiative; they could be educational institutions,

which are interested in using artistic heritage for education; and so on. What is worth is the fact that all these actors are connected in a network, more or less strongly tied, which is possible *thanks* and *because* of MMT (Galluzzi, 1997 and 1999; Orna and Pettitt, 1998).

2. Multimedia technologies and the museums industry

MMT are all that kind of technological features that make us able to use information in a very large meaning (to storage, to elaborate, to transmit), transforming information into knowledge. This transformation can acquire several different forms: from digitalized images to virtual reconstructions, from simple text about an artist and his works to iper-texts that allow customized, fast and cheap research within texts; from communications framework like the web to tools that enhance all our sense, allowing complete educational experiences (Piacente, 2002, b).

MMT are composed by two great conceptually different frameworks (Piacente, 2002, a):

- technological supports, as hardware and software: they are referred to all that kind of technological tools such as mother boards, displays, videos, audio tools, databases, communications software and hardware, and so on;
- contents: they refer to information and to knowledge transmitted with MMT tools. Information are simply data (such as visiting timetable of museum, cost of tickets, the name of the author of a picture), while knowledge comes from information *elaborated in order to get a goal*. For instance a complex ipertext about a work of art, where several information are connected in a logical discourse, is knowledge. For the same reason, a virtual reconstruction comes from knowledge about the rebuilt facts.

It's relevant to underline that to some extent technological supports represent a condition and a limit for contents (Wallace, 1995). In other words, content could be expressed just through technological supports, and this means that content has to be made in order to fit for specific technological support and that the limits of a specific technological support are also the limits of its content. For instance the specific architecture of a database represents a limit within which contents have to be recorded and have to be traced. This is also evident thinking about content as a communicative action: communication is strictly conditioned by the tool we are using.

Essentially, we can distinguish between two large areas of application of MMT (Spencer, 2002):

1. inside the museum, with regard to all that kind of tools that foster the value of the visit during time it takes place. Here we mean enhancing as enhancing moments of learning for visitors: virtual reconstructions, active touch-screen, video and audio tools, and so on;
2. in respect of outside the museum, with regard to relations with every kind of actors. This is the case of communication technologies such as web, software for managing communities, chats, for long-distance sharing materials, and so on.

Behind these different applications of MMT lies a common database, the heart of the multimedia system (Pearce, 1995). The contents of both applications are contained into the database, and so the way applications can use knowledge recorded into database is strictly conditioned by the architecture of database itself.

Different dimensions in application of MMT

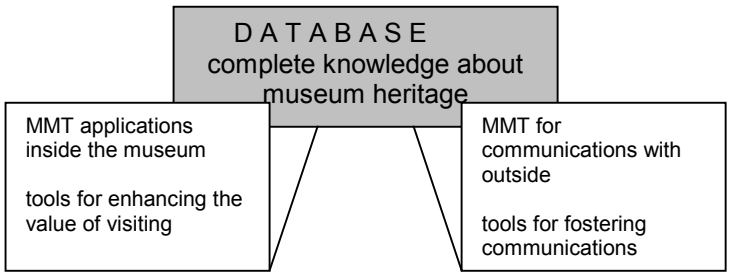

fig. 1

2.1. Characteristics of MMT:

MMT allow transferring of information with no time and space constraints (Fahy, 1995).

Space constraint refers to all kind of obstacles that arise costs of transferring from a place to another. For instance, looking at a specific exhibition required to travel to the town where it happens; participating to a specific meeting or lesson that takes place in a museum required to be there; preparing an exhibition required to meet work group daily. MMT allows to transmit information everywhere very fastly and cheaply and this can limit the space-constraint: people can visit an exhibition stay at home, just browsing with a computer connected on internet. Scholars can participate to meeting and seminars just connecting to the specific web site of the museum. People who are organizing an exhibitions can stay in touch with internet, sending to each other their daily work at zero cost.

