

eTourism: Multimedia Brochures and Communication Chains

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Abstract

This paper is about multimedia communication, for Tourism. Two original concepts are introduced: Multimedia Brochure and Communication Chain. A Multimedia Brochure is an agile and versatile interactive multimedia available for all kinds of devices and technologies: it can be used by any “actor” of tourism in order to make itself “visible” and “persuasive” over Internet. An innovative authoring environment and a streamlined production workflow allow effective production, combining good quality and low cost. The Communication Chain allows the interchange of (fragments of) multimedia brochures across different actors (e.g. cultural heritage, accommodation, food, shopping, sport, entertainment,...), avoiding (or at least minimizing) duplication, confusion and low quality, the occurrence which are frequent to be found today. The COMFIT project demonstrates, on a medium scale, the viability and the effectiveness of the approach.

Keywords: multimedia, multichannel, authoring tool, brochures, eTourism.

1 Introduction

The use of Internet has greatly affected the tourism industry, like many other fields. Roughly speaking, we can classify the application of ICT to tourism in 4 broad categories: (1) *Back-office* (accounting, management, and similar): this has been the first, but clearly the less relevant, application area for tourism. (2) *Operations* (booking, reservation, confirmation, etc.): they can be carried on directly or through intermediaries (which are currently dominating the field). This is probably the most important application today and it has greatly influenced and modified the industry. However, it is beyond the scope of this paper. (3) *Promotion/Marketing/Sale*: search engines, banners, links of all kinds are involved. Again, this is very relevant, but it is beyond the scope of this paper. (4) *Communication on site and on Internet* (“internet presence”): multimedia information (text, audio, images, videos...) for capturing the attention and persuading the users. These applications can be used via a PC, or an iPad (tablet), or a smart phone, an iPod, etc. or they can be delivered as interactive installations. They are the focus of this paper. Tourism communication can be about various subjects: a destination, a specific item of interest (a church, a monument, an archeological park...), an actor (a hotel, a restaurant, a shop...), etc. Multimedia tourism communication is quite widespread on the Internet today, but several problems persist:

- *Quality*: with a few exceptions (mostly regarding big operators), the quality of tourism communication is quite poor. Besides the operational information (maps, fees, reservations info, etc.), there is little room for meaningful, persuasive flow of information. The actual persuasion (i.e. convincing the tourist to visit a

destination, to book a hotel, to pay a visit to a shop, to take a specific tour...) is mainly left to traditional media, like magazines and guides. Minor destinations and actors, that can't afford to hire professional staff, sometimes perform naïve attempts that may even have a negative impact.

- *Costs*: good multimedia communication can be expensive. Even without considering the costs of taking pictures and videos, the sheer cost of professional web design and text-writing is very high and unaffordable for many small actors.
- *Scope*: Let us consider the case of a small town with a few natural attractions and monuments. The communication for this town should cover the general attractions, the excursions, the cultural sites, but, in order to be complete, it should also include the accommodations, the restaurants, the shops, etc. On the other hand, the communication of a specific hotel should include not only the hotel's description but also information about the territory, the attractions, etc. This is because an internet user may end up directly on this website. Therefore, in tourism, it is often the case that each actor has to cover a number of subjects, with duplications and overlaps. How many hotels of the same town describe the same monuments, the same attractions, the same history, the same fairs, etc.?
- *Technology*: technology continuously evolves. Beside "traditional" websites there are, today, tablets, smart-phones, podcasts, social spaces, YouTube, etc. Everything must be kept into account if an effective persuasion strategy, reaching all the potential targets, has to be implemented. Many tourism-related actors have problems into dealing with this continuous evolution.
- *Coordination*: the tourism field is quite fragmented and suffers from a lack of coordination among the actors. Even in those – few – cases in which the public administration takes upon itself the task of communicating the destination as a whole (typically via a "portal"), the problem persists. The portal is either a rigid frame that in the end discourages the users, or a "patchwork" of only poorly related pieces of content. There are a few good examples of "coordination", at international level (e.g. www.discoverouthcarolina.com), but they are exceptions (mostly to be found in North America).

