Research on the Value Evaluation System of Macao's Industrial Heritage from the Perspective of Protection and Renewal

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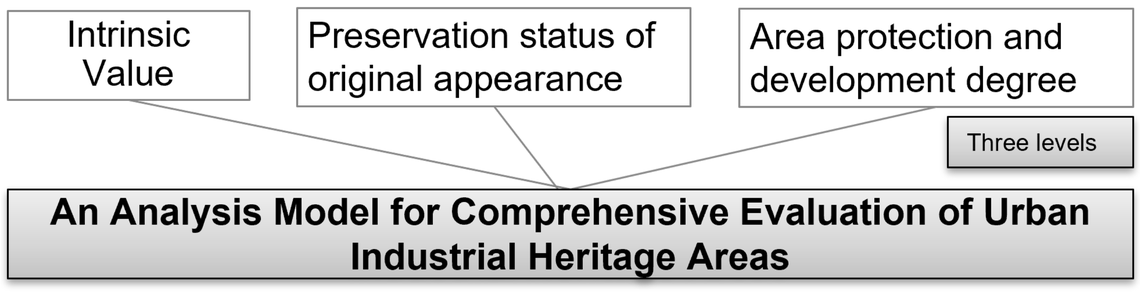
Abstract

Industrial heritage value evaluation is of great significance to identifying and protecting industrial heritage. There are two types of industrial heritage value assessment, one is the assessment of industrial heritage; the other is the pre-assessment work done on the reuse of industrial heritage, both of which are used to protect the value of industrial heritage better. The industrial heritage value evaluation system is summarized, and a Macao's industrial heritage value evaluation system from the perspective of protection and renewal is established. The relevance and coordination of value evaluation, protection, and renewal measures are explored, the overall consideration framework of the updated strategy is summarized.

INTRODUCTION

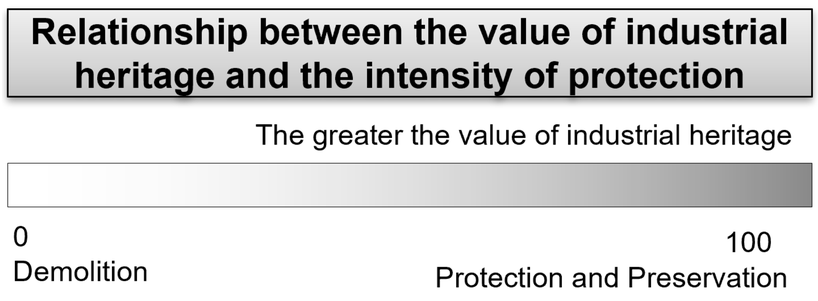
Compared with other types of Macao's cultural heritage, the protection and development of industrial heritage are relatively slow. With the demand for vacant space in recent years, industrial land renovation boom, wanton development has also destroyed industrial land. The importance of the renewal and reconstruction of industrial sites has become increasingly prominent, and scientific protection of industrial heritage is in urgent need.At the same time, the 5G era has arrived. The digital age has made big data less complex and more convenient. rotection of Macao's industrial heritage has just started.

