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08 October 2026

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The Citadel of Alessandria: values and strategies involved in the process of releasing from the public ownership

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Abstract The issues concerning the valorization of assets state property, their management and financial rebalancing through a careful policy of disposals and growth of profitability. These dynamics, through the grant or lease to third parties, have been expanding and pay increasing attention to issues of public finance. A radical change of perspective has started in the evaluation of the role of asset management in the field of local authorities. The heritage is no longer considered static, but dynamic; it is gained as a strategic asset in the overall financial management. Local governments make use of this to ensure their service delivery goals and to maximize the well-being of the community. The asset of Defense Ministry transferred to the State Property Office, offers important opportunities for development: not only properties to insert in the real estate market for monetary returns profits to help the Local Governments finance (strategy that did not lead to the desired results), but also opportunities to initiate processes of valorization affecting the industrial area and the surrounding geographical area. In this sense, the case of the Citadel of Alessandria becomes a paradigmatic work to simulate technical decision making application to simulate applications (SWOT, Analytic Hierarchy Process, Analytic Network Process, etc.). Regarding the process and tools that can act as support in delineating the most compatible functional scenario.

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INTRODUCTION[1]

Assets represented by estate property used by Ministry of Defense have been gradually forming during this time, defined and implemented in a period along with various events: marked by similar type of plants and functional distribution, but at the same time with different construction techniques related to the multiple phases of realization. The origin, as it is known, comes from the need to provide new spaces for male conscription in the whole country, it was set up starting from the Unification of Italy, as well as to strengthen the military cantonment: an immediate response to this need was the use of – in the contingency – former convents, schools and other buildings converted to military use. These buildings, now abandoned, have many complexities, because they are protected and located in central urban areas and still very "problematic" and expensive to retrain (Turri, 2010). Most of the military structures were built between the second half of the nineteenth century and the Second World War, following standard models adapted from time to time to the territory and with the aim of meeting the needs of their users. The end of the Cold War, the fall of the Berlin Wall and, lastly, the system of spending review planned by the governments and the European Union have radically changed military strategies with less staff, concentrated in strategic command centers rather than scattered about throughout the country. In addition to the strengthening of some military sites, since 1999 the Army launched a radical revolution by opening the doors to female staff[2] and since 2005 has been eliminated conscription to switch to the voluntary one.[3] The need of adapting existing structures to the new demands coincided with the reorganization of the armed forces: on the one hand the reduction of personnel has caused the abandonment of a number of operational areas no longer used by the Ministry of Defense, on the other, the sites in use were enhanced and revised to provide separate sections for women came into the role.

Since the end of the Nineties a policy of divestment of real estate in the country began, including military assets, aimed at better and more rational use of physical spaces, the valorization and renovation of the artefacts themselves, scattered throughout the national territory, in particular in coastal areas and in the Alps (strategic points during the Cold War), and with a strong presence in Rome and in chief towns. Administrations have found themselves suddenly having to deal with large areas in the past totally inaccessible and unknown, enclaves with walls "by limits," permanent barriers within built-up areas.

Currently, the State Property Office has become operational on January 1, 2004,[4] was charged with the responsibility of administering this asset, to rationalize and enhance the use of it, to develop, monitoring and management through an information system to support massive estimates on market criteria or income, to estimate costs of management and ordinary and extraordinary maintenance, to develop judgments affordability and investment policies. Transformed into a public economic entity with the Legislative Decree no. 173 /2003,[5] it is equipped, as well as greater managerial autonomy, with its

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[1] This paper is attributed in equal parts to the two authors.

[2] D. L. October 20, 1999, n. 380*, Delegation to the Government for the establishment of voluntary military service women*, in OG n. 255 of 29 October 1999.

[3] D. L. August 23, 2004, n. 226, *Suspension of the advance mandatory military service and discipline of the volunteers enlisted in firm fixed, as well as delegation to the Government for subsequent coordination with sector regulations*, in OJ n. 204 of 31 August 2004.

[4] D.M. December 28, 2000, n. 1390, *Provisions bearing booting the tax agencies and the establishment of the special role of the interim staff of the tax in accordance with Articles 73 and 74 of the legislative* decree 30 July 1999 n. 300.

[5] *Reorganization of the Ministry of Economy and Finance and the tax agencies, in accordance with Article 1 of the Law of 6 July 2002,* n. 137, in the Official Gazette n. 161 of 14 July 2003.

own heritage consists of an endowment fund and from movable and immovable property used for its activity, identified by the Minister of Economy and Finance. As it is known, the central structure and the sixteen local structures of regional or interregional operate on national territory buildings and land worth over 56 billion euros (State Property Office, 2014), divided into available assets, historic artistic heritage, real estate intended for government use and real estate funds (FIP). The main objective of the Agency is to keep the direction for the development of properties with consequent adjustment of the context and growth of the territory. As many local governments, the city of Alessandria with the case of the Citadel Military would cull the opportunities that can be seen in the Legislative Decree n. 85 of 28 May 2010[6] establishing the State Property Federalism. From this perspective, in the following paragraphs it is discussed the methodology (simulated by the authors) of the case of the Citadel of a methodology and assessment tools to support the decision makers in defining the most realistic scenario for the use and management of the Citadel. It is necessary clarify that the empirical analysis wasn't lead in partecipatory form between different stakeholders, but it is a "simulation" achieved by the authors In conclusion, some unresolved critical issues are highlighted.

THE PROCESS OF DISPOSING OF THE CITADEL OF ALESSANDRIA[7]

On February 5, 2008 the Ministry of Economy and Finance with the State Property Office and the City of Alessandria and Novara signed Protocol of Agreement for the respective cities, developing the project *Value Country - Entrust Value* for the enhancement of the assets portfolio of the State. For the city of Alessandria was planned to upgrade five properties: the District of the Citadel, the Barracks Valfrè Bonzo, the past Fort Railway, the Fort of Bormida, and the Parade Ground (former military sports camp). The story of the Citadel of Alessandria (see Figure 1) goes back to 1732, the year of laying the foundation stone for King Carlo Emanuele III and through the project Engineer Military Ignazio Bertola.

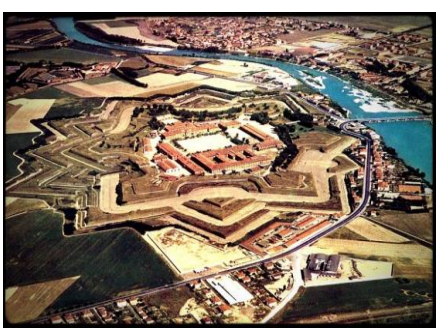

Figure 1 Aerial view of the Citadel of Alessandria http://blog.fondoambiente.it/alessandria/photogallery)

Historically, Alessandria was recognized as a strategic point for the Kingdom of Savoy, nodal during the Napoleonic domination too; in this sense it ascribes the choice to strengthen the structure rather than demolish it, as was the case for most of the Fort in all Piedmonts. The fortress has preserved a crucial role until the beginning of World War II, where it was occupied by the Germans and became

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[6] Legislative Decree of 28 May 2010, n. 85 *Attribution to municipalities, provinces , metropolitan cities and regions of their own assets, in implementation of Article 19 of Law 5 May 2009* , n. 42, in OG n. 134 of June 11, 2010.

[7] It should be noted that as illustrated here by the content and the outcome of the thesis of Mangialardo Alessia (2014), *The project Country Value of the Citadel of Alexandria: the current debate in a case of strategic value,* master's degree thesis, rel. Coscia C., Marotta A., Naretto M., Polytechnic of Turin. Special thanks to Professor Anna Marotta of the Department of Architecture and Design at the Polytechnic of Turin: she first identified as a priority the case of the Citadel and has initiated the process of consultation with the various parties involved in the process of its release from the public ownership.

seat to imprisonment for numerous partisans. In the Nineties, the demilitarization of the Citadel began a slow process that lasted until its completion disposal in 2007. In autumn 2002, the Treasury assigned to the Province, through the CIPE, a loan of one million of Euro for the "Recovery military Citadel in Alessandria."