Time constraint has several dimensions: it refers to the need to catch something just when it take place. For instance, a temporary exhibition requires to be visited during the days it's open and just for the period it will stay in. For the same reason, participating

to a seminar needs to be there when it take place. But time constraint refers also to the limit people suffer in acquiring knowledge: people can pay attention during a visit just for a limited period of time, and this is a constraint for their capability of learning about what they're looking for during the visiting. Another dimension of time constraint refers to the problem of rebuilding something happened in the past: it's the case of extemporary art (body art, environmental installations, and so on) or the case of archeological site, and so on. MMT help to solve this kind of problems offering (Dufresne-Tasse, 1995; Beacham, 1998; Crean, 2002; Sayre, 2002) by making possible to:

- prepare the visit through virtual visit on the web site: this option allows to know ex-ante what we are going to visit, and doing so it allows to select a route fastly and simply than a printed catalogue. In fact, thanks to iper-text technologies, people can obtain lot of information about a picture just when they want and just as they like. So MMT make it possible to organize information and knowledge about heritage into databases in order to customize the way of approaching cultural products (Musumeci, 2002). Recently the Minneapolis Institute of Art has started a new project on web, projected by its Multimedia department, that allow consumers to get all kind of information to plan a deep organized visit .
- cheaply create different visiting routes for different kind of visitors (adults, children, researcher, academics, and so on): embodying these routes into high tech tools (PCpalm, LapTop) is cheaper than offering expensive and not so effective guided tours.
- re-create and record on digital supports something that happened in the past and cannot be renewed. For instance the virtual re-creation of an archeological site, or the recording of an extemporary performance (so diffuse in contemporary art).
- cheaply get practical information like timetable, opening, costs, services and so on, and the possibility to get on line services (booking the ticket, buying the catalogue, etc.).

For all the above reasons, MMT enormously reduce time and space constraints, therefore stretching and changing the use of museums heritage.

2.2. Relations among museums and their environment through MMT

Due to their characteristics, MMT allow to look at the exploitation of the museums heritage in different ways. In fact the value of MMT doesn't only lie on the reduction of time and space constraints, because MMT also allow the museum to access and use the knowledge "owned" by consumers and suppliers (e.g. communities of artists (Micelli and

DeMaria, 2000)). Through cheap interactions on web made possible thanks to MMT, museums talk with their visitors and in doing so they maintain relations with key consumers. These relations are highly valuable, because they (Grewcock, 2002):

- bring to the museum information about its visitors: feed back on exhibitions, suggests for future exhibitions and for complementary services. Usually visitors who like to maintain continuous relation with museum are outlier, very interested in arts, with an outstanding knowledge about a specific topic and an outstanding record of visits of museums around the world. For these reasons they are the best candidate to judge the museum projects and to suggest improvements in the museum offer. These kind of visitors usually play also an important role within their own social group, and so they could be a media in order to diffuse the brand of museum;
- allow the museum to stay strictly in touch with the artists: recently Guggenheim Foundation has organized a virtual community of artists on web, called “Clackboard” [www.guggenheim.org]. The management of this community is in joint with a talent scout agency, which is interested in finding new artists. It’s worth to notice that the community is open also to non-artists, such as Guggenheim Foundation Members and other consumer. Several important items are involved in this project (Legrenzi at al., 1998):
    - the museum reaches its goal of promoting art creation, and especially contemporary art. It gives to artists a virtual place where to communicate, to exchange experiences, to learn from each other, to experiment, to test their own work;
    - the museum reaches a second goal, that is diffusing contemporary art through the participation of everyone interested in, although he is not an artist;
    - else, the museum stays in touch with the edge of contemporary art work, confirming its role of leader in the museums industry;
    - finally, the museum obtains important insights about the use of MMT, both from its partner in the project (the talent scout agency) and from artists. In fact a great part of recent artistic production is concerned with MMT: for instance video, photograph elaborations, digital installations, and so on. Art origins from the human need to communicate, and MMT open incredible frontiers about communications. A large part of contemporary artists are actually one of the most interested people in MMT applications, and they

join deep relations with software houses and academics involved in new technologies. This is the reason why their artistic experiments could have very valuable effects for further applications within the museum offer. In other words, technologies tested by artists could be transformed also into new tools to enhance the museum offer to the public.

