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Tourism Satellite Account: Approach and Information System Development

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***Abstract*—**Measuring the economic impact of tourism in a benchmark economy is a global concern, with previous measurements being partial and not fully integrated. Tourism is a phenomenon that requires individual consumption of visitors, and which should be observed and measured to reveal the overall contribution of tourism to an economy. The Tourism Satellite Account (TSA) is a critical tool for assessing the annual growth of tourism, providing reliable measurements. This article presents a system of TSA information that encompasses all functions TSA functions, including input, storage, management, and analysis of data, as well as additional future functions and enhances the efficiency of tourism data management and TSA collection utility. The methodology and results presented offer new insights for the development and implementation of TSA.

***Keywords*—**Tourism Satellite Account, information system, data-based tourist account.

I. Introduction

TOURISM has a significant impact on global economic and social development, thus helping the government, and the industry in formulating a different policy, and in analyzing the economic impact. The TSA calculates tourism consumption, the value added, and macroeconomic indicators, using the Systems of National Accounts 2008 (SNA 2008), both for foreign and domestic visitors in each sector.

The United Nations Statistics Division (UNSD), formerly the United Nations Statistical Office, serves under the United Nations Department of Economic and Social Affairs (DESA) as the central mechanism within the Secretariat of the United Nations to supply the statistical needs and coordinate activities of the global statistical system.

The Statistical Office of the European Communities, the Economic Cooperation and Development, and the UNWTO collaborated on the TSA: Methodological Framework 2008. Tourism is a distinct economic sector and is not included in the National Accounts due to its unique sectors and industries. Therefore, the satellite account is the preferred methodological tool for its calculation.

Tourism data are underutilized due to the absence of a systematic standard or framework for analyzing all TSA entities, including governments and industries. Therefore, it is essential to re-establish a connection between academia and practice in terms of TSA development and applications. The research proposes an innovative information TSA system with all the necessary functions for integration of the TSA process (input and management data management, integrated tabulation, and statistical analysis).

The rest of the article is organized in the following sections:

1) In Section II are related work and research methodology.
2) In Section III, the proposed modeling of the TSA information system is presented in a summary.
3) Section IV provides an evaluation of the proposed information system.
4) In Section V, the proposals and the corresponding conclusions are provided.
5) Last section presents the bibliography.

II. Related Work - Research Methodology

According to UNWTO (2010), Canada was the first country to launch a national TSA in 1994, and by 2010, national TSAs had been drawn up by more than 60 countries [1]. The first academic study of a TSA was done by Nordström (1996), who focused on Sweden's TSA and found that tourism expenditure accounted for 4.5% of the country's gross domestic product (GDP) from 1992 to 1993 [2].

France is one of the first countries to implement it, using statistical principles and economic data that link tourism to the national economy.

Spain, in 1983 at the World Congress in New Delhi, presented a report in which it mentioned the importance of analyzing at a deeper level the economic data linked to tourism. Canada, at the 1991 World Congress in Ottawa, presented a plan for the statistical analysis of economic data derived from tourism [3].

Subsequently, the World Tourism Organization (WTO) in collaboration with the Organization for Economic Cooperation and Development (OECD), commissioned statistical experts from Spain, France, etc., to study and develop it. In 1999, at the World Congress in Nice, the results were presented, and the importance of developing a model that investigates the economic impact of tourism on the national economy of each country, was highlighted [38].

In 2000, a group of experts was formed from United Nations World Tourism Organization (UNWTO) and the European Statistical Service, to develop the implementation framework of the TSA. The technical terms that will shape the specific statistics were presented in the model, and established principles and rules for the validity of results [39]. The result was, in 2008, the publication of the TSA RMF 2008 model and

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the analysis of the terms and conditions, required for its implementation, in the IRTS 2008 report.

Looking at the literature on the Internet, there is a lot of information about the TSA development and modeling methodology from the development agencies of each country [4]-[22].

Several articles analyze the existing situation and propose innovative solutions for the further development of TSA in combination with new technologies [23]-[31].

In Greece, the bibliography has three doctoral theses to show. The first is entitled "Marine Tourism: The assessment of its effects on the Greek Economy through the Tourism Satellite Account and its connection with the National Accounting System", and refers to the investigation of the effects of marine tourism on the Greek economy [32]. In particular, the special form of tourism, which includes all activities that are inextricably linked to the sea, is investigated, as well as the effects of their operation on the main macroeconomic figures of the economy [33], [34].

The second doctoral thesis is entitled: "Tourism Satellite Account. Theory and practice of a National Accounting Tool and the Greek Approach" [35]. It is an approach to the issue of TSA to develop a TSA framework, encompassing both the highlights of the system of national accounts, which are necessary for further analysis and the analysis of TSA training, on which to build the TSA context. With these data, a critical methodological or empirical approach to the official efforts in Greece for the development of TSA becomes possible [36].