2 Communication Chains

The notion of "communication chain" derives from the industrial notion of "supply-chain". A complex object like a car, for example, is the result of the assembly of several parts (an engine, a frame, an electric system, ...). The car maker creates the overall design and directly manufactures a few crucial parts; specialized external manufacturers provide the others (e.g. the navigation lights). These external manufacturers, in the past, used to work on tailored design provided by car makers. The situation, today, is reverted: they work according to their own design, which is then 'forcedly' adopted by car makers. This is why many components of today's cars are the same across different brands and models: they are designed and manufactured by the same producer.

Let us now consider the "manufacturing" of multimedia communication for tourism. Let us assume that a cultural heritage institution creates content for a specific subject: e.g. the cathedral of a town. If culture per se is the only issue at stake, an accurate and persuasive description of the cathedral, in all its aspects, would be sufficient. If,

instead, the aim is *to attract* tourists, something more is needed: it would be advisable to add something about the town, as well as some historical notes, an explanation of the urban setting, information on relevant people of the past who were somehow related to the cathedral, etc. Since the history of the church is interwoven with the history of the town, this enlargement of scope is necessary in order to provide good quality communication. Let us now assume that the local administration wants to promote the historic center of this town. There will be an overall description, maps, itineraries, history, etc. Of course, the main cultural attractions like the cathedral will be included too, along with the best shops, cafés, hotels, etc. Let us now consider the communication of a hotel, in the same town, located near the cathedral. Besides illustrating the quality of the hotel, it will include the cathedral's description, the town's history, the attractions, and so on. *What can we learn from this example? That communication with a narrow scope cannot work and that each actor needs to cover information which is not its own: content should be shared and moved among several actors.*

Unfortunately, the current situation (in Italy, as in most other countries) is far from being optimal. First of all, there is a multiplication of efforts: each actor who needs, for example, a description of the town's history, will do her own work of research and writing. In addition, there is a lack of focus on core competences: hotel keepers are very good at communicating their establishments, shop keepers at describing their goods, cultural institutions at introducing their exhibits. They should focus their effort on the content for which they have specific expertise, instead of covering a variety of subjects.

The above described situation is well known to professionals working in eTourism. The two most popular solutions are: (1) coordinated portals and (2) links across sites. In the first case big, all-comprehensive portals are created, with slots for culture, leisure time, accommodations, etc. to be filled by the different actors (either directly or through intermediaries). This solution does not provide a satisfactory result for several reasons: standardized slots do not allow for strong, customized communication and thus each actor experiences a loss of identity, becoming "an item in a list". In addition, search engines do not work well with large portals: a hotel keeper wants to be well visible and clearly distinguishable when users look for "a hotel near the cathedral in town X"! As a matter of fact, big portals work well for very little destinations only, where strong actors requiring strong, personalized communication, are few. In other cases (like in Italy), portals turn out to be no more than directories of addresses and telephone numbers, useful for users who already know what to look for. Links across sites are another possible solution, but with evident drawbacks: users get disappointed at being bounced across different sites in order to get the whole picture, through an excessive, not manageable, number of links. Given all the above, we propose a different solution for eTourism based on the following main ingredients:

- *Multimedia brochure*: an agile kind of communication that complements traditional websites; an interactive multimedia narrative, combining different types of images, video, audio, text, etc. More than providing information or supporting operations (e.g. booking), it provides persuasion.