Since 1998 a number of studies and meetings have followed to define its new functions through project proposals and possible funding to recover it, bound them allocation of state funding. In this regard, the processing techniques of Metaproject of Polytechnic of Turin, received and approved (DGP n. 611, 26.9.2002), with a series of surveys and requests for integration, by the Provincial Administration, with the role of the customer (Figure 2). Different ideas and approach between the responsible Committee and the Polytechnic did put an end to the difficult collaboration between the two parties, which began in 1997.

Figure 2 Proposals for new functions: some options metaprojectual proposed by a working team of the Polytechnic of Turin (2002) (Source: Durbiano G. Reinerio L. (2002), op. cit., p.48)

The effort to valorize internationally the fame of Citadel has finally got its most important and aspired reply, at least formally, with the introduction in 2006 of the denomination "Citadel of Alessandria" in the tentative list in UNESCO heritage. To date, the application had not access to the later stages of evaluation: probably for technical reasons related to the type of site.[8] The administrations and local associations they have not had so far any formal communication and motivation.
In April of 2009, it was approved a Protocol of Agreement between the State Property Office (current owner of the Citadel) and the City of Alessandria (the manager of the system thanks to this deal) to promote initiatives to enhance the fortress fame through shows, exhibitions, trade fairs and exhibitions in the building. The project Value Country and all the initiatives promoted by public and individuals entities to save the Citadel turn out insufficient, moreover in a context of financial difficulty of the City of Alessandria: over time the fortress is left carelessness and in a state of disrepair and decay. The location where it was built, its strong point, today is a strong weakness: its location is revealed close, yet distant and not very attractive compared to other urban conurbations of northern Italy (Figure 3).

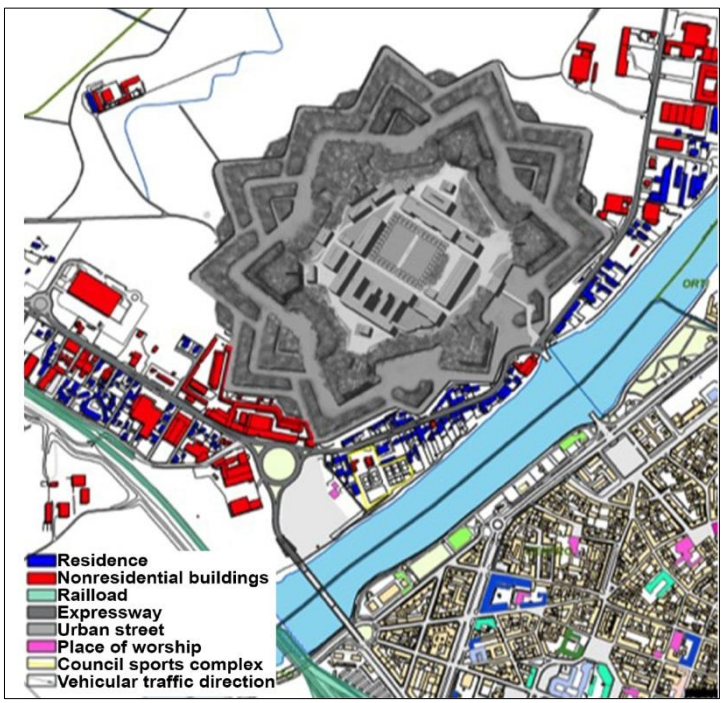

Figure 3 The Citadel, network accessibility and mobility (Source: reworking of Authors from www.gis.comune.alessandria.it/public/)

[8] The World Heritage List are already numerous forts and military buildings around the world, especially after the inclusion of Twelve French military of Vauban in 2008.

In 2013 the fortress was appointed "Place of the Heart" of the FAI, and the case of the Citadel of Alessandria wins the headlines in the news on a national scale. The October 23, 2013, in the newspaper La Stampa, Miriam Massone complaint: "Ad choc State Property Citadel for sale to private individuals".[9]

The State Property Office believes that a "realistic" process to valorize the Citadel of Alessandria is represented by its entrusting in the hands of private highest bidder for a concession period of use between six and fifty years,[10] so in March 2014 the announcement was published.[11] The fortress was considered as one batch to be sold in block to the best valid offer received. In this process the City of Alessandria did not have a role of directing, because it is limited only to set down the invitation.

The reasons for this decision derived from multiple factors: the economic downturn, increased by the commissioner of the city of Alessandria to the large public debts, the difficulty in predicting a new function effective for the complex due to the complexity of the volumes and the width of the working surfaces, weak policies of management and development over time of the Citadel by the City of Alessandria, which have proved totally ineffective.

Through the State Property Federalism we tried to give greater authority to Local Governments in the field of public real estate, since these are regarded as the best spokesperson of territorial dynamics affecting the assets to be evaluated. Given this assumption, it is obvious that the Legislative Decree n.85 is often unenforceable and not gives operational guidance regarding the partnership that can take charge on these restorations, new functions and management. The problems related to the enhancement of the Citadel are of great magnitude, it is unthinkable that the City of Alessandria can resolve them with its own resources and its financial autonomy is required direction from top-down in order to plan a united and effective strategy. On one hand, the intervention of the private entity, as specified in the announcement, could fill the lack of financial resources, but on the other, the public entity (State Property, the City and the social partners) should not renounce their role of observation and orientation on the contents of the announcement, on identification of new functions and the phases of the tender process (lotting and timing).

In theory, the synergy between the State Property and the City of Alessandria could be virtuous, since both relieved from the maintenance and management onerousness of the fortress, and vigilant on the new features and services foreshadowing to help the city. By this option the State Property Office would continue as entity owner to protect the Citadel and would ensure compliance with the constraints imposed by it and the system preservation.

In reality, the case reveals many critical issues unresolved. Total absence of public resources, the related themes to the Citadel valorization are of great magnitude, and it is unthinkable that the City of Alessandria can resolve it with its own resources and its financial autonomy.

It is necessary a direction from high authorities that can plan a united effective strategy, with defined programs and policies. In this case the Stability Pact would not allow local governments to work year

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[9] See Massone M., (October 27, 2013), *State Property Ad shock Citadel for sale to private individuals* , in Alexandria La Stampa: "The State Property has been clear in the meeting with the City of Alexandria: prepare a notice for the award Citadel to individuals. Because public bodies do not make it, they have no money. The only concession to the City is its presence in the "control room" to make the same call".

[10] Decree of November 23, 2001, n. 410, *Conversion in law, with amendments, Decree-Law of 25 September 2001, no.351, containing urgent measures on privatization and exploitation of public real estate development and real estate investment funds.*

[11] To read the notice , see the relevant page on the website of the City of Alexandria available at the following link: www.comune.alessandria.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/10328

by year for public uses with necessary resources for maintenance works and operating costs. Furthermore, this “high authorities direction” would not overestimate individuals "attractiveness" and their involvement in terms of own resources, giving it to certain operations guarantee and investment coverage and budget deficits.

The announcement of 2014 does not contain an indication on the state of preservation of the complex and even general information on investment costs, as well as a possible actions foreshadowing in batches and in temporal progression. Functional claims are extremely sketchy, not explained by priority actions and by public and private uses, also they are not related to reasoning of planning and financial feasibility-management.

KNOWLEDGE, STATE OF PRESERVATION AND RESTORATION OF THE CITADEL

As a result of the total disposal of the Citadel, the lack of routine maintenance has caused a profound deterioration that has grown increasingly problematic over time.

To this day, the most glaring enemy who "besieged" the whole area is the plant *ailanthus*, that has been penetrating into all buildings with its roots, which can extend for many meters deep, causing increasingly serious damage. The Figures 4 and 5 show the building of the “Riding stable” by now infested with this plant, with structural problems and roof failure.

Figure 4 e 5 Front east (left) and North (right) of the building Riding stable
Source: campaign photographic survey of Authors (September-October 2013)

A Protocol of Agreement has recently been signed among the FAI, the Faculty of Agriculture of Turin and the prisons of San Michele and of Cantiello Gaeta, that provided for seven inmates (a number that could grow to 40) to work on the building: they now spend every day under the direction of the faculty of Agriculture to eradicate the ailanthus. The most serious factor for the conservation status of the Citadel is the lack of routine maintenance that causes several problems: much of the counterfort of the complex are damaged, many bricks are seceding because of bad weather, the non-replacement of pluvials disappeared over time has generated extensive damage in the masonry. Another problem is the lack of safety measures in the most deteriorated and particularly precarious buildings: it is very difficult to grant the safety of the clients, not only on days open to the public but especially during the events, when the negligence comes to be particularly glaring on the inside. The impressive volume of the whole complex (Figure 6), articulated in blocks with different historical roots, makes a preliminary valuation particularly complex especially in terms of expected investment for the conservation and commissioning efficiency.