The third thesis is entitled: "Regional Tourism Satellite Accounts. General Theory - Methodology and Rearrangements for the Greek Case" [37]. It refers to the planning and implementation of Regional TSAs in the Greek area, it is one of the main requests from the point of view of tourism and more general economic policy at the regional level.

The descriptive method was chosen for the research and a search was made for articles related to tourism and the TSA.

The research questions for the information system include:

1) Knowledge modeling to facilitate the design and development of an information system;
2) Extraction of knowledge flows from theory to practice to appropriate adaptation to flexible tourism plans.

III. Information System TSA

The research proposes a TSA information system to improve the efficiency and practical application of TSAs by providing a user-friendly programming environment for efficient data entry and organization.

The 13 entities of the TSA (1 to 9, 10a, 10b, 10c, 10d), will be automatically updated with data from a database, ensuring an easy, reliable, and comprehensible understanding of the economic impact of tourism in a country.

The system, implemented through a relational database, could potentially be developed into a web application in the future. The system architecture is illustrated in Fig. 1.

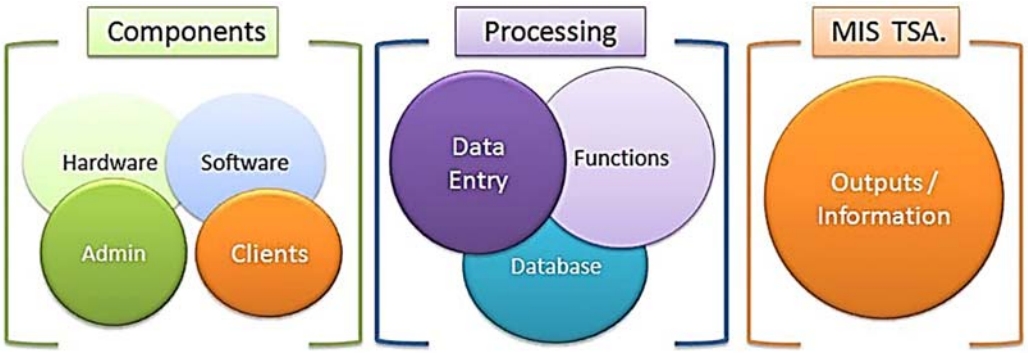

Fig. 1 The layers of information system

The user level (1st level) is the most basic level of the system and is checked at regular intervals, by the authorized system administrator (admin), who is specialized in TSA, and includes procedures, security management, data collection, etc.

The second level of the system concerns the management of the data as well as the application elements of the TSA database.

The database management layer (3rd layer) stores the data from various sources, with built-in the necessary PHP programming to create and compile TSA entities, and produces the necessary analyses, as shown in Fig. 2.

The TSA information system includes various subsections such as System Administration, Basic Management Information Settings, Data Entry, Management, Reports and Results, Statistical Analysis, and individual applications.

The information system aims to reduce the time and cost of data collection by collecting data from a variety of sources, including online and offline surveys, national accounts, and tourism-related data. The data management system is responsible for storing all the data, with two separate databases designed specifically for this system.

The first base acts as a routine server, while the second base acts as a backup server, which checks the quality of the data after it is uploaded, detecting any incorrect values, or typos. The TSA syntax is standardized by the international standard TSA: RMF 2008, which includes 13 output entities (1 to 9, 10a, 10b, and 10c), as shown in Fig. 3.