- *Costs and time containment*: a multimedia brochure, created with our authoring environment, can be generated at a fraction of costs of a traditional website, and in 1 or 2 weeks.
- *Narrative style*: the style is narrative and persuasion-oriented. It leads the user through a story, at the same time allowing engaging and effective interaction, skipping not interesting portions and focusing on the interesting subjects.
- *Multi-channel/multi-technology*: a multimedia brochure can be delivered through all devices (including PCs, smart-phones, iPad, iPod, tablets, MP3 readers, ordinary phones, multi-touch tables...) and all types of connectivity.
- *Brochure types*: different types of brochures can be created; “episodic” brochures, describing specific items (a church, an exhibition, a hotel, ...), “thematic” brochures, describing overall themes (e.g. sport, shopping, culture, ...), “itinerary” brochures, suggesting specific ways of traveling, and “recommendation” brochures, suggesting how to spend the day, what to visit in a city, etc.
- *Aggregators*: when several multimedia brochures are created for a destination, it is necessary to aggregate them in a manner suitable for the user. Several aggregators can be created with different styles: geographic (showing on a map where everything is), highlights (where a restricted number of brochures is presented), exploratory (allowing the users to interactively explore the material using different selection criteria), itinerary (suggesting some brochures in a specific order), emotional (combining different brochures in a suggestive manner), etc.
- *Communication chain*: in order to provide coordination among the different MM-brochures of a destination (or a region), they can be linked to each other (as ordinary websites do), or they can be assembled into mini-portals (the “aggregators”). But their peculiar and innovative feature is that they can be also “disassembled”, allowing the reuse of specific parts, like in a building blocks’ game, and “reassembled” to suit a specific purpose.

Let us imagine a hotel keeper who wants to include in her communication something about the lake, the cathedral and the history of her town. Ordinarily she could either create links to other sites or generate new content to cover the additional subjects. With the communication chain approach, instead, she can extract from existing multimedia brochures, created by others, the relevant fragments of content, and “reuse” them in her own brochure. A small degree of adaptation is needed: for example, she could substitute generic pictures of the lake, with pictures where her hotel is clearly visible.

There are several advantages provided by the communication chain approach: quality (since the borrowed content is created by specialists), time and cost saving, communication strength. There is also an advantage for the destination as a whole: an overall coordinated communication (where a user can find the same “history of the town” across different sites) is stronger and more effective than a chaotic one. Conversely, when a general brochure needs a specific piece of content (e.g. a hotel’s description) it can directly borrow the material from the corresponding multimedia brochure. In the next section we will describe how MM-brochures can be created: the format, the production workflow and the technology. We will then present an eTourism project where the “communication chain” approach is being exploited on a medium scale.

3 Format and Production

Multimedia brochures (fig. 1) are a lightweight form of communication, meant to generate interest and curiosity for a subject, rather than to “inform” in a traditional sense (Campione et al., 2011; Di Blas, Paolini, & Rubegni, 2010; Rubegni et al., 2010). They are composed by audio, visual communication (slideshow, videos, animations, 360° pictures...), and text. They are delivered via different devices and technologies (fig. 2).

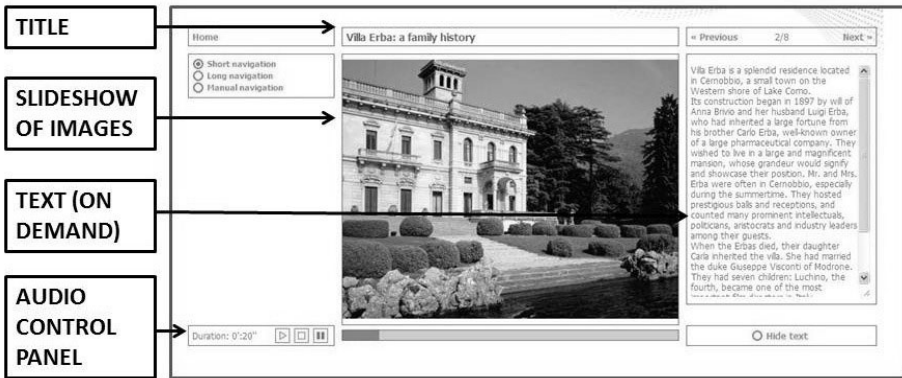


Fig. 1. A multimedia brochure about Villa Erba (Como, Italy); the web version.



Fig. 2. A 360° interactive picture, on iPad (www.manraylugano.ch).

We have developed a number of different “formats” for MM-brochures exploiting different information architectures (content organization) and different interaction

features (depending on the device). In addition, MM-brochures can be interconnected, i.e. a piece of content from a brochure can be linked to another brochure (fig. 3).