- as far as the talent scout agency is concerned, it obtains from managing the community a great advantage because it stay in touch with young talents and because it stay in touch with the museums industry leader (the Guggenheim Foundation).

3. MMT and new relations with old actors

Relations with suppliers: the several advantages of MMT require new and focalized competences in order to be exploited. Either if museum wants only to use MMT to storage information into database, or it likes to use MMT to enhance the value of visits, or it explores MMT to access the knowledge of consumers and artists, MMT ask very specific investments and skills. These skills are not owned by museums, because (Sayre, 2002):

- they are not primary strategic skills for it;
- it could be not effective to invest in owned technological skills, especially because they need continuous updating, since MMT become rapidly old. In fact the world of MMT is continuously changing, it's daily opening new possibilities, often transferring solutions from a distant context to another.

For these reasons for a museum it could be more effective to get competences from suppliers.

Furthermore, MMT are tremendous expensive relative to their short life. Just only in the exhibition field, it has been approximately calculated that an exhibition with intense use of multimedia costs 3780 $/mq^2$; with moderate use of multimedia it costs 2700 $/mq^2$; with occasional use of multimedia, it costs 1500 $/mq^2$; (Piacente, 2000, a). In order to lower costs of MMT, museums have to exploit relations with suppliers of technologies, choosing among different options:

- to externalize this kind of service, loosing the ownership of technologies but maintaining control over the contents;
- to get joint venture with other museums, in order to share costs;

- to explore innovative relations with other actors who are interested in developing technologies (such as universities, which have the same institutional goals of a museum) or who are interested in exploiting the several consequences of relations with museums. (the case of agencies active in the art industry, as we have seen with Guggenheim Foundation).

When museums decide to acquire this kind of service from suppliers, two interlocked considerations arise and drive toward interactions (Fahy, 1995; Spencer, 2002):

- first of all, there's a deep complementarity between technological competences acquired from supplier and the museums competences about their own heritage and about art in general. This is true since art is communication, and every kind of artistic expression could be effectively enhanced using MMT just only through a deep understanding of that specific work of art and that specific style of art;
- MMT offer growing opportunities to foster museums heritage, but, since tools define the way knowledge arises and can be transmitted, these opportunities require to be known by museum in order to get the more effective choice between alternative technologies; if museums don't control MMT, They have to obtain a deep commitment from its supplier, in term of understanding the needs of museums and the ways MMT could better respond to those needs.

So relation between museums and their suppliers of MMT has to be deep and continuously fed. Otherwise museums could get just standardized services and tools, lowering the effectiveness of using MMT.

Furthermore, museums and their suppliers have to be involved each one toward the other one because they need "to talk the same language". This could explain why Guggenheim Foundation has given to the talent scout agency the management of its artists community: the agency had the right competences to manage MMT and it also had the competence to understand the needs of the museum.

New relations between museum and its suppliers, due to the nature of MMT, concern not only suppliers of MMT themselves but also other kind of suppliers:

- artists: as already seen, artists can be deeply involved in the museum concerning directly their own creativity and their own work. Giving to artists (especially young and unknown artists) free access to MMT tools, museum can foster their creativity and it can gain an advantageous position at the edge of the art stream. Further more, museum can learn from artists new

ways in using MMT and doing so it could intensify the exploitation of its own artistic heritage;

- academics: academics, due their considerable competences about specific topics, are usually involved in several projects promoted by the museum. As far as MMT are concerned, academics lie in an advantageous position because of their propensity to interact with other actors. According to the fact that a large part of MMT are developed within university laboratories, academics are becoming a strategic partner for museums not only for their competences about art but also for their connection with other universities. For instance, the University of Genoa has recently patented an innovative Pcpalm, called “Willy, the tourist mate” [www.eliosmultimedia.com] that helps visitors during their tour. This service is extraordinary powerful due to extremely customized services it gives, but it needs a long commitment by museums for working: it requires to reorganize knowledge embedded inside the museum in order to transform tacit, diffuse knowledge into explicit one. Academics of University of Genoa and other Italians universities, from different fields, are now working to apply this innovation. Further more, MMT help relations between museum and academics thanks to communications tools. One of the goals of museum is producing and diffusing culture through seminars, meetings, researches and so on; MMT could give the possibility to organize long-distance conferences, limiting resources wastes (for instance, it could be possible to reach speakers around the world, just where they’re working).
- financers and local institutions: MMT can allow to financers and local institutions to know cheaply and quickly what it’s happening inside the museum. Essentially these actors are interested in behaviour of museum according with its own institutional goals. MMT play in this case a role of diffusing information and transforming museum into a “glass house”. Obviously web technologies are the most important features for relations with these stakeholders. It’s relevant to notice that financers are often also consumers: let think about English museums and galleries, where there aren’t ticket to pay and where visitors are requested to present museum with a free offering: this offering will be function of satisfaction during the visit.

