Enhancing real property

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Key words: IVS, HBU,DCFA

SUMMARY

Public officials deal with the themes of reorganization, administration and valorization of the real estate as shown in the regulations.
The case in examination will explain in particular the economic affordability of the transformation of an abandoned area, managed by the city of Paratico (Brescia), situated in front of the Sebino lake.
One of the objectives of the Local Administration is to turn a disuded goods railway depot in a urban park.
The study proposes the analysis of the economic convenience of upgrading the section under consideration, through the choice of the highest and best use (HBU) and the determination of the transformation value.
The market value of the examined section passes through the achievement of a financial model (cash flow) that is based on assumptions concerning the active and passive posts of the real estate operation and the capitalization rate.
According to the International Valuation Standards (IVS) and in compliance with the Italian standard (code of real estate evaluations Tecnoborsa) will be explained the tecnical-scientific procedures in order to demonstrate the prefixed goals and the required valorization of the real estate.

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1. INTRODUCTION.

In accordance to the current regulation, for public officials of the regions, provinces, municipalities and the other local authorities, the study of the real estate valorization, and the choice of investments, are directed to the drafting of the plan of alienation of real estate, with the following classification as available assets and the variation of the urban destination.

2. ILLUSTRATION OF THE STUDY CASE.

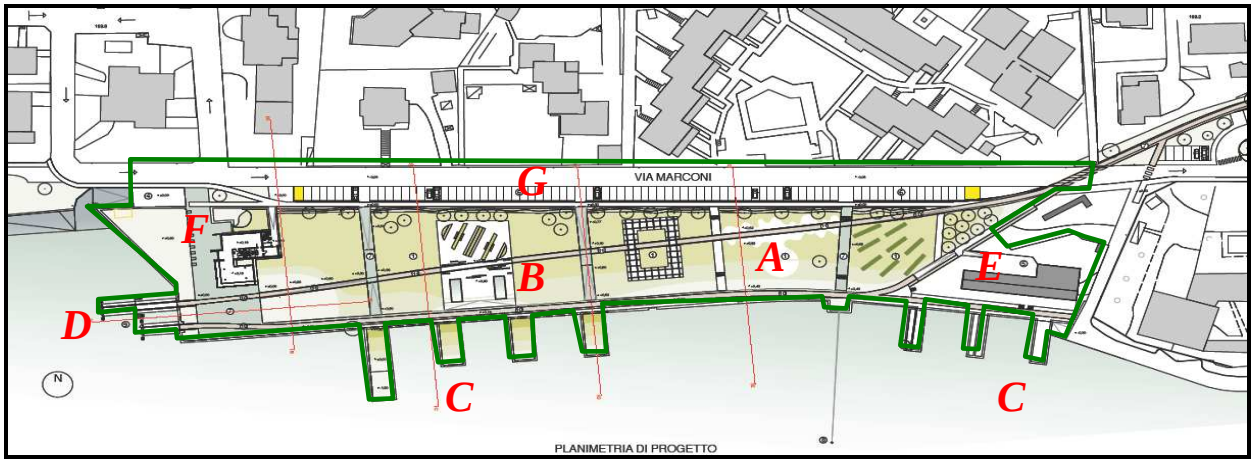
The Comunal Administration of Paratico, city situated between Brescia and the oriental hills of Franciacorta, has the aim to turn a disuded goods railway depot in a urban park.

The wonderful location between lake and hills offers several possibilities of developing the natural touristic vocation.

The area, situated centrally in the north side respect to the development of the lake front, has got an elevated perceptional value, connoted by the combined presence of environmental and historical cultural factors.

The works of the park requalification include :

a) a wise green organization;
b) the reproposing of some maps of the existing rails, internal ways of the park;
c) the requalification of the mooring bulk;
d) the trasformation of the boarding piers in walking bridges;
e) the conservative restauration of the ancient wagon storing and its transformation into a restaurant;
f) the trasformation of the pre-existing small railway store in a place where parks visitors can take a break;
g) the enlargement of the parking space.



3. QUESTION.

The Comunal Administration, before proceeding with the project, the allocation and the contract of the works, wants to know the economical convenience of the real estate operation. The investor is interested in knowing the cost and the gain flows of the intervention and wants to know the future market value of the real estate in examination.