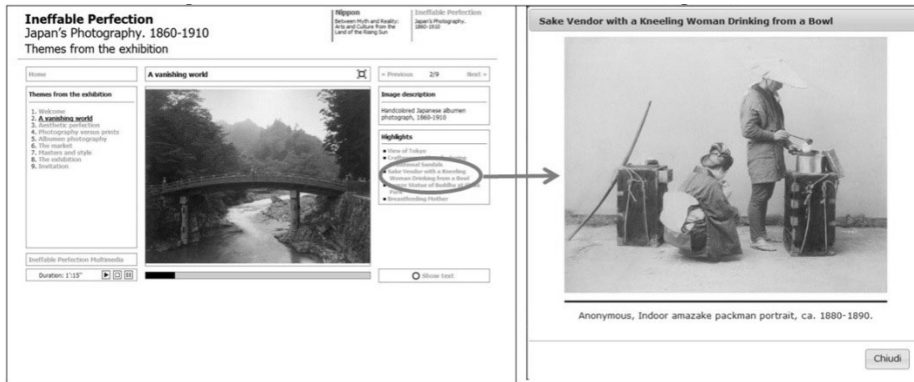


Fig. 3. The thematic brochure of an exhibition (left) is linked to a catalogue brochure (right). www.nipponlugano.ch.

When several brochures are available, they can be put together in what we call an “aggregator”, i.e. an interface offering a coordinated access to large content. Aggregators can take different aspects: geographical maps, itineraries, catalogues, etc. They can be enhanced by the use of faceted search (Marchionini, 2006; Tunkelang, 2009; Spagnolo et al, 2010) and/or word clouds and tag clouds.

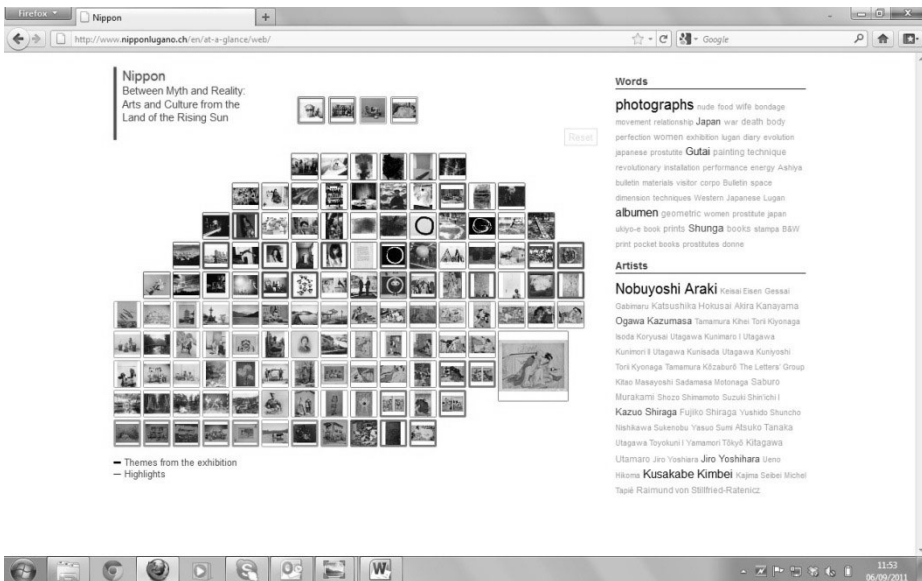


Fig. 4. “Nippon at a glance”: an aggregator for 4 different exhibitions. A mosaic of thumbnails (linked to fragments of MM-brochures) with tag clouds and word clouds