Relations among museums: relations among museums are a very important item in cultural industry. Work of art are unique, and no museum owns all work need to understand a style or an artist. So MMT could also change relations among museums in terms of (Kavanagh, 1995):

- fostering the value of temporary exhibitions, not only through lending of work (pictures, sculptors, etc.) but also through virtual access to databases of other museums: in other words, visitors of an exhibition could connect in real time with the database of another museum to explore deeply an artist or a style whose work are partially exposed in the exhibition he's visiting. This option requires not only connection between the two museums, but also sharing the same software;
- enhancing research activities, thanks to fast and cheap exchanges of voice, images, videos, and so on.

Relations with consumers: MMT could change the nature of relations between museum and its consumers and among consumers themselves. We have already seen that thanks to MMT museums could enhance the value of its artistic heritage using a set of complementary features; the challenge is to give value to the artistic heritage creating an offer turned:

- to the visitors, proposing events, special exhibitions, and, especially, giving them tools for preparing the visit and for appropriating the more than possible from it;
- to consumers who will never visit the museum, but who are interested in its heritage. For instance, people in other continents, or people who don't travel so much; but also other institutions such as museums as well, interested in temporary exhibitions.

At this stage MMT give a lot of tools to access the artistic heritage of the specific museum and to "use" it. For consumers is very worth the possibility to use the artistic heritage in the desired way. In fact looking at the peculiarity of museum product, we can observe that it requires an important effort by the single consumer, who is strongly involved in the act of consuming. Cultural products need an active approach by consumers in order to be perceived and to be valuable (Legrenzi, 1998).

A very interesting experience is carrying on at Minneapolis Institute of Art, called "ArtsConnectEd", where a specific groupwork is devoted to develop MMT in tied relations with suppliers and consumers, in order to offer to consumers virtual tools on the web to enhance the value of the visit [www.artsmia.org]

But MMT are able not only to offer a lot of new services and new ways of using museum heritage: they can transform relations between museum and consumers adding "interaction". Communities of consumers is a growing phenomenon in consumer behaviuor, and it refers also to the museums industry (Hagel and Armstrong, 1997; Castells, 1999). Consumers tend to form communities, if they could get the right tool (and getting it concerns the museum). Communities seem to be the natural way for enhancing the "consumption" of art, since this consumption is characterized by (Vogel, 1998):

- strong commitment by single consumer (like commitment requested in a community);
- social dimension, that comes from the cultural nature of art. This means that art in general respond to communication needs, and also its consumption occurs within a social dimension.

But virtual communities of consumers are not only a way of fostering the use of museum heritage by consumers: they are also a channel for museum to understand its own consumers, to stay in touch with people toward whom are directed its institutional goals. This is a strategic pattern for museum, since it has to propose its heritage in the way consumers can appreciate it.

There's a final item to observe: we have just seen that in many cases financers could be consumers themselves: this is not only the case of museum in United Kingdom, but also the case of Guggenheim Foundations, to which consumers can apply for membership. Membership of Friends of Guggenheim club gives to Guggenheim Foundation advantages that go over the simple donation: through membership Guggenheim knows its consumers and can diffuse its own values. MMT can enhance these relations, thanks to communication tools such as web and communities management software.

4. Towards a new paradigm in the Museums Industry

According to what it has been argued until now, the traditional, supply-demand approach (see figure 2) is not appropriate to understand what is going on in the museum industry.