4. OBJECTIVES.

According to the International Valuation Standards (IVS) and in compliance with the Italian standard (code of real estate evaluations Tecnoborsa) will be explained the tecnical-scientific procedures in order to demonstrate the prefixed goals and the required valorization of the real estate.
The valuation aims to:
a) communicate the evaluation value,
b) confirm the valuation finalities,
c) explain the procedure,
d) indicate the eventual assumptions on the base of evaluation,
e) indicate eventual limiting conditions,
f) show the used proves.

5. THE PROPOSED ESTIMATIVE ACTION.

The study proposes the analysis of the economic convenience of upgrading the section under consideration, through the choice of the highest and best use (HBU) and the determination of the transformation value.
HBU represents the maximum transformation or market value prospected for a building compared to its current destination.
The transformation value is the difference between good trade value in output and the relative cost of its transformation.
The determination of the transformation value of the park goes through the discounted cash flow analysis (DCFA) that considers the initial costs of the real estate intervention that deal with its requalification and all the incomes (assets) obtainable by the real estate operation estimated at the different periodical deadlines.
Determined capitalization rate for every real estate tipology and extracted a contract in relif from a cash flow, we can proceed with the determination of the market value of the entire real estate compartment.

6. EVALUATION AND ANALYSIS OF REAL ESTATE MARKET.

In order to determine the economical analysis of the investment and the HBU is necessary to make the observation and evaluation of the real estate market.
The real estate market is very important for the evaluation of the buildings.
In this market we proceed pointing out prices and rents of similar buildings referred to the short period.

The real information that deal with market are known to sellers and buyers, to lodgers and owners, to house agents, to notaries, accountants, tax consultants, to technicians and finally to bank employees which operate in the homebuyer's loan, etc.
The market analysis takes into account the examined real estate compendium and its settlement context, in relation to the presence of public services, viability, infrastructures, life quality, etc.
The analysis of the real estate market aims to forecast the law of supply and demand (contemporary and future) for every building settled in its own market segment.

A market segment is defined according to the following principal parameters:

Parameter tipology	**Definition**
Localization	It indicates the localization of the real estate unit in the geografic and economical space.
Destination	It indicates house or office contracts, commercial, handmade or industrial or tertiary activities.
Real estate tipology	It indicates contracts relative to buildings and grounds, second-hand, ristructured, new or semi-new markets, block of flats or single properties.
Building tipology	It refers to building tipology (multi-floors buildings , detached houses, farmhouses, factories,real estate complexes, ecc).
Dimension	It indicates if the real estate units are big or small.

These parameters find application collecting all commercial usages and habits of the real estate sector. Observing this market we can notice rents and sales of the different buildings close to the lake.
To complete the analysis of the real estate market has been decisive to quantify profits and the operating costs deriving from parking takings and from the research of the sponsorships.

7. HBU (HIGHEST AND BEST USE).

In order to determine the market value in the real estate operation we must proceed with the evaluation of the most convenient and best use, or the most likely (HBU).
HBU is the use that presents the maximum value of transformation or of market between the transformation and the market values of the uses proposed for a real estate. HBU is the destination to which corresponds the maximum value between the actual value (uncultivated green with economically obsolete rustics) and the possible transformation value (urban park with buildings given to income).
The choice of HBU refers to utilizations:
- phisically and technically practicable (technical bond);
- legally allowed (giuridical bond);
- financially bearable (bond of budget);
- economically convenient respect to the actual destination (economical standard).

Following the analysis and observation of the real estate market, considered its cyclical fase and the regime of the real estate market, the most likely and profitable destination of the buildings collocated on the area object of the intervention, corresponds to the project objectives hypotized by the Comunal Administration and more precisely to:

1) the transformation of the ex goods railway depot in a restaurant;
2) the trasformation of the pre-existing small railway store in a place where parks visitors can take a break;
3) the dotation of new pay car parks;
4) the sponsorship of privates for the mantaining of the green areas.

8. ANALYSIS OF THE TRANSFORMATION COST. (CT)

The transformation cost is defined as a building cost or a requalification cost.
The analysis of the expence voices of the building intervention passes through the knowledge of the costs of building and intervention in relation to the park requalification.
This cost represents the sum of expenses that, at the moment of evaluation, the Comunal Administration has to support to realize the investment.
The cost of the park requalification is the total of the following expense voices:

Construction cost :included direct, indirect costs and the normal enterprise profit	€ 1.015.000	**C_C**
Planning, work direction and other professional skills	€ 102.000	**P**
Connections	€ 8.000	**C**
Marketing	€ 10.000	**M**
Financial and legal expenses	€ 45.000	**F**

1. The requalification works for of the park.
The requalification works of the park include a wise green organization, the reproposing of some maps of the existing rails, internal ways of the park; the requalification of the mooring bulk and the trasformation of the boarding piers in walking bridges.