To keep down the production costs, a streamlined production workflow is crucial. Our production workflow starts with (1) a structured interview to an expert on the subject, either via Skype/phone (more cost-effective) or in presence. After that, (2) an editorial plan of the brochure is sketched and relevant topics which emerged during the interview are organized according to a suitable format (i.e. linear sequence, hierarchical organization, linked brochures, etc.). When the editorial plan is defined, two actions run in parallel: (3.1) the interview's transcript is split into chunks according to the editorial plan; (3.2) the visual communication is prepared, looking for suitable images/videos/animations to illustrate the subject. If communication problems are detected (as the discovery of gaps, contradictions, etc.) an additional interview (4) with the expert may be necessary. Once the text for all fragments is ready, (5) a first version of the audios is created (in-house, typically using a voice synthesizer). All the above leads to (6) a first version of the brochure: the communication quality is checked and amendments are performed. Once the final text is approved, the recording (7) with a professional speaker is carried on. Steps 6 and 7 eventually lead to (8) the final version. The average production time for a brochure is a month, with variable costs – always low (from 500 Euros for tiny MM-brochures, to 4,000 Euros for large ones, with 1,000 Euros as average).

MM-brochures are created using the “1001stories” authoring environment, first developed in 2006 and then refined over the years (Campione et al., 2011). The current version is a highly sophisticated system that allows creating applications for a number of technologies: web for PC, web for mobile, podcasts, iPad (and general tablets), multi-touch tables, YouTube, standard phone (with audio-only content), etc.

Moving content across devices and channels requires more than adapting to different screen sizes: content adaptation and interaction tailoring is also needed. Our effort is to keep the process simple and the costs down. The core idea is to separate “authoring” in strict sense (text, images, audio creation) from the generation of specific applications, tuned for specific devices and/or specific user experiences. “1001stories” environment has 3 main components: (1) an authoring environment where the various pieces of content are authored; (2) a number of generation engines that generate the proper information architecture for a specific purpose; (3) a number of delivery engines, actually implementing the various interactive formats over various platforms. Information architectures are described via XML, according to a set of XML-schemas. The technical environment's complexity is all internal: the author finds it extremely easy to use (half-day training is enough).

4 Communication Chain at Work: the COMFIT Project

The COMFIT project is the first attempt, on a medium scale, to fully exploit the notions of multimedia brochures and communication chain, in the field of eTourism. The project is part of INTERREG, a cooperation program between Italy and Switzerland, fostering the development of innovative solutions for cooperating across the border. Project financing is a combination of funding from the European Commission, the participating regions and the partners. The regions are Lombardy (specifically, the Como area, near the Swiss border) and Ticino (the region of Lugano, near the Italian border). Partners for Italy are Politecnico di Milano, Como county and Centro Volta (a development nonprofit institution). Swiss partners are USI (the

University of Italian Switzerland) and T-Next (a leading ICT company of the area). The project started in November 2011 and will end by April 2012. In order to obtain a real impact on the tourism industry big efforts have been carried on to involve local administrations, associations, institutions and individual operators. During its lifetime, COMFIT will cover the full cost of a number of MM-brochures; after its completion, a service center will do the job, at moderate costs (for sustainability). The goal of COMFIT is to develop enough brochures and aggregators to demonstrate the feasibility of the communication-chain approach, its quality and value for the industry. Table 1 shows the plan and the development of multimedia brochures as at October 15th, 2011. In the first round each brochure is developed individually; in the second round (starting December 2011) we will systematically apply the communication-chain notion, “injecting” into each brochure parts of other brochures. Also, starting from December 2011, we will build aggregators, i.e. mini-portals offering combined visibility of groups of brochures (see figure 4).

Table 1. The COMFIT project’s numbers (of multimedia brochures), at Sept. 2, 2011

Subject	Total	Completed	Under development	Additional goal
Total	136	53	53	30
Culture	33	15	18	0
Natural landscapes	18	2	11	5
Accommodation	25	10	5	10
Commerce/shopping	21	2	4	15
Restaurants/food	7	5	2	10
Services	15	7	8	0
Sport	6	2	2	2
Villas	6	4	2	0
General themes	9	6	0	3







Starting from February 2012, internet promotion for the brochures and the aggregators will conclude the project. The bet is twofold: (1) to demonstrate that the approach is effective; (2) to convince the tourism concerned actors of the two regions that the result is worth a small investment and that a service center, as legacy of the project, is needed. The service center will continue the job, using revenues from the eTourism actors themselves (in other words, they will pay for the service).