The traditional approach is rather simple: museums stay in the middle between consumers and suppliers and offer a value added by bridging the two sides through their offer. Note that in this approach the bridging occurs *ex-post* and the two sides are not

connected both within and with the other one. Suppliers and consumers don't talk to each other, and their relations with the museum (that stays in the middle) are rather weak. Of course, museums know that their survival and growth depends upon others, but this acknowledgment parallels the old systemic statement according to which any organization is affected by its external environment.

supply/demand approach

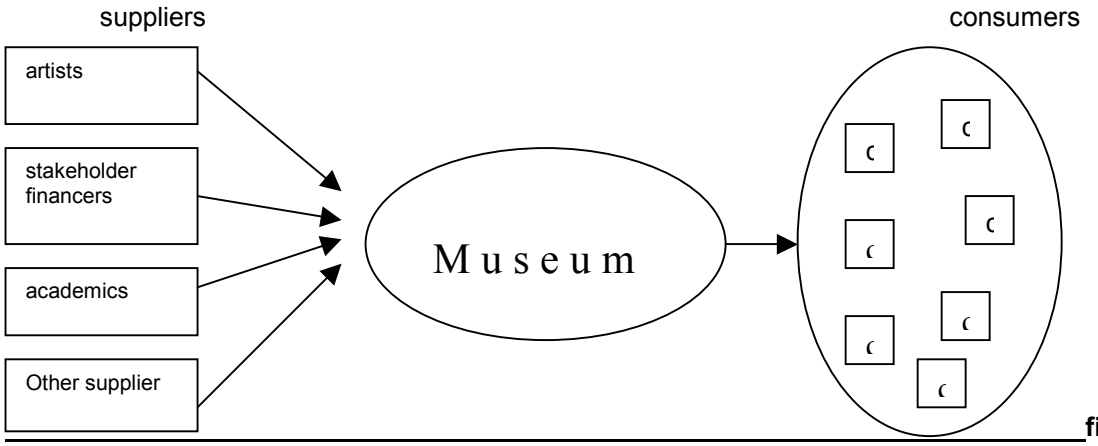

fig. 2

According to this traditional paradigm a museum builds its offer using only its own resources (competences, skills, heritage) and acquiring from suppliers services made on itemized lists supplied by museum and built on what museum thinks about its customers (Legrenzi et al, 1998).

Relationships with other organizations are limited and relatively important. Of course suppliers do exist, but interactions, joint programs, common projects and so on are limited. Also with customers relationships are very limited: customers pay for services the museum sells like any firm in a pure market economy. The only exception could be relations with academics, who are traditionally involved as consultants in museums' projects, especially with temporary exhibitions; but these kind of relations are as spot as extemporary are exhibitions.

Although it may still offer useful insights, the traditional approach falls short in explaining more effectively how the competition is reshaping the industry. A network approach can be very useful, as it posits that relationships among "nodes" (i.e. organizations) can play a crucial role in affecting their performances (Nohria, Eccles, 1990; Johansson, Mattsson, 1992; Gulati, Nohria and Zaheer, 2000).

This is precisely the case of museums, whose ranking in the cultural industry is heavily affected by connections with others, autonomous "nodes". Thus relations are crucial if a museum wants to get things it has not, neither can own --a collection of

pictures or sculptors, and even a deep, updated knowledge about the artist. Relations with customers also crucial, if the museum wants to make its resources accessible and valuable.

From this point of view, museums comply with the classical network assumption that positioning within a "relational space" full of opportunities and of structural holes is as important (if not more important) as structural properties of any system (Dyer and Singh, 1998; Barley et al., 1992). If developing and mantaining relationships becomes crucial also for museum, it is worth investigating what makes these tasks easier and to what extent museums can leverage the full potential of a wide set of possible relationships.

There is increasing evidence that MMT may favour cooperative relations both between and within organizations (Hagedoorn, 1993; Powell, Koput, Smith-Doerr, 1996). This holds not only for private companies but also for different kind of organizations. Museums are excellent candidates for exploring such multifaceted link.