State fact : uncultivated area	In project : urban park
	

2. The conservative works for recovery of the goods railway depot .
Presumably the building was built in the last decade of the Nineteenth century as a storage. The works are finalized to a conservative recovery of the structure and to its transformation into a restaurant. The restaurant develops into an external gross surface (SEL) of m^2 290 and it is so composed: restaurant room with 90 covers, counter zone with wood-burning onen, storehouse and external storage, toilet facilities for personal and regulars, and a summer department with the possibility of 100 more covers.

State fact : ex goods railway depot	In project: restaurant
	

3. The works for the realization of the point of break for visitors (snack bar).
The Comunal Administration foresees the construction of a place where park's visitors can take a break.
It's provided the realization of this building with a low volume impact, in substitution with the previous one. This new bar will be finished mostly in local stone, steel and glass, in remind of the local tradition and the lake context.
From this structure it will be get a snack bar with kitchen and toilet facilities, for an external gross surface (SEL) of m^2 170 , beyond m^2 50 of external space for the public exercise and m^2 400 of green exclusive area.

Fact state : little railway storehouse	In project: new snack bar
	

4. The works for the street's arrangement and the realization of new parkings.
The works include the arrangement of Marconi street through the enlargement of the roadway of the street base and the formation of 80 new pay car parks.
The arrangement will be completed by the realization of subservices, public lighting and road sign.

Fact state: existing street	In project : parking development
	

t	Cc		P		C		M		F		Cost allocation
	%	€	%	€	%	€	%	€	%	€	
1	5	50.750	10	10.200	0	-	0	-	0	-	**€ 60.950,00**
2	5	50.750	0	-	0	-	50	5.000	0	-	**€ 55.750,00**
3	10	101.500	20	20.400	0	-	50	5.000	10	4.500	**€ 131.400,00**
4	10	101.500	0	-	0	-	0	-	10	4.500	**€ 106.000,00**
5	15	152.250	20	20.400	0	-	0	-	20	9.000	**€ 181.650,00**
6	15	152.250	0	-	0	-	0	-	20	9.000	**€ 161.250,00**
7	20	203.000	20	20.400	50	4.000	0	-	20	9.000	**€ 236.400,00**
8	20	203.000	30	30.600	50	4.000	0	-	20	9.000	**€ 246.600,00**
	100	1.015.000	100	102.000	100	8.000	100	10.000	100	45.000	**€ 1.180.000,00**

9. BALANCE SHEET.

Estimative or balance sheet considers the future profitability of a building in order to estimate its market value.
In the research of a market value, the estimative balance will be considered: annual, preventive, medium and ordinary. The balance sheet aims to determine the net income of the real estate through the analysis of the earnings (active) and the annual costs of exercise (passive) in charge of the owner part.

Active
In the annual balance sheet of a real estate, the active is represented by the rents given in advance and by other eventual profits. In order to quantify the active posts of the belance sheet, the expert recognizes the other incomes of buildings similar to the one object of evaluation (market analysis) and he determines the rental value through the market comparison approach (market oriented). In this study case the active is represented by the annual future gross income deriving from the renting of the restaurant, the bar, and all the incomes obtainable by the private advertising (sponsor) and by the profits deducible by the pay car parks.

Rent for the snack bar	=> *Market comparison approach (MCA)*	€ 30.000,00
Rent for the restaurant	=> *Market comparison approach (MCA)*	€ 60.000,00
Parking	=> *Prevision*	€ 65.000,00
Sponsorhips		€ 25.000,00
Other incomes		€ 12.000,00
	Total annual gross income	**€ 192.000,00**
	Total quarterly gross income	**€ 48.000,00**

Passive

In the study case the passive is represented by management costs deriving from the restaurant, the bar, and all the expenses deriving by the management of the pay car parks. The exercise expenses deriving by the park maintenance costs will be absorbed directly by privates who intend to sponsor their own activity, through the posting of posters situated near the parking zone and in the green areas.