Table 2 shows the abstracts of a few multimedia brochures of different kinds. The reader is invited to figure out how content exchange (communication chain) will greatly improve the quality of each brochure.






Each MM-brochure, built as an interactive narrative, lasts between 6 to 15 minutes, with fragments lasting between 20 seconds and 1-2 minutes. Each brochure can be used by its owner as an independent website or as a companion for a traditional website. In addition, there will be a number of mini-portals (aggregators) clustering the brochures in meaningful ways for tourists (or users in a broader sense). The technology for the aggregators has already been created and the actual building of the mini-portals will be carried on in the last 4 months of the project. Users will locate the interesting brochures in different ways: by geographic locations, visual appeal, word

clouds, combinations of facets, etc. Exploration is the main paradigm, rather than search (De Caro et al., 2010; Spagnolo et al., 2010).

Table 2. Abstracts of a number of COMFIT brochures about the Como area (Italy).

	<p>TITLE: <i>Land flavors, Lake flavors</i> ACTOR: the Consortium “Land flavors, Lake flavors” ABSTRACT: the consortium wishes to preserve and promote to a large audience the rich food traditions of the Como area.</p>
	<p>TITLE: <i>Two lakes</i> ACTOR: the two counties of Como and Ticino ABSTRACT: the area including Como and Lugano lakes is a wonderful trans-national destination. The beautiful landscapes, the high quality of prestigious accommodation and the quality of services, make this area especially suitable for large gatherings and events.</p>
	<p>TITLE: <i>Lugano and its Lake</i> ACTOR: Ticino County ABSTRACT: surrounded by mountains and on the shores of a beautiful lake, Lugano combines the quality of a modern city and of a small, traditional, town.</p>
	<p>TITLE: <i>LAC, the new cultural center of Lugano</i> ACTOR: the LAC foundation ABSTRACT: LAC will be the new cultural center of Lugano. It will host a museum, galleries, an auditorium, art exhibitions, and many other cultural attractions. It will organize events in cooperation with the cultural institutions of Lugano.</p>
	<p>TITLE: <i>Cultures Museum</i> ACTOR: the Museum ABSTRACT: the “Museo delle Culture” is devoted to promote the culture of extra-European continents. Its permanent collection, the nucleus of which was created by an artist who was also a collector, provides an engaging experience of ethnographic artistic expressions.</p>
	<p>TITLE: <i>Alessandro Volta</i> ACTOR: City of Como – Culture Department ABSTRACT: Alessandro Volta, born in Como, is credited with the invention and creation of the first prototype of battery. The brochure revives his biography and his relationship with the city.</p>

	<p>TITLE: <i>Comacina Island</i> ACTOR: "Comacina Island" cultural Association ABSTRACT: the Comacina Island is rich in history, art and traditions, since Roman times. It is associated to legends, myths and even spells. Today, it still attracts visitors, for the beauty of its landscapes, archeology and food.</p>
	<p>TITLE: <i>"Monti Lariani" trails</i> ACTOR: CAI-COMO, the local branch of the Italian Alpine Club ABSTRACT: "Monti Lariani" are middle-high mountain pastures, used for centuries as summer cattle pastures. CAI has restored trails and itineraries, allowing tourists to enjoy wonderful excursions with breathtaking views of the Como Lake.</p>
	<p>TITLE: <i>Belvedere Hotel - Bellagio</i> ACTOR: Hotel owner ABSTRACT: the Hotel Belvedere provides a familiar, relaxing and comfortable hospitality in Bellagio, one of the most charming locations on the Como lake. Owned by the same family since its foundation, the hotel provides today modern comfort and facilities.</p>
	<p>TITLE: <i>Palace Hotel - Como</i> ACTOR: Hotel keeper ABSTRACT: A charming, XIX century building, in liberty style, hosts this historical luxury accommodation in Como. The hotel is located in downtown Como, near the lake shore. Professional staff ensures top services for the guests on holiday or business trips.</p>
	<p>TITLE: <i>Comacina Island Inn</i> ACTOR: Inn owner ABSTRACT: the inn provides a unique food experience: a menu preserving the traditions and flavors of the island. The restaurant is the only one in this charming and mysterious place.</p>
	<p>TITLE: <i>The Wolf's "Crotto"</i> ACTOR: Owner ABSTRACT: "Crotti" were natural caves, used both in the Como and Lugano areas to preserve food (like salami), that later evolved into taverns. The Wolf's Crotto is a well renowned restaurant in the Como area, maintaining connections with the local food traditions.</p>
	<p>TITLE: <i>Como-Brunate Funicular</i> ACTOR: ATM, the city company that runs the service ABSTRACT: the funicular service, connecting Como to the nearby low mountain of Brunate, was inaugurated in 1894 using vapor energy. The modern funicular, based on an electric engine, provides an exciting and charming experience.</p>