- First, MMT are consistent with museums' institutional goals and can become crucial for their attainment. Because of the higher competitive pressure in the industry, that erode available financial resources, museums must reach an high level of reputation and renown if they want to collect financial resources. The way museums can gain reputation is to reach their own institutional goals (promotion and diffusion of culture) in a more effective way. MMT are excellent candidates for helping promoting and diffusing culture since they are themselves extraordinary tools of diffusion and cultural interaction.
- Second, MMT can help museums to strengthen their ties with customers. A visit to a museum is a complex experience, affected and resulting from a co-evolving interaction between the observer and the "space". MMT may help museums to better inform their customers about the planned visit, and also to pass customers specific knowledge about artists and exhibitions. "Digital technologies have significantly change the way in which cultural heritage itself is exploited. Before the introduction of new technologies the exploitation of artistic heritage consisted mainly in a visit to the museum following a planet route. Nowadays consumers can approach the museum in a different way, they can create their own routes according to their needs, they can closely study those aspects which they are more interested in, playing a leading active role of enjoyment" (Musumeci, 2002). MMT also may help in the after-visit and to keep customers updated about that specific art stream or about new initiatives; this

means to maintain a tied relation with consumers interested in specific aspects of art, reaching one of the museums' institutional goals.

- Third, MMT may also help in building and strengthening relationships with suppliers. The simplest application has to do with information exchange with suppliers, but other, more relevant actions can be jointly undertaken. For instance, museums may enter publishing projects with publishing companies by offering limited access to their heritage and by bundling pieces of knowledge they have or may get access to. Again, museums may develop with schools and public educational institutions projects to make their heritage accessible on line to specific groups of customers, as students and teachers.

MMT may be very beneficial for museums, but assuming they are for free and simply plug-in the traditional business model would be very na ve.

MMT are expensive, for they imply acquiring specific technologies (hardware and software) and training personnel to fully leverage their potential. More important, leveraging MMT requires learning new routines and new ways of getting things done. For instance, arranging the space for an exhibition is part of the usual business of the museum management. Decisions about paintings logistic and disposition require feeling, tacit and explicit knowledge that gets normally piled up with years of experience and training. A manager of museum never stops exploring and learning new ways of making her job more effective: for instance, knowing which alternatives fiber optics and light technologies can offer may become a relevant asset for a manager in deciding how to characterize a specific exhibition. However, a real different job is planning a virtual exhibition, that is not and cannot be conceived as the same business wrapped up in a different way. As a consequence, museums will be forced to share costs of MMT adoption with other institutions (thus developing joint projects) and, more importantly, will be forced to cooperate with specialized firms, whose contribution for leveraging MMT potential will more and more become relevant.

From a network perspective, this will spur different types of network as far as their magnitude, nature of exchange and level of interaction is concerned. Magnitude, nature of exchange and level of interaction among partners can be considered as proxy of the network complexity.

At the lower level, the network is simple. A good example is the network among different museums arising in Italy: due to changes in regulation recently passed by the Government, museums are induced to share services like booking, ticket selling and shopping on line. The network may be also wide – although experiences suggest is it

normally limited to organizations that are somehow homogeneous-- , for the exchange is rather simple (combining financial resources to achieve economies of scale and scope) and level of interaction limited to the planning stage (Bagdadli, 2002). The goal of these kind of network is mainly cost-saving in offering standardized services and there's no commitment toward rethinking the role of relations in a strategic way.

At the higher the network can be very complex. More than because of the sheer number of organizations involved, the network is complex because the nature of exchange is multifaceted and the level of interaction relevant. In this case, MMT play a crucial role in making the whole network working, by allowing fast, rapidly changing relationships both inside and outside a single organization. For instance Guggenheim Museums, Tate Modern, Mart, are all heavily resorting to MMT in reconfiguring their offer and in interacting with customers and suppliers.

Figure 3 illustrates how the network approach can help in understanding what is going on in the museum industry and how complex a network can be. Continuous lines show relations connecting museum A with its own strategic counterparts; broken lines show indirect connections between museum A and a counterpart through an intermediate actor. The thicker the lines, the more complex the relation (the higher the number of thick relations, both for direct and indirect ones, the more complex the network). Moving from an "ego network" to a "whole network" approach (Burt, 1982) would make even clearer that museums are "embedded in a sea of relationships", whose potential needs to be fully exploited.