In the budget of annual exercise of a building, the passive refers to:

Maintenance costs for rent buildings (to be paid by the tenants)	€	-
Street clearing, cost for local policeman, management of the pay car park	€	4.250,00
Building insurance	€	3.850,00
Vacant building and irrecoverable rents	€	6.500,00
Taxes after – costs	€	-
Provisions and depreciation	€	5.000,00
Bank expenses	€	4.500,00
Total annual cost	**€**	**24.350,00**
Total quarterly cost	**€**	**6.087,50**

10. RESEARCH OF THE CAPITALIZATION RATE.

The capitalization rate is not a natural value expressed spontaneously by the market; its research happens following the general rule of extraction, according to the internal yield rate, with the realization of a discounted cash flow of every single noticed contract.

The data necessary to extrapolate the capitalization rate (i_a) in the discounted cash flow analysis are: the market price of the comparable building (V), its annual canon (R_t) annual exercise cost (C_t), availability period(n), beyond the annual canon variation rate (g), annual cost s variation rate (h) and eventually the revalutation/devaluation rate of market price (d).

Illustration of cash flow for the extraction of capitalization rate (i_a)

Research of the capitalization rate			
V	Market price of the comparable BAR (euro)		€ 585.000,00
R_t	Annual income (euro/year)		€ 30.000,00
C_t	Annual managing costs (euro/year)		€ 12.000,00
n	Availability period (year)		12
g	Revaluation rate of the active posts		1,50%
h	Revaluation rate of the passive posts		1,80%
d	Revaluation rate of the market price		1,00%
T	Income	costs	Discounted cash flow
0	-	-	- € 585.000,00
1	€ 30.000,00	€ 12.000,00	€ 18.000,00
2	€ 30.450,00	€ 12.216,00	€ 18.234,00
3	€ 30.906,75	€ 12.435,89	€ 18.470,86
4	€ 31.370,35	€ 12.659,73	€ 18.710,62
5	€ 31.840,91	€ 12.887,61	€ 18.953,30
6	€ 32.318,52	€ 13.119,59	€ 19.198,93
7	€ 32.803,30	€ 13.355,74	€ 19.447,56
8	€ 33.295,35	€ 13.596,14	€ 19.699,21
9	€ 33.794,78	€ 13.840,87	€ 19.953,91
10	€ 34.301,70	€ 14.090,01	€ 20.211,69
11	€ 34.816,22	€ 14.343,63	€ 20.472,60
12	€ 35.338,47	€ 14.601,81	€ 679.929,30
Rate of internal yield or capitalization rate (i_a)			**4,12%**

Extrapolation of capitalization rate

In the same way we can get from the market the restaurant and the parkings capitalization rate

Calculation of the expected capitalization rate			
Urban destination	Bar	Restaurant	Parking
Capitalization rate	4,12%	3,35%	4,93%
Incidence percentage	22,00%	38,00%	40,00%
Annual medium capitalization rate (i_a)			**4,15%**
Period: three months (K)			4
Periodical capitalization rate of investiment (i_K)			**1,02%**

Determined the annual capitalization rate (i_a) we proceed according to the active and passive posts' periodicity, in the determination of the periodical rate. (i_k).

Established the reference period of the posts equal to the "trimestre", to which corresponds its capitalization frequency (K=4), we proced with the calculation of the equivalent periodical rate , according to the following fomula:

$$i_K = (1+i_a)^{\frac{1}{k}} - 1 \quad \Rightarrow \quad i_K = (1+4{,}15\%)^{\frac{1}{4}} - 1 \quad \Rightarrow \quad i_K = 1{,}02\%$$

11. DETERMINATION OF TRANSFORMATION VALUE.

The determination of the transformation value of the section under consideration goes through the discounted cash flow analysis (DCFA).
The composition of the cash flow concerns the initial costs of transformation of the entire compartment and the estimative analysis of assets and costs of exercise of trimestral expiry, in relation to the restaurant location, of the bar and incomes of parcometres and private sponsor.