	<p>TITLE: <i>Rowing Association “Lario”</i> ACTOR: The sport association “Società Canottieri Lario” ABSTRACT: the rowing association “Lario” (the ancient name of the Como lake), was founded in 1891. It is the home of 200 athletes, including national and international champions. It also provides sport possibilities for tourists and rehabilitation courses for people affected by disabilities.</p>
	<p>TITLE: <i>Art and Culture in the Como area</i> ACTOR: The Como county ABSTRACT: The Como area offers much more than just a lake or a landscape. Different cultures left their evidence, from prehistoric artifacts to “rational” architecture of the 20s, magnificent churches and stately villas.</p>
	<p>TITLE: <i>The “Lario” territory</i> ACTOR: The Como county ABSTRACT: Come lake is a landscape of breathtaking beauty. Since ancient time, men have been attracted by the lake shores. Even today, it is a preferred destination for international tourists looking for beauty, relax, food and fun.</p>
	<p>TITLE: <i>Villa Olmo</i> ACTOR: The City of Como ABSTRACT: Villa Olmo, with its beautiful building and charming garden, has been declared part of the World Heritage. In recent years it has become the location for the most important cultural events in Como.</p>
	<p>TITLE: <i>Villa Erba</i> ACTOR: The City of Como ABSTRACT: The magnificent Villa Erba is located near Cernobbio, on the western shore of the Como lake. Currently used for important events and gatherings, it was the family retreat of the Visconti family, descendants of the dynasty that ruled Milan in the late middle age. Luchino Visconti, the famous movie director (e.g. “The Gattopardo”), spent his infancy there, and many memories from that time and place can be detected in his movies.</p>

5 Conclusions and Future Work

In our perception, the situation of ICT-based communication for tourism suffers from a number of problems, among which the most serious are the lack of coordination among actors (each one takes care of its own communication) and a (needless) multiplication of efforts. The result is a chaotic overall picture of a destination. In addition, there is a difficulty in keeping up with technology developments and in combining “permanent communication” (e.g. about a territory and its permanent features) with “temporary communication” (e.g. about an event, an exhibition, a congress, ...). Major actors (possibly, but not always) can cope with this situation and

afford the costs of multimedia visibility over Internet. Small actors (and sometimes whole destinations) are not keeping up. In this paper we put forth a possible solution that combines two innovative features: (1) “multimedia brochures” and (2) the “communication chain” approach. With our method and tools, MM-brochures can be created at low cost and quick time, by a staff of non-technical people. The result is an agile form of communication that can be delivered through *all* the relevant technological devices and channels. The communication chain approach is a way to effectively coordinate different pieces of content, borrowing them from different sources and recombining them in meaningful ways. We are adopting this approach in the COMFIT project that promotes a medium-sized area (Como and Ticino). When the project will be over, a permanent service centre will provide support to all the actors of the area, to keep the effort alive. We expect high visibility of the area on the internet, through a variety of technologies, and with limited costs (shared among the different protagonists), and relevant impact on the tourism market.

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