Network approach from the point of view of museum A:

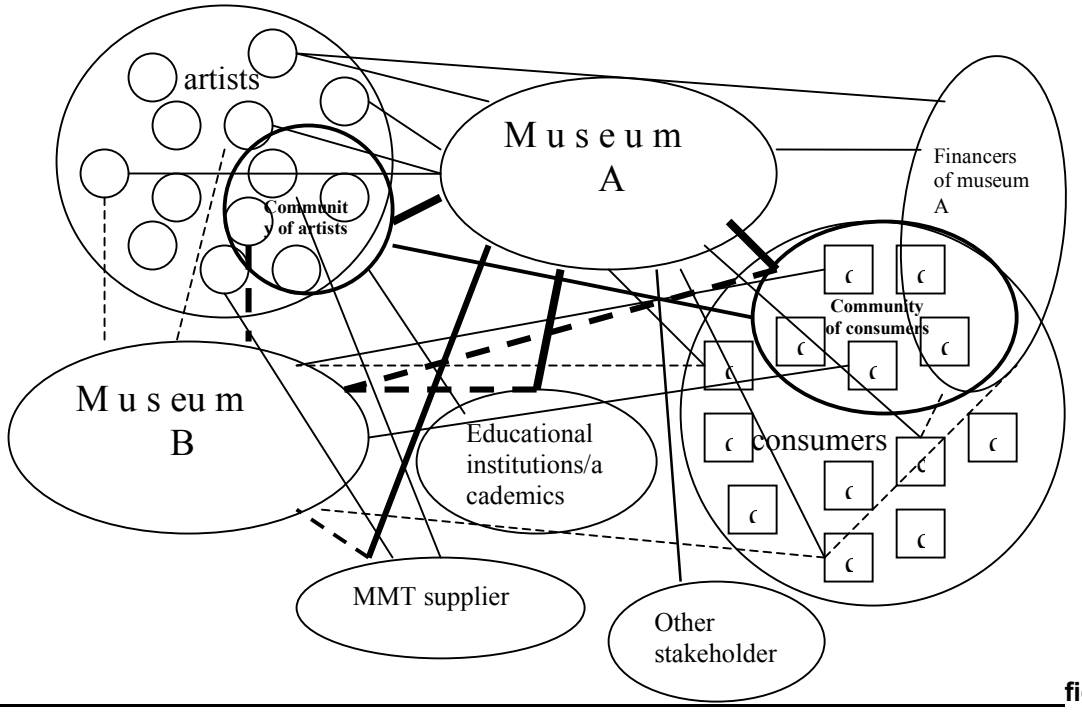

fig. 3

For example, relationships between museum A and communities of artists and consumers (subsets of larger sets of artists and of consumers) may become very important: members of communities of consumers usually show very high propensity to become financers (Kotler, Kotler, 1998; Sawhney and Parikh, 2001); also artists which are member of virtual communities may play a very important role in influencing museum policy (Micelli, DeMaria, 1998).

Although an analysis of the museum-centered network and of the whole networks museums participate in would be very stimulating, our intent is much more limited. Our aim is to explore how MMT are influencing museums' existing relationships and shaping new ones. Ideally we should come up with a "thick" comparison of museums relational patterns *before* and *after* the use of MMT and the impact of this new relational pattern on museums' competitive advantage.