The market value of the park with the relating buildings to requalify is equal to:

$$V = \frac{-\sum_{t=0}^{m} CT_t \cdot (1+i_k)^{-t} + \sum_{t=m+1}^{n \cdot k} (R_t - C_t) \cdot (1+i_k)^{-t}}{1-\left(\frac{1 \pm d_k}{1+i_k}\right)^{n \cdot k}}$$

Where we know:

a) transformation costs of the whole real estate operation deduced from the estimative metrical calculation (CT_t),
b) the duration of the building intervention expressed in trimestres for the park transformation, meant as production cycle (*m*);
c) the trimestral active incomes of the Comunal Administration, deducible from the rent of the restaurant, of the bar and by the profits deriving by the pay car parks and by private sponsors. (R_t);
d) the passive trimestral posts or exercise cost of the Comunal Administration deriving by the management of the locations of the restaurant, of the bar and parcometres (C_t);
e) the duration of availability period, meant as temporal orizon, coinciding with the location commercial period of the buildings in rent (*n*);
f) the individuation of the periodical rate of evaluation/devaluation of the active posts ($\pm g$);
g) the individuation of the periodical rate of evaluation/devalutaion of passive posts ($\pm h$);
h) the individuation of the periodical rate of evaluation/devaluation on the value of final recovery ($\pm d$) ;
i) the capitalization periodical rate of the discounted cash flow analysis (i_k).

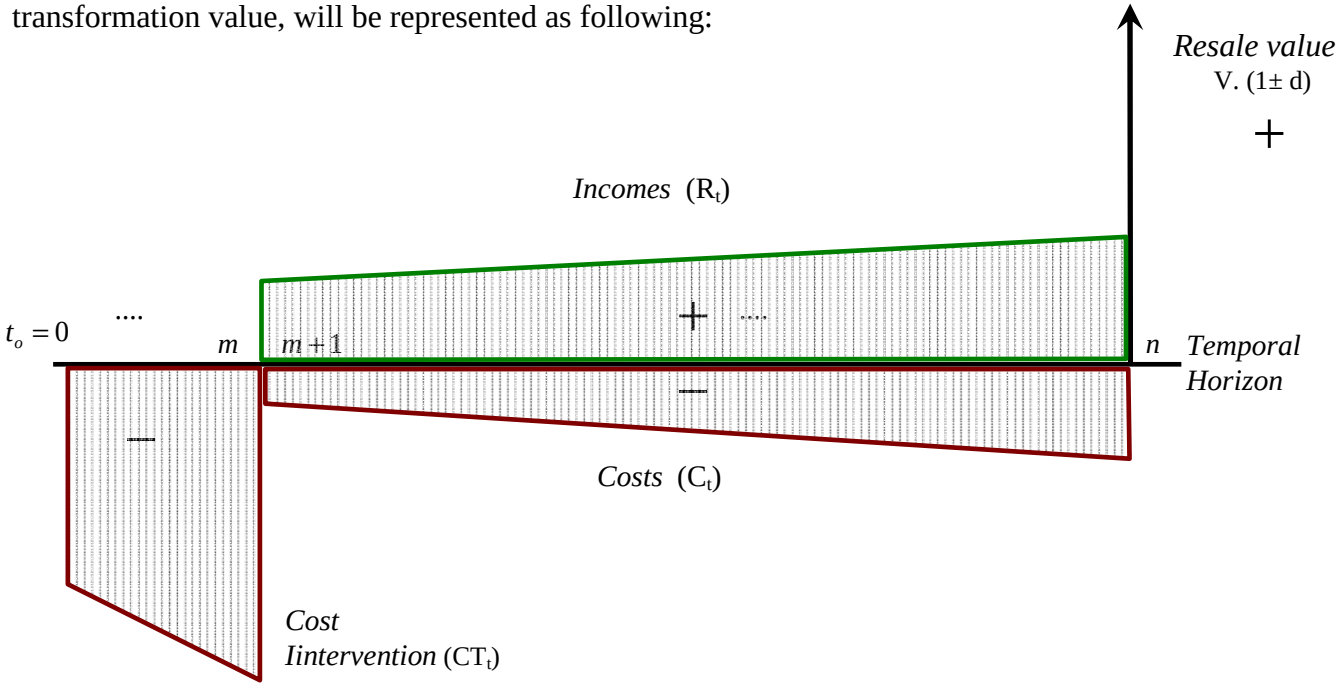
		Year	Quarter
g	Revaluation rate of the active posts (%)	1,50%	0,37%
h	Revaluation rate of the passive posts (%)	1,80%	0,45%
d	Revaluation rate of the market price (%)	1,00%	0,25%
ia , iK	Capitalization rate (%)	4,15%	1,02%
K	Period: three months (K)	-	4
m	Duration of the building intervention	2	8
t	Duration of rents	15	60