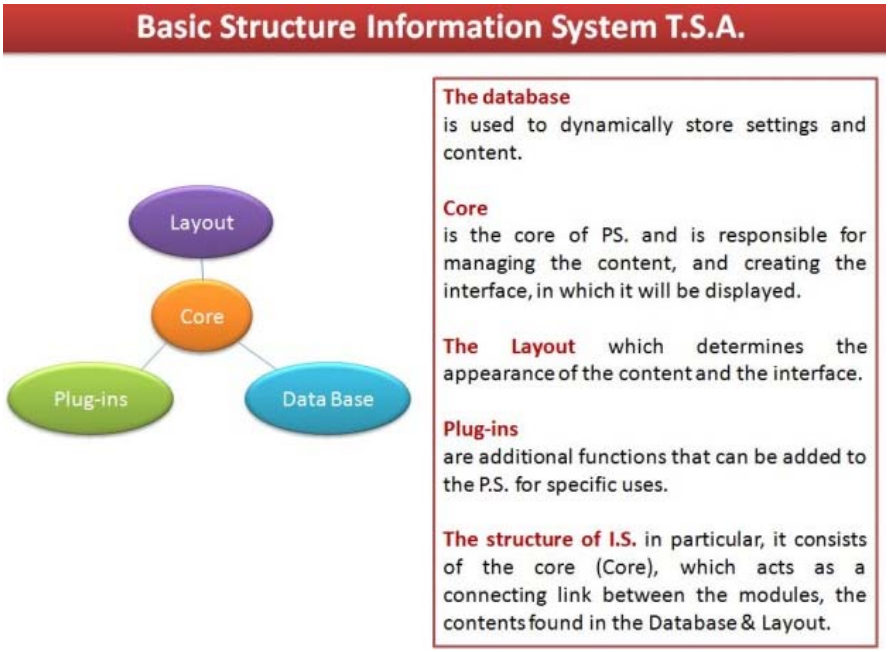

Fig. 2 Basic structure information system TSA

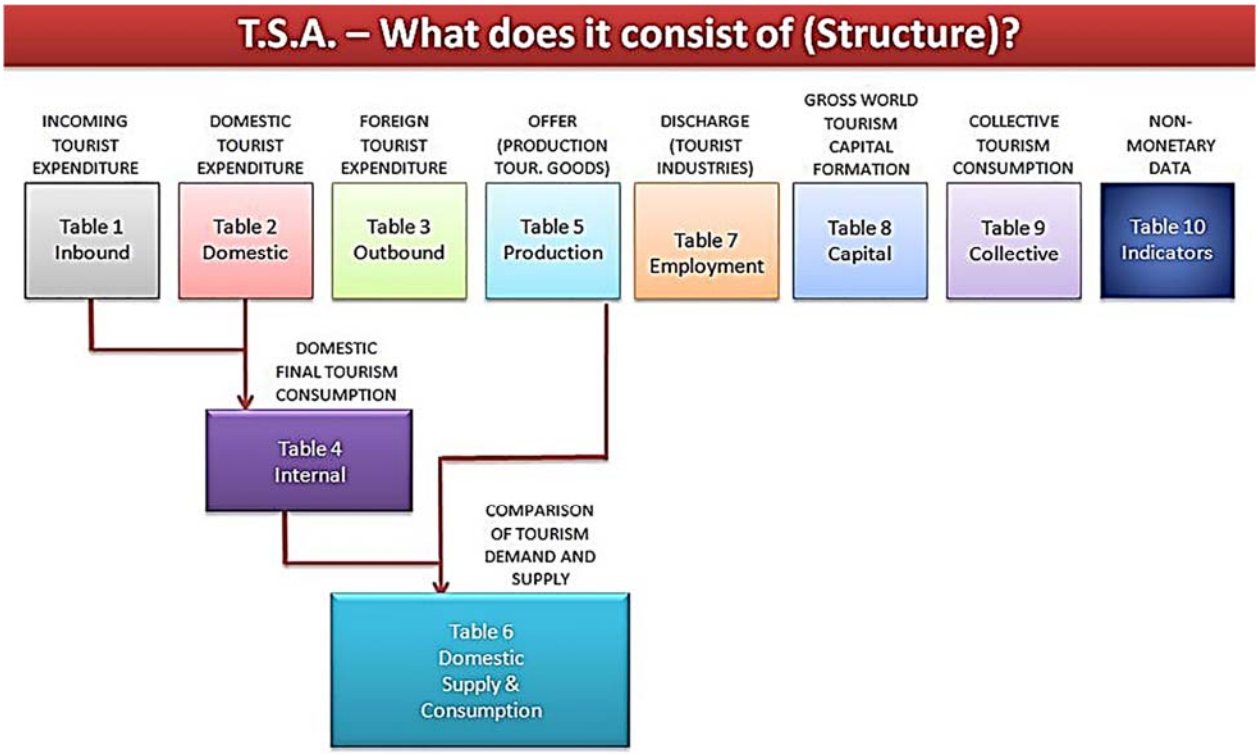

Fig. 3 Structure of TSA

In the information system, entity 1 records the tourism expenditure generated by inbound visitors in categories by product. In a regional TSA, in addition to international tourists, non-local domestic visitors from other regions of the country are identified as external visitors, and their tourism expenditures are also described in entity 1, as shown in Fig. 4.

Entity 2 focuses on domestic tourism expenditure categorized by product, as in Fig. 5.

Entity 3 presents outbound tourism expenditures. Likewise, in a regional TSA, both outbound visitors and domestic visitors traveling outside the region are considered separately in entity 3, as shown in Fig. 6.