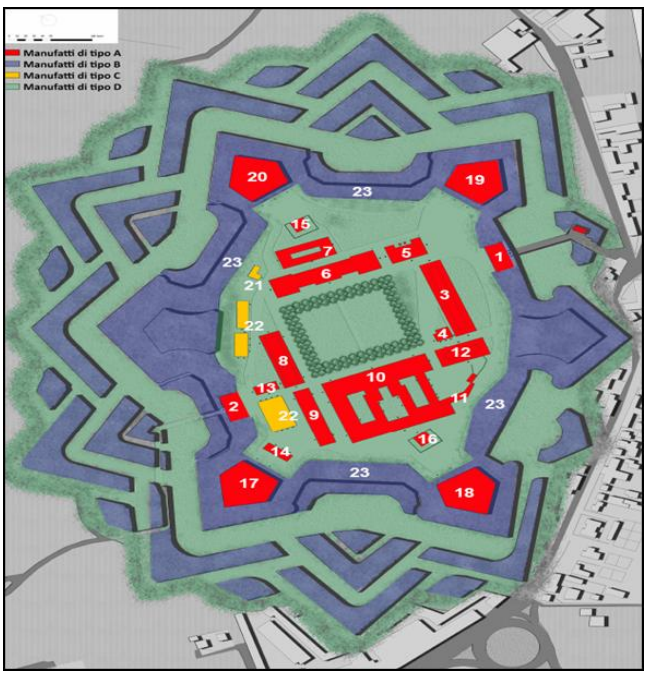


Figure 6 Artefacts of Citadel: historical typologies (Source: graphic processing from Authors by map taken from da Durbiano G., Reinerio L., *Riabilitare la fortezza: idee per la Cittadella di Alessandria,* op. cit. p. 42-43)

Legend:

Royal door (1)
Asti door (2)
Armory (3)
Munition's store roofing (4)
Saint Anthonio's barracks (5)
Governor's palace (6)
Riding stable's palace (7)
Saint Carlo's barracks (9)
Hospital (10)
Hospital's roofing (11)
Warehouse (12)
Little arsenal (13)
Saint Thomas gunpowder keg (14)
Santa Barbara gunpowder keg (15)
San Michel gunpowder keg (16)
Bastions (17,18,19,20)
House place of the end '800 – early '900 (21)
Villa di fine '800-inizi '900 (21)
Capannoni della prima metà del '900 (22)
Fortificazioni (23)

An analysis of the state of degradation was operated on every single building by the Authors previous to the simulation of decision making techniques: the evaluation was based on costs quantification, on a parametric basis and by type of intervention, according to the actual conditions of every elements of the Citadel.

To define a total cost of the works that are necessary for the recovery of the complex, the Authors have hypothesized a synthetic comparative estimate for each of the following items, distinguishing them by

types of artefact having different characteristics and degradation (see Figure 6):[12] artefacts of type "A", which were considered to be the oldest buildings (dating between the eighteenth and nineteenth century); artefacts of type "B", which is the complex of fortifications; artefacts of type "C", which date back to the twentieth century; artefacts of type "D", that is, the external works.
The hypothesis of estimation provides for securing of the artefacts, remedying to instability and to degradations, reviewing installations to achieve a standard level of efficiency of buildings and to ensure the possibility of systemize them. For the artefacts of type "A" (artefacts of monumental value), the description of the works follows the main categories inlaid in the price list provided by the College of Engineers and Architect of Milan, included in Chapter C "Home Building of Monumental Kind" under the item "Restructuring Villa Patrizia" with appropriate modifications or emissions. In Table 1 the total cost of the restoration for this type of building amounts to 1,012.00 Euro/sqm, and it constitutes the most expensive restoration work of the entire complex.

Codex	Description	Cost (Euro)	Incidence
1	Roofings	134,515	**12.36%**
2	Excavations and reburings	18,719	**1.72%**
3	Under floor cavity and base	89,570	**8.23%**
4	Masonry: reinforcement, structural's reorders	170,190	**15.63%**
5	External building works	107,296	**9.86%**
6	Plasters, tinteds, adornments, stuccos and cornices	101,955	**9.37%**
7	Smokestacks, sewers and chimneys	59,274	**5.44%**
8	Heating system	86,190	**7.92%**
9	Water and sanitary system	70,296	**6.46%**
10	Wiring	96,402	**8.85%**
11	Floors and cladding	64,146	**5.89%**
12	Wooden doors and glasses	66,443	**6.10%**
13	Blacksmith works	23,681	**2.18%**
	Grand total	1,088,677	**100.00%**
	WORK VALUE IN sqm	**1,012**	

Table 1 Typological price list for the restoration of the artifacts of type A. Source: Authors processing of data taken from the item "Restructuring patrician villa" included in the "C-Housing type Monumental", in *Prices for building types*, College of Engineers and Architect of Milan, op. cit.

As for the artefacts of type "B" (fortifications), the Authors used with appropriate modifications the "Maintenance of the facade of monumental building" included in the "L" chapter ("Works of extraordinary maintenance"). Table 2 shows the parametric count per square meter to restore the fortifications, with a cost of 249 euros/sqm per square meter.[13]

[12] This estimate was made basing on the work of the College of Engineers and Architects of Milan "Prices for Building typologies 2010", where through different types of buildings, they were analyzed the bill of quantities of works executed in recent years, that during the preparation of the book they have been summarized in captions to arrive at a target price per square meter or per cubic meter.

[13] For fortifications in simplification we calculate the price per square meter and to use the same units of other artifacts. The corresponding cost per cubic meter would be equal to 50 euros considering the height of the fortifications of five meters.

Codex	Description	Costs (Euro)	Incidence
1	Removal of infesting vegetation and maintenance of the existing one	44.515	16,61%
2	Masonry: reinforcement, structural's reorders	89.190	33,29%
3	External building works	82.296	30,71%
4	Plasters, tinteds, adornments, stuccos and cornices	51.955	19,39%
	Grand total	267.956	100%
	WORK VALUE IN sqm	249	

Table 2 Typological price list for the restoration of the artefacts of type B (Source: Authors processing of data taken from the item "Facade maintenance of monumental building" included in the "L-Extraordinary maintenance", in *Prices for building types*, College of Engineers and Architect of Milan, op. cit.)

The artefacts of type "C" includes three brickwork sheds from the first half of the twentieth century and the "Villa del Colonnello" of the late nineteenth century-early twentieth century. Their state of degradation is similar to the one of those of monumental value (artefacts of type "A"), with some modifications: the ailanthus has not destroyed the roofs, which are currently in a fairly good condition and thus don't require for a to complete makeover but only for works of ordinary maintenance. Due to the simplification of certain interventions, the price per square meter of the restoration, as shown in Table 3, is lower and it is equal to 799 Euro/sqm.

Codex	Description	Costs (Euro)	Incidence
1	Roofings	74.515	8,67%
2	Excavations and reburings	18.719	2,18%
3	Under floor cavity and base	59.570	6,93%
4	Masonry: reinforcement, structural's reorders	80.190	9,33%
5	External building works	77.296	8,99%
6	Plasters, tinteds, adornments, stuccos and cornices	59.274	6,89%
7	Smokestacks, sewers and chimneys	86.190	10,03%
8	Heating system	70.296	8,18%
9	Water and sanitary system	96.402	11,21%
10	Wiring	64.146	7,46%
11	Floors and cladding	32.955	3,83%
12	Wooden doors and glasses	86.443	10,06%
13	Blacksmith works	53.681	6,24%
	Grand total	859.677	100%
	WORK VALUE IN sqm	799	

Table 3 Typological price list for the restoration of the artefacts of type C Source: Authors processing of data taken from the item "Restructuring patrician villa" included in the "C-Housing type Monumental", in *Prices for building types*, College of Engineers and Architect of Milan, op. cit.