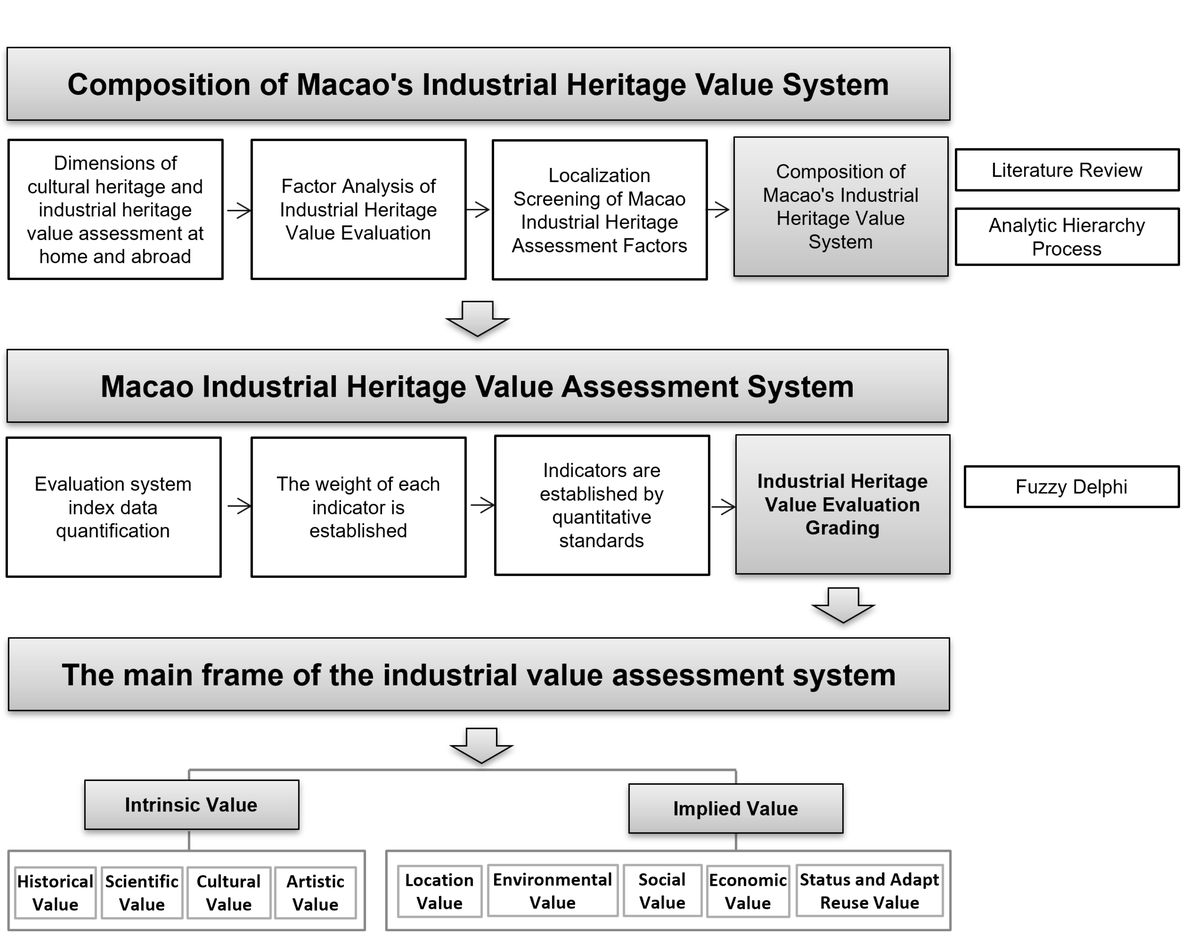
This study intends to build a value assessment system for Macao's industrial heritage based on previous research and then conduct a systematic assessment of the intrinsic and extension value of industrial heritage. In the evaluation stage, 5G can be used to obtain big data to more accurately identify the value of industrial heritage; and select appropriate management and development models according to its value characteristics to better protect and utilize industrial heritage.



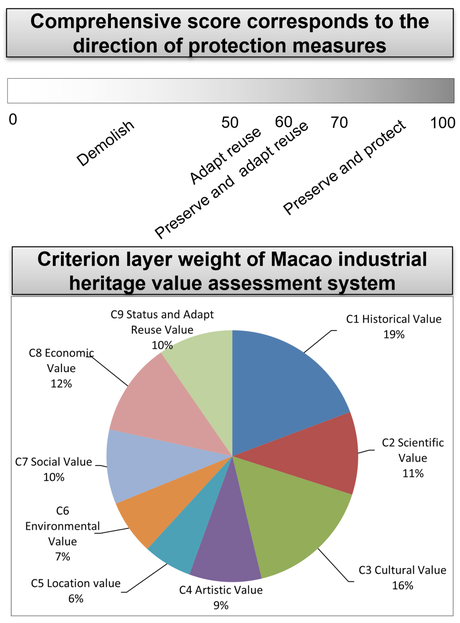
INDUSTRIAL HERITAGE VALUE EVALUATION SYSTEM CONSTRUCTED BY AHP ANALYTIC HIERARCHY PROCESS

The evaluation of industrial heritage value is a prerequisite for the protection and renewal of industrial heritage, and it is also a process of comprehensively understanding the value of industrial heritage and determining valuable historical information. The industrial heritage value assessment results can provide a reference value for the protection strength of the industrial heritage renewal strategy.