Years	t	CT	Rt	Ct	V
	0	-	-	-	-
1	1	- 60.950,00			- 61.222,44
	2	- 55.750,00			- 56.249,51
	3	- 131.400,00			- 133.169,94
	4	- 106.000,00			- 107.908,00
2	5	- 181.650,00			- 185.746,28
	6	- 161.250,00			- 165.623,28
	7	- 236.400,00			- 243.896,79
	8	- 246.600,00			- 255.557,50
3	9		48.000,00	6.025,00	41.975,00
	10		48.179,00	6.051,93	42.127,06
	11		48.358,66	6.078,98	42.279,68
	12		48.538,99	6.106,16	42.432,84
4	13		48.720,00	6.133,45	42.586,55
	14		48.901,68	6.160,87	42.740,82
	15		49.084,04	6.188,40	42.895,64
	16		49.267,08	6.216,07	43.051,01
5	17		49.450,80	6.243,85	43.206,95
	18		49.635,21	6.271,76	43.363,44
	19		49.820,30	6.299,80	43.520,50
	20		50.006,08	6.327,96	43.678,13
6	21		50.192,56	6.356,24	43.836,32
	22		50.379,73	6.384,65	43.995,08
	23		50.567,61	6.413,19	44.154,41
	24		50.756,18	6.441,86	44.314,32
7	25		50.945,45	6.470,65	44.474,80
	26		51.135,43	6.499,58	44.635,85
	27		51.326,12	6.528,63	44.797,49
	28		51.517,52	6.557,81	44.959,71
8	29		51.709,63	6.587,13	45.122,51
	30		51.902,46	6.616,57	45.285,89
	31		52.096,01	6.646,15	45.449,87
	32		52.290,28	6.675,85	45.614,43
9	33		52.485,28	6.705,69	45.779,58
	34		52.681,00	6.735,67	45.945,33
	35		52.877,45	6.765,78	46.111,68
	36		53.074,64	6.796,02	46.278,62
10	37		53.272,56	6.826,40	46.446,16
	38		53.471,21	6.856,91	46.614,30
	39		53.670,61	6.887,56	46.783,05
	40		53.870,76	6.918,35	46.952,41
11	41		54.071,64	6.949,27	47.122,37
	42		54.273,28	6.980,33	47.292,95
	43		54.475,67	7.011,54	47.464,14
	44		54.678,82	7.042,88	47.635,94

12	45		54.882,72	7.074,36	47.808,36
	46		55.087,38	7.105,98	47.981,40
	47		55.292,81	7.137,74	48.155,06
	48		55.499,00	7.169,65	48.329,35
13	49		55.705,96	7.201,70	48.504,26
	50		55.913,69	7.233,89	48.679,80
	51		56.122,20	7.266,22	48.855,98
	52		56.331,48	7.298,70	49.032,78
14	53		56.541,55	7.331,33	49.210,22
	54		56.752,40	7.364,10	49.388,30
	55		56.964,03	7.397,01	49.567,02
	56		57.176,46	7.430,08	49.746,38
15	57		57.389,67	7.463,29	49.926,38
	58		57.603,68	7.496,65	50.107,03
	59		57.818,49	7.530,16	50.288,33
	60		58.034,10	7.563,82	50.470,28
16	61		58.250,52	7.597,63	50.652,89
	62		58.467,74	7.631,59	50.836,15
	63		58.685,77	7.665,70	51.020,07
	64		58.904,61	7.699,97	51.204,65
17	65		59.124,28	7.734,39	51.389,89
	66		59.344,75	7.768,96	51.575,79
	67		59.566,06	7.803,69	51.762,37
	68		59.788,18	7.838,57	51.949,61
			Net present value	(VAN)	**€ 762.744,49**

→ **DCFA = € 2.065.262,81**
Market Value

The graphic scheme of the discounted cash flow (DCF), for the determination of transformation value, will be represented as following:



12. CONCLUSIONS.

The analysis of the estimative process and the determination of the market value of the examined real estate compendium, through its transformation and requalification in an urban park, has permitted to the Comunal Administration to know what follows:

- the transformation cost to support for the requalification of the buildings phisically deteriorated, functionally and economically obsolete;
- the future profits assumable by the rent of the restaurant and the bar;
- the introits deducible by the pay car parks and by the eventual sponsorships for the mantaining of the park;
- Exercise costs in charge of the owner's part;
- The capitalization rate and the possibility to determine the return time of the investement;
- The value of the real estate compendium at the end of the rent.

All the values in this study case are meant as a prediction and as an example.

Night sight of the park "Le Chiatte" – Paratico (BS)

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