Finally, the external works to be carried out in the Citadel were calculated and divided into two different "lots of operation": the first one, inside the bastions, made up of green areas and paved roads, and the second one, external to the bastions, formed by meadows (now cultivated) and trees, with no paved paths.
For the first one the Authors chose to review the paths and to clear out the gardens, accordingly to item I.1 "Public Garden-type A" of chapter I "External works", with some changes. Table 4 shows the operations to be performed for a total of 29,00 Euro/sqm.

Codex	Description	Costs (Euro)	Incidence
1	Excavating and leveling	11.830	**3,86%**
2	Bases and reburings	19.173	**6,26%**
3	Plantation and lawn development	65.205	**21,27%**
4	Orchard	16.998	**5,55%**
5	Concrete Stringcourse	13.598	**4,44%**
6	Roofings	37.123	**12,11%**
7	Lighting plant	34.267	**11,18%**
8	Drainage system	36.171	**11,80%**
9	Rain irrigation	72.139	**23,54%**
	Grand total	306.504	**100%**
	WORK VALUE IN sqm	**29**	

Table 4 Typological price list for the restoration of the artefacts of type D (area inside the ramparts) (Source: Authors processing of data taken from the item "Public garden of type B" included in the "I-external works", in *Prices for building types,* College of Engineers and Architect of Milan, op. cit.)

For the recovery of the currently cultivated green areas outside the bastions, however, is provided only for the remediation of the complex, without the addition of new functions and without the dismantling of road surfaces or trails, because non-existent. Table 5 shows the operations to be performed in this area, for a total of 6,00 Euro/sqm.

Codex	Description	Costs (Euro)	Incidence
1	To weed	16.998	**26,21%**
2	Bases and reburings	13.598	**20,96%**
3	Public Lighting plant	34.267	**52,83%**
	Grand total	64.863	**100,00%**
	WORK VALUE IN sqm	**6**	

Table 5 Typological price list for the restoration of the artefacts of type D (area outside the ramparts)
(Source: Authors processing of data taken from the item "Public garden of type B" included in the "I-external works", in *Prices for building types*, College of Engineers and Architect of Milan, op. cit.)

Building (for location see Figure 6)	Floor	Square metres	€/smq	Total €
Royal Door (1)	Ground first	910 910	1.012	1.841.840
Asti Door (2)	Ground first	910 910	1.012	1.841.840
Armory(3)	Ground first Second	3.130 3.130 970	1.012	7.316.760
Munition's store roofing (4)	Ground	340	1.012	344.080
Saint Anthonio's barracks (5)	Basement Ground first Second	1.250 1.250 1.250 1.250	1.012	5.060.000
Governor's palace (6)	Basement Ground first Second	3.550 3.550 3.550 3.550	1.012	14.370.400
Riding stable's palace (7)	Ground first	1.570 1.570	1.012	3.177.680
Saint Carlo's barracks (8)	Basement Ground first Second	2.170 2.170 2.170 2.170	1.012	8.784.160
Saint Tommaso's barracks (9)	Ground first	1.780 1.780	1.012	3.602.720
Hospital (10)	Basement Ground first Second	9.100 9.100 9.100 6.200	1.012	33.902.000
Hospital's roofing(11)	Ground	150	799	119.850
Warehouse (12)	Basement Ground first Second	1.570 1.570 1.570 1.570	1.012	6.355.360
Little arsenal (13)	Ground first	390 390	1.012	789.360
Saint Thomas gunpowder keg (14)	Ground	420	1.012	425.040
Santa Barbara gunpowder keg (15)	Ground	300	1.012	303.600
San Michel gunpowder keg (16)	Ground	300	1.012	303.600
Bastions (17, 18, 19, 20)	Ground first	5.590 (x 4 remparts) 4.300 (x 4 remparts)	1.012	40.034.720
House place of the end '800-early '900 (21)	Ground first	210 210	799	335.580
Ware house of the first half of ' 900 (22)	Ground	4.150	799	3.315.850
Defensive walls (23)		153.840	331	50.921.040
Outdoor areas equipped		90.000	29	2.610.000
Outdoor green		166.600	6	999.600
Grand total		**542.090**	**488,98**	**186.755.080**

Table 6 Summary Table of parametric costs for the restoration of the Citadel (excluding the technical statement)

The final parametric costs calculated for the restoration and the safety of the Citadel of Alessandria amounts to 186.755.080,00 Euro. Starting from this amount, it is calculated the total cost of works through the economic technical statement.

As for the second part (" sums available to client") it was not considered the entries corresponding to "work in economy" (for they are impossible in this case), "furniture" (because the computation calculates only the restoration of the fortress), "connections to public services and infrastructure works" (as the property is public and the restoration work will not expand the existing surface), "Provision from the article n.133 Leg. 163/06" and the "expenses for consulting, etc.".

In conclusion, for the complete restoration of the Citadel, the total amount of the works is equal to 265,794,220.00 Euros, that is, 489.00 euros/sqm.

This amount triggers some initial thoughts: in total absence of European and State Property funding, as well as of individuals willing to invest in the restoration and the reuse of the complex, it would be necessary to provide from the beginning for a division in functional lots and phases of , even if partially, that allows to identify and to program interventions in succession, according to the availability of resources and in function of the emergence of applications of use and enjoyment, without excluding "surveillance" (in Leg. n. 85 fleeting and very compelling) in terms of protection and conservation on the modalities of the restoration and reuse (Curto R., 2002).

TOOLS TO SUPPORT THE VALORISATION STRATEGIES: A COMPARATIVE READING

At strategic level, next to reasoning carried out in previous chapter, it should be performed the "valorization" process. In this one, fallouts redevelopment at social level become emerging, in terms of public property use, the expansion of offered services, the tourism and citizens attractiveness, the intervention impact on regional scale, etc.. In the same way, in valorization process, functional aspects (in terms of planned measures to restore artefacts and those of management and budget management for identified operation activities in reuse) increase their importance.

The centrality of the fruition is fully reflected in the classical economy and in the value conception, where a diriment definition is the one that identifies the private or public sites nature, not on the basis of legal property status, but on the use disposition by economic subjects, whether exclusive or not, whether rival or not.

It is important to structure strategic objectives that guide the scenarios composition and functional mix tying them with users mapping (that are roles, benefits and needs bearers). With these purposes, stakeholders, economic operators and community groups draws budgets and impacts of different nature from different scenarios.

To identify functional scenarios for a project overall view, which takes into account economic and financial, social and multi-criteria aspects (of functional and management, urban planning, building work, environmental purposes, etc.), it becomes interesting the application of strategic assessment methodologies or techniques to support decision- making.

Valuation techniques can be called early in the preliminary draft (*ex ante*) to train the pre-feasibility strategic choices contents, during the project draft (*on going*), to monitor the advancement stages, and finally, at the end of the work (*ex post*), to ensure that the expected outcomes correspond to what actually has been achieved and to monitor the business settled operation.

It is not the purpose of the paper to make the exhaustive state of the art techniques for the evaluation projects discipline, but only to report the methodology used for the case study simulation, aimed to identify the more appropriate management scenario to the Citadel of Alessandria valorization.

Table 7 shows a analysis methodologies summary considered in the Citadel of Alessandria case study, preliminary to determinate the best design solution among alternatives. The parameters shown are the objectives and actions of different methodologies.

METHODS	ACRONYM		NATURE	MODALITY	ACTIONS
Feasibility study	**FS**	Ex ante	MONETARY Economic/financial	In-depth studied project to understand globally all the economic and financial risks	Evaluation costs and social benefits
Cost Effectiveness Analysis	**CEA**	On going	MONETARY Economic/financial	Identify the most economically efficient way to achieve a goal	Cost comparison of various programs with similar impacts
Community Impact Analysis	**CIA**	Ex ante and on going	MONETARY and NON MONETARY Social	Determine the preferences of the community's achievable scenarios	Comparison of alternatives
Cost Benefit Analysis	**CBA**	Ex ante e ex post	MONETARY Economic/financial	Make sure if costs surpass community benefits	Comparison of alternatives
Goals Achievement Matrix	**GAM**	On going	NON MONETARY Multicriteria	Classify alternatives	Assign a weight to the objectives
MultiCriteria Evaluation	**MCE**	Ex ante	NON MONETARY Multicriteria	Comparison different scenarios to choose the best one	Assign scores to alternatives
Social Impact Analysis	**SIA**	Ex post	MONETARY and NON MONETARY Social	Assess the project social impact	Analyse social benefits

Table 7 Scoreboard methods of strategic assessment for the enhancement of the Citadel of Alessandria (Source: Authors processing)

The *Feasibility Study* (FS, which contains in it opportunity and pre-feasibility studies) is purely economic/financial: although the provisions of law indicate in its structure the need for in-depth scale and temporal analysis. It must take into account design and functional management, historical, environmental, housing, social, economic/financial levels, etc. (Vianello, 2012). The FS is a preliminary tool to configure an overall vision of the future project impact on the territory, describing input and output.