To do so, we will follow a multi-steps approach:

Step 1: desk analysis of the museum industry, aimed at examining main variables of european museums. We will concentrate on contemporary art museums industry, because it appears to be more involved with MMT. Variables taken into considerations will be descriptive ones, such as size (in terms of assets, investments during the last three years, number of branches, number of exhibitions, number of seminars and meetings), heritage (in terms of number of art work, in terms of focalized vs general heritage with respect with art streams), performances (in terms of real visitors and virtual ones; in term of revenues, of outreach, of publications);

Step 2: selection of most relevant case-studies according to experts and key informants opinion. Case-studies will be selected according to the contribution they could give to the understanding of industry dynamics. It will be very worth to follow the growing of the new Museum of Modern Art of Trento and Rovereto (MART) [www.mart.trento.it], deeply involved with MMT;

Step 3: qualitative-quantitative analysis of MMT in use. We aim to collect data about the nature of applications, distinguishing among applications for storaging and managing knowledge and applications for communicating and diffusing knowledge. We will collect data about the number of different applications and their diffusion within industry; data about the response of consumers in terms of use of MMT and interactions with museums (for instance number of on line access pre and post visit, participation in virtual forum, services acquired on line,

and so on); data about benefits of MMT in terms of simplified access to heritage, simplified learning activities, effectiveness of learning, and so on (for instance, how many time spend inside the museums consumers who have got information on line with respect with consumers who have not got them); data about the use of MMT into relations with suppliers (such as if and with whom museum uses MMT to communicate, how many times, for which kind of communications, and so on): data about developing projects based on MMT where museums are involved together with their suppliers; data about effectiveness of MMT in relations with suppliers (perceived and real effectiveness) (Soren, 2002) Qualitative data collecting will use questionnaires and interviews, while quantitative data will get directly by museums and through observations.

Step 4: analysis of their overall impact over the museum relational patterns. This final step will be the heart of the research. Using data collected, we will investigate the competitive contribution MMT could give to museums in order to reach their goals more effectively. Our attention will be devoted to analyzed contributions of MMT to existing relations in terms of:

- effectiveness of museum's activities according to its own goals (Have MMT really enhanced museum's teaching role comparing with the past? Have MMT really fostered consumers perception of obtaining more customized and comfortable offer comparing with the past? and so on);
- investments required by MMT in terms of financial and human resources and their return in term of outreach (how many consumers were reached using MMT; are costs of MMT justified by outreach? and so on);
- relation reshaping with old actors and relation opening with new actors, in terms of commitment and in terms of access to outside resources for competitive advantage (are MMT really requiring new kind of relations among actors? Are museums really able to get access to outside resources through MMT? and so on).

A tricky challenge will be to find samples where MMT will not be used to compare with the opposite experiences, in order to get comparable data to measure effectiveness advantage of MMT.. We are confident we could use in some cases past data about consumers satisfaction and outreach, so to give value to our comparisons. In other cases we will compare behaviour of consumers that will be using MMT and behaviour of consumers who will not use MMT. Finally, as far as relations are concerned, we will examine people perceptions of past relations comparing them with perceptions of

present ones and supporting this comparison with quantitative data (magnitude and thickness of present relations).

We expect to find meaningful new management practices associated with the use of MMT into museums. We hope to find invariants in MMT use explaining successful cases and we will look at normative insights about those relations.

Conclusions

Nowadays museums have to face a turbulent environment, characterized by hard competition among cultural exhibitions in order to get financial resources and support from their environment. Moreover, as financial pressure towards efficiency grows, museums are forced to do their job in a different way and to experiment new ways of getting things done.

As a consequence, museums perceive their role is changing, for survival and growth cannot be taken as granted as it used to be in the past. These shifts are changing museums attitude towards activities like relational marketing, once supposed to be an exclusive feature for private companies. For the same token, changes are occurring also in the way museums develop relationships with suppliers and other organizations.

We believe these relationships are and will be playing a crucial role in museums' performances, thus requiring a network approach in order to figure out what is really happening.

MMT are key component within this process. They allow reconfiguring the way consumers can approach artistic heritage: in fact MMT open new customized services giving to every consumers an active role in designing its own visiting route and its own learning map. Moreover, MMT give the tools to foster relationships among actors in museums' environment (artists, suppliers, financers, other museums), offering technological features for virtual exhibitions and for virtual communities.

Focalizing just on Museums of Modern Art, we seek to understand the evolution dynamics caused by the introduction of MMT, in terms of competitive advantage they are able to enhance. We will use both case studies and quantitative analyses of the impact and the effectiveness of MMT. We will look for invariants in MMT use explaining successful cases and we will look at normative insights about those relations.

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