SIMULATED RESULTS AND CONCLUSION



THE WEIGHTS OF EACH INDEX LAYER OF THE MACAO INDUSTRIALvv HERITAGE VALUE EVALUATION SYSTEM

Criterion layer/ Criterion layer weights	Criterion layer/ Criterion layer weights	Sequence	Indicator layer	Indicator layer weights	Sequence
B1 Intrinsic value 0.555	C1 Historical Value 0.193	1	d1 Historical	0.026	9
			d2 Witness of the development of human society	0.027	7
			d3 Relevance to historical Figures and events	0.019	19
			d4 Witness to the development and change of social production mode and production relations	0.027	8
			d5 Historical continuity	0.024	12
			d6 Authenticity	0.035	3
			d7 Industry groundbreaking	0.034	4
	C2 Scientific Value 0.107	4	d8 Construction Technology	0.031	6
			d9 Production process	0.034	5
			d10 Technological advancement	0.017	25
			d11 Technological Influence	0.024	10
	C3 Cultural Value 0.163	2	d12 Corporate Culture	0.052	2
			d13 Cultural brand awareness	0.111	1
	C4 Artistic Value 0.093	7	d14 Industrial features	0.019	21
			d15 Architectural Engineering Aesthetics	0.013	35
			d16 Architectural style characteristics	0.009	47
			d17 Spatial layout	0.009	46
			d18 Architectural design level	0.012	38
			d19 Works of famous architects, representative	0.012	41
			d20 Completeness	0.010	43
			d21 Scarcity	0.009	45
B2 Extension value 0.445	C5 Location value 0.063	9	d22 Advantageous factors for social and economic development	0.018	24
			d23 Traffic conditions	0.012	37
			d24 Market Location	0.015	30
			d25 Ambient quality	0.018	22
	Environmental Value 0.070	8	d26 Heritage Environmental Impact	0.017	28
			d27 Ecological value	0.016	29
			d28 Environmental value	0.015	31
			d29 Comprehensive value of buildings and clusters of buildings	0.023	13
	C7 Social Value 0.096	6	d30 Industrial Spirit	0.015	32
			d31 Popular science education	0.011	42
			d32 Preserve the diversity of social lifestyles and the relevance of historical life	0.008	48
			d33 Cognitive role	0.006	49
			d34 Notary role	0.012	40
			d35 A sense of identity	0.017	27
			d36 A sense of belonging	0.012	36
			d37 Social influence	0.014	33
	C8 Economic Value 0.120	3	d38 Promote local social and economic development	0.017	26
			d39 The economic value of reuse	0.021	15
			d40 The economic value of the potential land price of the building site space	0.020	18
			d41 The Economic Value of Urban Lot Revival	0.019	20
			d42 Complementarity with other tourism resources	0.013	34
			d43 Cost of retrofit required	0.009	44
			d44 Expected future earnings	0.020	17
	C9 Status and Adapt Reuse Value 0.096	5	d45 Expected future earnings	0.020	16
			d46 Landscape utilization value	0.018	23
			d47 Structural Safety	0.012	39
			d48 Feasibility of Reuse	0.024	11
			d49 Maintenance possibility	0.022	14
1.000	1.000			1.000	

The weight results are not entirely consistent with most existing research views. Most of the top ten rankings are historical value and scientific value in the industrial heritage value system. Historical value is the essential value of cultural heritage, while industrial heritage is exceptional. China's cultural heritage has witnessed China's modernization and the rise of national industries. Each industrial heritage ontology records specific historical activity information, which plays an essential role in people's understanding of the generation and development of industrial activities and research on the start and process of a certain industrial activity. Therefore, the ontology of industrial heritage has crucial historical value. The scientific value is the technical value of the industrial heritage, which is the essence different from the general cultural heritage. It represents the local level of scientific and technological development in that year and the concentrated social form in that year,

all of which are concentrated in the industrial heritage. It records the scientific and technological development of a period. The development and progress of industrial technology can reproduce the development history of industrial technology.

CONCLUSION

The author firstly sorted out the correlation among the value evaluation system, the protection and renewal strategy. Then the overall consideration structure of the industrial heritage protection and renewal strategy was constructed, as shown in below. Through this system, the value evaluation and the protection-renewal strategy can be genuinely related rather than two separate systems. In the functional renewal orientation of urban industrial heritage, it is necessary to consider all relevant elements of industrial heritage from the perspective of place, namely, the process of evaluating the ontology value of industrial heritage. The process is a process of determining the renewal mode of industrial heritage and the process of understanding industrial heritage. It analyzes its strengths and weaknesses in the process, and then focuses on public engagement from a civic perspective. This process is a "bottom-up" micro-analysis, which comprehensively considers macro-factors such as basi c target decision-making, urban functional relationship, and location environment analysis. The author firstly sorted out the correlation among the value evaluation system, the protection and renewal strategy. Then the overall consideration structure of the industrial heritage protection and renewal strategy was constructed, as shown in Fig. 5. Through this system, the value evaluation and the protection-renewal strategy can be genuinely related rather than two separate systems. In the functional renewal orientation of urban industrial heritage, it is necessary to consider all relevant elements of industrial heritage from the perspective of place, namely, the process of evaluating the ontology value of industrial heritage. The process is a process of determining the renewal mode of industrial heritage and the process of understanding industrial heritage. It analyzes its strengths and weaknesses in the process, and then focuses on public engagement from a civic perspective. This process is a "bottom-up" micro-analysis, which comprehensively considers macro-factors such as basic target decision-making, urban functional relationship, and location environment analysis.

Schematic diagram of the overall consideration of the industrial heritage protection and renewal strategy