Another instrument ex ante (sometimes ex post) required to study project investment opportunities by Public Authorities is the traditional *Cost Benefit Analysis* (CBA): this instrument, today submitted in its canonical criticisms and reviews although in its limits and weakness, it has the purpose to predict the expected overall performance intervention. It analyse the positive and negative externalities linked to it. Considering issues to predict the financial benefits are environmental, urban, financial, bureaucratic and social. It is known as through the various options comparison are examined social benefits and operation costs, to verify that the first ones prevail the seconds: the analysis difficulty is to understand what actually are inputs and outputs related to the project.

The *Multicriteria Analysis* (MCE-MultiCriteriaEvaluation), provides for the analysis of various aspects related to the project and, through their direct confrontation and their hierarchy, provides for the best solution which responds better than others considered alternatives. In the case of the Citadel of

Alexandria was chosen to use this kind of methodology, which will be described in the following paragraphs.

Proceeding to methodologies on going, an economic/financial analysis is represented by the *Cost Effettiveness Analysys* (CEA), it research priorities of the project considering the designed costs and scenario consequences to identify the best planning strategies and the resulting benefits. The limit of this method is that can be performed the analysis only when can be quantified operation costs.

The *Goals Achievement Matrix* (GAM), in turn, analyses the costs and benefits which are ordered according to the alternative performance provided by the comparison between different solutions, with the last purpose to verify expected project results. These options are evaluated according to what they are able to achieve certain objectives (Pareglio, 2007).

To verify the social impact you can provide two methods: the *Community Impact Analysis* (CIA) and the *Social Impact Analysis* (SIA). The first one identifies ex ante and on going project effects on different social groups (possible users of a given intervention). The judgement parameter is the social well being, obtained from a comparison between proposed alternatives. The Social Impact Analysis, however, is a determination to made ex post, in order to assess social changes resulting from the implemented project, to further increase the potential and to limit negative impacts as much as possible.

In the Citadel of Alexandria case, is essential to identify the most appropriate type of management between public, private or mixed public/private to define a metaprojectual solution. Only thanks to these preliminary arguments in fact, it is correct to identify the process to determinate the suitable intended use. Due to concerned factors, we have chosen a Multicriteria technique simulation.

This analysis is paradigmatic of many cases of releasing from the public ownership of military assets. With this method, through the several elements comparison you choose the solution that meets the most number of them.

In the next section we are going to proceed defining the used valuation methodology to found the Citadel best scenario management.

THE PROCESS OF RE-USE OF THE CITADEL: THE APPLICATION OF ANALYTIC HIERARCHY PROCESS

Given the presence of heterogeneous objectives often in conflict with each other, it is difficult to find solutions that meet simultaneously all the objectives, and the decision problem can't be resolved according to the passed Pareto optimum, but –as it is known- according on the scenario more satisfying and consistent with the logic of the decision makers. The best solution is the one that better responds than the others in all criteria parameters that you chose to evaluate, where it is not possible to improve the level of an aspect without causing a level worsening of one other element at least.

To proceed to an analysis of plural parameters of this kind, we resort to Multicriteria analysis, where it is not necessary having single unit of measurement (e.g. monetary type), instead possible to compare a plurality of different types of data: quantitative and qualitative. Normally, it is preferable to perform the analysis during the preparation of the preliminary draft, the phase in which we investigate the main interrelationships between the enhancement project and the reference context, and the analyst will provide the main guidelines that must be followed for the final plan preparation more detailed (Curto in Roscelli, 2005).

As anticipated in Introduction, the empirical analysis for the Citadel case was lead not by partecipative disposition between different stakeholders, but it is a simulation realized by the authors.

Introductory to the Multicriteria Analysis was the identification of the sensitive themes emerged from the SWOT[14] analysis on the province of Alessandria territory, the city of Alexandria and the Citadel (Figure 7). These strategic themes represent preliminary parameters, the emerging causes and vocations that matter regardless of functional proposals; they can be considered as starting points to determine the best design alternatives.

Figure 7 Sensitive themes (Source: Authors processing)

The process to address the Multicriteria analysis requires a number of elements to consider:

- A *goal*, the objective to be achieved (in this case the Citadel of Alexandria valorisation);
- One or more *decision makers*, that expresses their preferences;
- The *evaluation criteria* underlying the alternatives;
- The *alternatives*, those represent the alternatives object;
- The *scores* that determine the alternative value compared to a criterion (Curto, R. 2005).

In the evaluation process drafting and in the case application study we have followed the canonical steps, structuring the technical operation in four main phases: 1. the objectives identification, 2. the evaluation policies choice and the allocation of relative weights, 3. the project alternatives definition, 4. the scores allocation to found alternatives.

Multicriteria analysis can be grouped into two main categories: *Analysis Multi Objectives* (AMO), where the process decision-making identifies the best solution in an infinite set of feasible solutions by choosing the most suitable alternative. The other one is the *Multi Attributes Analysis* (AMA) in which you search the most satisfactory solution between a finite set of alternatives arranged in a scale of preference, where the best alternative is chosen depending on the most important parameters (Catalano, 1995).

In regard to the enhancement of the Citadel of Alexandria, it was decided to use the Analytic Hierarchy Process (AHP) method, a type of AMA.

The AHP assumed the traditional decomposition of the evaluation process in four phases: starting from the hierarchical decomposition of the problem, following by the assignment of compared ratings

[14] Finding points of force- *Strengths, Weaknesses, Opportunities* and *Threats* of various contexts to be analyzed.

through the pairwise comparison between the different alternatives, and then proceeding to reassembly the hierarchical synthesis of priorities and consistency check, to end the sensitivity analysis.

In this simulation the protagonists of the decision-making procedure are the analyst and the decision-maker, both actors that can often coincide. The analyst is responsible to construct the decision model, by choosing the evaluation methodology to adopt. At the same time the decision maker expresses opinions and makes the final decision by the interpretation of results (he is often represented by a person directly involved in the analysis).

In the analysis of the Citadel of Alexandria, it would be effective to prepare the decision-making models and to assign the judgments on the various criteria selected to stakeholders for the enhancement of the Citadel. According to this, the actors could be: a public official of the State Property directly involved in decision-making (as a representative of the owner), the City's planning department of the City of Alexandria (as complex manager), persons in charge of the numerous bodies directly concerned and involved in issues related to the Citadel (as main users). These roles would provide more adequate weight to the problem. For logistical reasons this has not been possible, the analyst has been involved figuring solutions that could be a meeting point between the various players involved.

The hierarchical structure designed for the Citadel of Alexandria starts from the objective of enhancement of the Citadel, the first phase of the analysis has been articulated in the definition of the components of the decision-making model, which is the ultimate goal, the criteria, the sub-criteria and the various alternatives; each factor was subsequently ordered according to a hierarchical pyramid from the top-down, starting from the general elements and going down more and more in particular. Each hierarchy component has been defined by authors (acting as analyst), summarizing sensitive themes deduced by SWOT analysis. Each level depends from the upper one, while the elements of one same level are independent of each other.

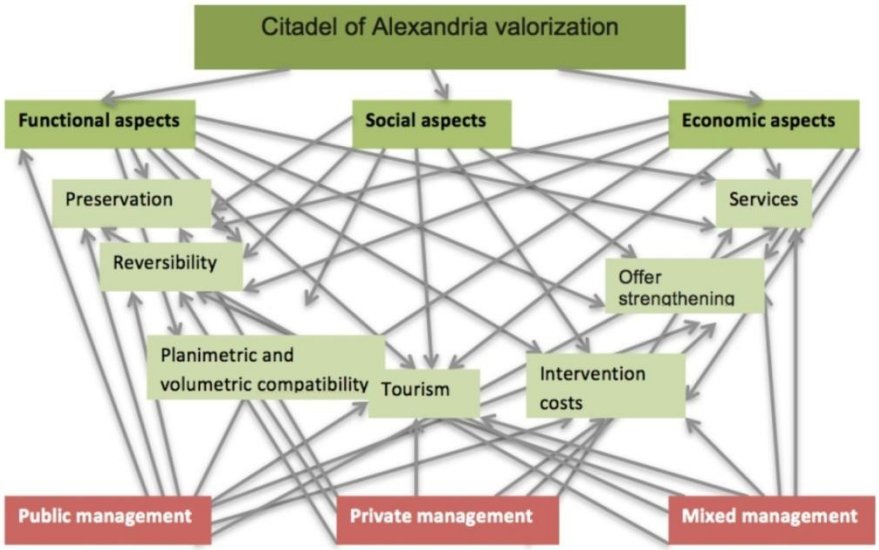


Figure 8 AHP hierarchical structure for the case study of the Citadel of Alexandria (Source: Authors processing)

The selected criteria schematization to preliminary scale (Figure 8):

- *Functional aspects*, to determine the new features compatibility and existing facilities;
- *Social aspects*, in order to quantify the impact that interventions would involve on the citizens of Alexandria and its province, the district and all other stakeholders;
- *Economic aspects*, which were enclosed the huge costs for enhancement operations.

The sub-criteria are the following:

- *Conservation*, to protect the Citadel of Alexandria and its historical memory;
- *Reversibility,* in order to make any intervention removable without altering its original structure;
- *Planimetric and volumetric compatibility,* to make compatible all new features of the complex with the shape of the Citadel;
- *Tourism*, to increase the importance of the Citadel at Italian level and not only;
- *Services*, with the aim to fill gaps in the surrounding area;
- *Offer strengthening*, in order to identify how much the project will increase local offering (in terms of services, culture, entertainment, etc.);
- *Costs of intervention*, purely economic aspects useful to understand the range of the work.

The alternatives and choices are related to the type of management for the enhancement of the Citadel of Alexandria: public management, private management and the mixed, a combination of public/private management.

The scenario of public governance would ensure the full public use of the fortress, as this is the primary objective of the Public Administration. The interest in the choices to enhance the complex would deal more on the functional aspects, related to the conservation, reversibility and planimetric and volumetric compatibility. Aspects related to the development of tourism and services are important for this type of management, because they provide the public use of the complex and at the same time they increase the well-being and quality of community life. In fact, the preservation of the Citadel has the top priority in spite of the unsustainability of intervention costs at this time of severe economic crisis and lack of public resources.

Private management means the impossibility (very realistic) by the Public Administration to be able to fully cover the costs for the enhancement of the Citadel, offering it in management to private and entering into a contract with their multi-year rental. In this case, the private operator (at his own expense) would deal with the restoration, rehabilitation and management of buildings. The goal of private is the profit: in front of the important initial investment he must be able to provide as many economic revenues to ensure that the investment became positive. In this context, aspects related to the costs of intervention are of major importance. The strengthening of the offer, tourism and services are also important elements because they imply the use of the Citadel ensuring economic revenues to recover their initial investments. The functional aspects related to the conservation and reversibility, would pass into the background: to minimize the costs of intervention and to be able to get the least possible expense. This scenario, however, supposes a situation of great attractiveness for investment by the private, very weak condition today.

Thinking about the restoration and enhancement of a large system like the Citadel of Alexandria, it is easy to imagine that the only public contribution would not be able to cover the huge costs to address; collaboration between the public sector and the private sector would make investments more economically sustainable for both sides. Therefore the public/private partnership, on one hand would ensure the public use of the complex and the inclusion of other public activities, on the other hand private services would guarantee economics return. The most important aspects to consider are therefore related to the functional elements such as conservation and reversibility, and the costs of intervention. Also social aspects related to the services strengthening would be elements that would not be neglected by this type of management.

Identified all the elements that form the decision-making model, the second step of the method involves the technique of AHP pairwise comparison, useful to set priorities among the various criteria and sub-criteria for each level of the hierarchy: comparing the elements of a level two by two with respect to each element of the upper level. This operation starts from the comparison between the overall objective and criteria, it is followed by analysis of each criterion with the sub-criteria and at the end these relate themselves with alternatives. This method is used to establish a hierarchy of importance between the elements of the same level.

From this analysis is obtained a coefficient $\mathbf{a_{ij}}$ named "dominance coefficient", which represents an appraisal of the dominance for the first element (**i**) compared to the second one (**j**). These coefficients been evaluated by the known Saaty semantic scale (Bottero, M. *et al.* 2008).

According to the decision model considered, we are going to discuss the following matrix:

1. one matrix comparing general objective with criteria (3x3);
2. three matrices of comparison criteria and sub-criteria (7x7);
3. seven matrices that compare the sub criteria with the respective alternatives (3x3).

Before proceeding to develop the simulation, it should be helpful to specify that weights attributed to all matrices element were assigned by the authors, that practiced the decider's role. They emphatized them in the possibles choices that stakeholders could carry out.

For a more truthful analysis a future reiteration would forecast weight attribution to stakeholders directly involved in the Citadel of Alessandria valorization, acting as "decider".

Before going on to processing the simulation, it is necessary to specify that weight assigned to different elements of the matrices are ascribed by the authors, that they exercise the role of "decider",

identifying themselves on the possible choices that could perform the true subjects stakeholders.[15] To a truthful analysis it is necessary submitting the weight assignment to the decider judgement directly interested to the Citadel valorisation.
From here there are described matrices listed.

Citadel of Alexandria valorisation	Functional aspects	Social aspects	Economic aspects
Functional aspects	1	4	6
Social aspects	1/4	1	3
Economic aspects	1/6	1/3	1

Table 8 Table of comparison with the overall objective criteria (Source: Authors processing)

Table 9 shows the hierarchy among the criteria functional compatibility, social and economic aspects with the objective of Citadel of Alessandria valorisation. The functional compatibility has a greater importance than social aspects, and especially to the economic ones. The social aspects however, have a moderate importance than economic ones. Once analysed with the objective criteria, criteria are evaluated with the sub-criteria, always with the fundamental scale of Saaty.

Functional aspects	Conservation	Reversibility	Planimetric and volumetric compatibility	Tourism	Services	Strengthening of the offer	Intervention costs
Conservation	1	3	5	9	9	9	9
Reversibility	1/3	1	1	8	4	8	8
Planimetric and volumetric compatibility	1/5	1	1	8	8	8	8
Tourism	1/9	1/8	1/8	1	1	1/5	1/4
Services	1/9	1/4	1/8	1	1	1/2	1/3
Strengthening of the offer	1/9	1/8	1/8	5	2	1	1/3
Intervention costs	1/9	1/8	1/8	4	3	3	1

Table 9 Comparison matrix between the criterion "functional aspects" and sub-criteria (Source: Authors processing)

Comparing aspects of functional compatibility and sub-criteria described in Table 8, the aspects related to the conservation, reversibility and planimetric and volumetric compatibility are fundamental than the other sub-criteria. Follow them the intervention costs, the services and the offer strengthening up to the tourism, the aspect that count less than the functions.
Table 10 defines the relationship between social aspects and various sub-criteria. The aspects related to the services offer and tourism owns particular importance, followed by conservation, reversibility and planimetric and volumetric compatibility (to preserve the historical memory of the Citadel). At the end, the costs of intervention and the offer strengthening.

[15] Recalling the previous paragraph, please note that the decision makers who should have been directly involved in the analysis are: a public official of the State Office, the City's planning department of the City of Alexandria and the various representatives of organizations involved in Citadel Alessandria.

Social aspects	Conservation	Reversibility	Planimetric and volumetric compatibility	Tourism	Services	Offer strengthening	Intervention costs
Conservation	1	5	5	1 /5	5	4	6
Reversibility	1/5	1	1	1/4	1/4	1/3	1/2
Planimetric and volumetric compatibility	1/5	1	1	1/5	5	1	6
Tourism	5	4	5	1	1/4	8	8
Services	1/5	4	1/5	4	1	8	8
Offer strengthening	1/4	3	1	1/8	1/8	1	5
Intervention costs	1/6	2	1/6	1/8	1/8	1/5	1

Table 10 Comparison matrix between the criterion "social aspects" and sub-criteria (Source: Authors processing)

Economic aspects	Conservation	Reversibility	Planimetric and volumetric compatibility	Tourism	Services	Offer strengthening	Intervention costs
Conservation	1	3	3	1/3	1/3	1/7	1/7
Reversibility	1/3	1	1/2	1/5	1/5	1/7	1/8
Planimetric and volumetric compatibility	1/3	2	1	1/5	1/5	1/8	1/8
Tourism	3	5	5	1	1	1/5	1/5
Services	3	5	5	1	1	1	1/8
Offer strengthening	7	7	8	5	5	1	1
Intervention costs	7	8	8	5	8	1	1

Table 11 Comparison matrix between the criterion "economic aspects" and sub-criteria (Source: Authors processing)

For the criterion "economic aspects" Table 11 defines the relationship between these and sub-criteria: the cost of intervention and the strengthening of the local offer are of particular importance respect to the rest of items except for preservation and enhancement of services.

Once defined the three matrices of comparison between the criteria and sub-criteria, the analysis moved at the last step: the seven matrices that compare sub-criteria with the respective alternatives. Also in this case, it should be noted that each judgment considered in various matrices has been defined by the authors, which sought to identify with the role of "decision-makers", trying to make it as realistic as possible.

Also in this case, it is necessary to specify that each judgement taken in consideration for all matrices, was defined by the authors, that emphatized them in decider's role, proving to carry out role plays to make them more credible as possible.

Conservation	Public	Private	Mixed
Public	1	5	1
Private	1/5	1	1/5
Mixed	1	5	1

Table 12 Comparison matrix between the sub-criterion "conservation" and alternatives (Source: Authors processing)

Reversibility	Public	Private	Mixed
Public	1	5	1
Private	1/5	1	1/5
	1	5	1

Table 13 Comparison matrix between the sub-criterion "reversibility" and alternatives (Source: Authors processing)

Tables 12, 13 and 14 show the comparison between the sub-criteria "conservation", "reversibility", "planimetric and volumetric compability" with the alternatives of public management private or mixed. The public sector and mixed are more concerned with these matters respect to private management, in fact he is mainly interested to economic incomes. In public and mixed management the public matrix produces as its ultimate goal the guarantee for the preservation of the Citadel.

Planimetric and volumetric compatibility	Public	Private	Mixed
Public	1	5	1
Private	1/5	1	1/5
Mixed	1	5	1

Table 14 Comparison matrix between the sub-criterion "Planimetric and volumetric compatibility" and alternatives (Source: Authors processing)

Tourism	Public	Private	Mixed
Public	1	1/4	¼
Private	4	1	1/2
Mixed	4	2	1

Table 15 Comparison matrix between the sub-criterion "tourism" and alternatives (Souce: Authors processing)

Aspect related to tourism compared with the alternatives is shown in Table 15 where we see that the mixed management and private prefer this element respect to public sector, in fact tourism could provide economic income.

For the "services" described in Table 16, we can summarize the same derived by tourism: the mixed management and private prefer this factor respect to the public one, because it is in their interest to increase the well-being and quality of life of the community, to make sure that the fortress is enjoyed as much as possible.

Table 17 identifies the comparison between the strengthening of the offer and alternatives. The management private followed by mixed, are the most interested in this aspect respect to the public one, because of their monetary interests.

For the "costs of intervention", the Table 18 highlights the comparison of this element than the alternatives: the mixed management and private are more involved.

Services	Public	Private	Mixed
Public	1	3	1
Private	1/3	1	1/6
Mixed	1	6	1

Table 16 Comparison matrix between the sub-criterion "Services" and alternatives (Source: Authors processing)

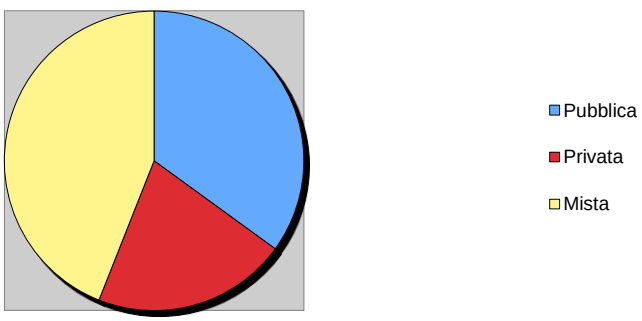
Offer	Public	Private	Mixed
Public	1	1/6	1/5
Private	6	1	1
Mixed	5	1	1

Table 17 Comparison matrix between the sub-criterion "Strengthening of the offer" and alternatives (Source: Authors processing)

Costs	Public	Private	Mixed
Public	1	1/7	1/5
Private	7	1	1/3
Mixed	5	3	1

Table 18 Comparison matrix between the sub-criterion "Intervention costs" and alternatives (Source: Authors processing)

The model above described was inserted within the software Super Decisions ©[16], which automatically provides the final outputs. The Graph 1 shows a summary of the final judgments, where the sum of the three alternatives must be 1: the alternative of mixed management is the best for the enhancement of the Citadel, with a score of 0.44; at this follows the public (0.35), where the results of the two alternatives stand apart slightly, and finally the private strategy, which does not respond fully to the parameters taken into account, with a score of 0.21.



Graph 1 Summary of the alternatives to the method ATP Sourche: Authors processing

Unresolved nodes and application developments: the integration of techniques

It is necessary to advise that for the results analysis, the conclusive consideration and the alternatives evaluation reported in the previous paragraph (from Table 8 to Table 18), the responsibility and also the modality to choose all criteria and the weight determination was assumed by the authors acting as simulation/exercise. It is clear that, if context condition would allow, it would be important repeat the analysis with a second active modality to have an additional results evaluation.

[16] Saaty R. W. (2003), *Decision making in complex environments* [scaricabile on line dal sito www.superdecisions.com].

From the analysis of the results showed before, it emerged that the alternative of mixed management is the best one for the enhancement of the Citadel, because it is able to balance aspects taken into account, at this follows the public one (its results are detached from little by mixed), and at the end the private one (that has emerged from the analysis did not fully respond to the requirements taken into account).
As a further check of the outcome, it was decided to experiment an other type of MultiCriteria Analysis, The Analytic Network Process, a methodology more recent than AHP, developed by Saaty to expand this technique. This method involves the construction of a network (from here the name), that addresses in more detail a complex problem by including interactions between the different aspects that make it up, to make the system more akin to evaluate the complexities in reality. Table 19 summarizes the main differences between the two models used.

	AHP	ANP
Objective	Take the most appropriate decision-making choice among those proposed	To take the most appropriate decision-making choice among those proposed
Classification	Hierarchy: each variable is depending according to a clear hierarchical structure (decomposition of the problem into its constituent parts)	Network: there is no hierarchical structure and variables are interdependent connected through a network
Construction decision model	Need for experts to study the subject with probabilistic approach	Need for experts to study the subject with probabilistic approach
Method	Pairwise comparison of alternatives against criteria	Pairwise comparison of alternatives against criteria and viceversa
Limits	- Possibility to place up to nine alternatives - You must specify in the ante goal to evaluate	- The alternatives are compared with each other, there is no hierarchy
Benefits	- Dependence between the elements of the hierarchical structure	- Independence between the elements of a same level of the hierarchy - Method more generalist: ability to deal with more complex problems - It is not necessary to specify in the ante goal to be evaluated - Ability to insert endless alternatives

Table 19 Comparison between AHP and ANP (Source: authors processing)

The problem to be evaluated not follow a well-defined hierarchy but it is represented by a network of elements grouped from the influence which they provide: benefits, opportunities, costs and risks. Moreover, unlike AHP, the interactions don't occur only between different levels, but also within each group, with the purpose to evaluate deeper, dynamic and real the complexity of the problem.
In ANP, the network allows to organize elements into groups according to relations of interdependence and feedback within each group of elements and between them. Through the existence of retroactions in fact, not only the alternatives may depend on criteria, such as in a hierarchy, but mostly the same criteria may depend from the alternatives and from other criteria considered.[17]

[17] For the analytic development of the ANP method applied to Citadel, please refer to the content and the outcome of the thesis of Mangialardo Alessia (2014), *The project Country Value of the Citadel of Alexandria: the current debate in a case of strategic value,* op. cit.

	BOCR	CLUSTER	NODES
Enhancement of the Citadel of Alexandria	Benefits	Environmental/ landscaping	- Development of the Heritage Landscape - Redevelopment of green areas
		Economic/ financial	- Enhancement of neighbouring areas - Enhancement real estate - Creation of a pole of attraction
		Social	- Improving social welfare - Improving services for citizens - Increasing quality of life - Revitalization of the area
		Infrastructure/ accessibility/ mobility	- Significance of the urban transformation project - Increasing connectivity - Synergy with the changes on
		Architectural	- Conservation of the Citadel - Putting in efficiency the fortress - Historical memory
	Opportunities	Environmental/ landscaping	-New usability - Urban redevelopment
		Economic/ financial	- Increasing tourism - Increasing employment - Creation of income
		Social	- Inclusion
		Infrastructure/ accessibility/mobility	- improving accessibility
		Architectural	- Creating value through new uses
	Costs	Environmental/ landscaping	- Disorders related to the construction phase
		Economic/ finanzcial	- Costs of action/implementation times - Sources of funding area
	Risks	Environmental/ landscaping	- Degradation landscape - Lack of integration with the urban context
		Economic/ financial	- Loss of companies - Low profitability intervention - High cost of management
		Social	- Gentrification
		Infrastructure/ accessibility/ mobility	- Insulation of the province - Congestion road network
		ASchitectural	- Restoration that distort the artefact

Table 20 ANP model in complex network BOCR for the Enhancement of the Citadel of Alexandria (Source: Authors processing)

Same as AHP, in ANP the first step is to define the objective to be pursued: in this case, it will repeat the analysis previously made on the enhancement for the Citadel of Alexandria in order to define what scenario management more achievable in front of the complexity previously reported.
The second step concerns the decomposition of the problem in clusters or components of items to choose, and we must distinguish between simple structure (network of relationships that develop between clusters and clusters within them) or complex, such as the enhancement of the Citadel, where it assumes the existence of a hierarchy of control which gives rise to subnets, in which the groups, elements and alternatives are contained. To structure a model with complex hierarchies of control is used BOCR model (Benefits, Opportunities, Costs and Risks), where the various factors to be evaluated are placed within these groups according as they are favorable (Benefits and Opportunities) or unfavourable (Costs and Risks).
In turn, each of these factors included within the model BOCR is further divided into specific subnets (defined as nodes). The parameters to be included in this new interface are taken directly from the SWOT analysis carried out on the territory of Alessandria, the city of Alexandria and the Citadel of Alexandria, consequently they were divided according to the group who they belong: at regional scale, local scale or both.
After the network organization it is necessary to include the connections between all the components with each element that can be related. For shortness we don't analyse the decision-making model, which is realized as AHP, the software Super Decisions ©[18]. Table 21 shows the final results of the preferences by the priorities BOCR, they are differentiated in subnets for each alternative: the mixed management responds better than other alternatives in sub networks favourable as "benefits" and "opportunity", while for the subnet "costs" the private management is more suitable, the "risks" are worst in public alternative. In red they are shown the best performance.

Alternatives	Benefits	Opportunity	Costs	Riscks
Public management	0,416617	0,282350	0,219497	0,387704
Private management	0,110697	0,182882	0,425024	0,351617
Mixed management	0,472687	0,534768	0,355479	0,260679

Table 21 Priorities of the alternatives for the subnets of the model (Source: authors processing)

Depending on the priorities identified by the analysis BOCR, through some simple mathematical formulas it ends the process of structuring problems with the synthesis of the results, to locate a comparative testing results than the simple AHP.
Across the substitution of values BOCR you get three different results, one for each alternative: for simplicity values were attributed in ascending order from 1 (highest rating) to 3 (minimum score), without reporting the final real numbers. From the analysis it follows that the best alternative for the enhancement of the Citadel of Alexandria is the mixed management, reinforcing the results previously obtained by the AHP.
As previously noted in Table 19, it is observed that the objective of two analyses is the same. In this sense, a model is not to be preferred to another one. The difference that determines the choice of a method consists in the methodology to structure the problem: the hierarchy (where each variable is dependent on the previous one), or the network (where each element of the problem is connected to all the other components).
Those who may be some limitations, in the other case they become strengths: much depends on how you prefer to analyse the elements, and if it is absolutely necessary or effective to hire a hierarchy that helps to

[18] To read the full methodology, see the ANP dissertations: A. Mangialardo, op. cit, cap. 11.

simplify the comparability of the criteria, or if it is more convincingly that they connect together to form a single problem.

Alternatives	B * O * 1/C * 1/R	B+O−C−R	B + O + 1/C +1/R	B + (1−C) + O + (1−R)	$B^{1/2} * C^{-1/2} * O^{1/2} * R^{-1/2}$
Public	2	2	2	3	2
Private	3	3	3	2	3
Mixed	1	1	1	1	1
1: maximum score - 2: average score - 3: minimum score					

Table 22 Ranking of the alternatives according to different formulas (Source: Authors processing)

CONCLUDING REMARKS

The Citadel case has been lent to some reflections both general strategies (and disposal policies at a national and local level) and reasoning more closely effectiveness disciplinary (about strategic phase of analysis and techniques of decision making too). The analyses examined (AHP and ANP), although being only a simulation conduced by the authors (with all appropriate limits) and in the need's awareness to forecast an application's reiteration in active form.

These methods of evaluation (to determine the most suitable choice for the valorisation of the Citadel of Alexandria) are just some of the possible ones.

The mentioned evaluation tools represent an important decision support instrument for an identification process of opportunities scenarios. In this contest, the Citadel of Alexandria is one of State property's several cases with immense potential of historical and artistic interest.

The needful starting point (that should be expected for the assets to be valued in a regime of no taxing transfer) is represented by the public/private partnership. This type of management could ensure on the one hand, the private financing participation at the project (and at the phases of design, construction), on the other the public property. Moreover, investment risks between all players would be shared, continuous property management and maintenance foreshadowing with the exclusive burden of the private. Not having initial costs of acquisition of the property as private management's advantage (Manganelli, 2014).

The adopted city of Alexandria strategy for the Citadel is a classic example of a public/private partnership: the grants of use it for a period ranging from six to fifty years. Nevertheless, the announcement to entrust the complex in the hands of private management (expired on Sept. 9, 2014), went desert: not received proposal to the State Property Office:[19] it was an expected result.

In a situation of real economic crisis framework and of severe depression local context, which would be willing to pay for what probably would be the most expensive and important restoration of Europe? Who is interested to get the license for Citadel use with all the constraints attributed by the public Administration, without a clear time schedule and in the absence of a functional definition and of artefacts different from public and private use? What conveniences for the "illuminated" investor? Not infrequently happens that very complicate to be enhanced assets are unable to find features to valorise

[19] On the news, see the article by Boggian G., *Citadel: the announcement is desert. "In a short meeting with the State Property Office",* Alexandria News, September 11, 2014, available at the following link: www.alessandrianews.it/alessandria/cittadella-bando-va-deserto-breve-incontro-col-demanio-68798.html

them. The reason for this is the disagreement between various stakeholders in the redevelopment of these sites, beginning from local authorities, proceeding by associations and individuals.
The risk is the draft of hurried and brief announcement (as it is happened in the case of the Citadel of Alexandria), dictated by the emergency and indicating too general intended use, without predicting over time the valorisation effect.
In this sense, in a perspective of *project management*, centrality importance acquires the stage of the *project briefing* and techniques of *decision making* (Curto, R. *et al.*, 2014, Coscia, C. *et al.* 2015). These processes are useful in order to structure the issues complexity (providing for the positive and negative impacts from the short to long term) and to outline a phased process in support of the decision makers.

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