TSA Table 1: Inbound tourism expenditure by products and classes of visitors (provisional data)				
Products	P1 TOURISTS (OVERNIGHT VISITORS) (1.1)	P2 EXCURSIONISTS (SAME-DAY VISITORS) (1.2)	P3 VISITORS (1.3) = (1.1) + (1.2)	EGGR
A. Consumption products				1
A.1. Tourism Characteristic Products (TCP)				2
A.1.i. Internationally Comparable Tourism Characteristic Products (TCP-IC)				3
1. Accommodation services for visitors				4
1.α. Accommodation services for visitors other than 1.b				5
1.β. Accommodation services associated with all types of vacation home ownership				6
2. Food and beverage serving services				7
3. Railway passenger transport services				8
4. Road passenger transport services				9
5. Water passenger transport services				10
6. Air passenger transport services				11
7. Transport equipment rental services				12
8. Travel agencies and other reservation services				13
9. Cultural services				14
10 Sports and recreational services				15
A.1.ii. Country-Specific Tourism Characteristic Products (TCP-GR)				16
11. Country-specific tourism characteristic goods				17
12. Country-specific tourism characteristic services				18
A.2. Other Consumption Products				19
A.2.i. Tourism Connected Products (TCnP)				20
A.2.ii. Non-Tourism-Related Consumption Products				21
B. Non-Consumption Products				22
B.1. Valuables				23
Total Inbound Tourism Expenditure				24

Fig. 4 Inbound tourism expenditure by-products and classes of visitors

TSA Table 2: Domestic tourism expenditure by products, classes of visitors and types of trips										
	P21	P22	P23	P24	P25	P26	P27	P28	P29	EGGR
	Domestic trips			Outbound trips			All types of trips			
Products	TOURISTS (OVERNIGHT VISITORS) (2.1)	EXCURSIONISTS (SAME-DAY VISITORS) (2.2)	VISITORS (2.3) = (2.1) + (2.2)	TOURISTS (OVERNIGHT VISITORS) (2.4)	EXCURSIONISTS (SAME-DAY VISITORS) (2.5)	VISITORS (2.6) = (2.4) + (2.5)	TOURISTS (OVERNIGHT VISITORS) (2.7) = (2.1) + (2.4)	EXCURSIONISTS (SAME-DAY VISITORS) (2.8) = (2.2) + (2.5)	VISITORS (2.9) = (2.3) + (2.6)	
A. Consumption products										1
A.1. Tourism Characteristic Products (TCP)										2
A.1.i. Internationally Comparable Tourism Characteristic Products (TCP-IC)										3
1. Accommodation services for visitors										4
1.α. Accommodation services for visitors other than 1.b										5
1.β. Accommodation services associated with all types of vacation home ownership										6
2. Food and beverage serving services										7
3. Railway passenger transport services										8
4. Road passenger transport services										9
5. Water passenger transport services										10
6. Air passenger transport services										11
7. Transport equipment rental services										12
8. Travel agencies and other reservation services										13
9. Cultural services										14
10 Sports and recreational services										15
A.1.ii. Country-Specific Tourism Characteristic Products (TCP-GR)										16
11. Country-specific tourism characteristic goods										17
12. Country-specific tourism characteristic services										18
A.2. Other Consumption Products										19
A.2.i. Tourism Connected Products (TCnP)										20
A.2.ii. Non-Tourism-Related Consumption Products										21
B. Non-Consumption Products										22
B.1. Valuables										23
Total Inbound Tourism Expenditure										24

Fig. 5 Domestic tourism expenditure by-products, classes of visitors, and types of trips

TSA Table 3: Outbound tourism expenditure by products and classes of visitors				
Products	P31 Tourists (overnight visitors) (3.1)	P32 Excursionists (same-day visitors) (3.2)	P33 Visitors (3.3) = (3.1) + (3.2)	EGGR
A. Consumption products				1
A.1. Tourism Characteristic Products (TCP)				2
A.1.i. Internationally Comparable Tourism Characteristic Products (TCP-IC)				3
1. Accommodation services for visitors				4
1.α. Accommodation services for visitors other than 1.b				5
1.β. Accommodation services associated with all types of vacation home ownership				6
2. Food and beverage serving services				7
3. Railway passenger transport services				8
4. Road passenger transport services				9
5. Water passenger transport services				10
6. Air passenger transport services				11
7. Transport equipment rental services				12
8. Travel agencies and other reservation services				13
9. Cultural services				14
10 Sports and recreational services				15
A.1.ii. Country-Specific Tourism Characteristic Products (TCP-GR)				16
11. Country-specific tourism characteristic goods				17
12. Country-specific tourism characteristic services				18
A.2. Other Consumption Products				19
A.2.i. Tourism Connected Products (TCnP)				20
A.2.ii. Non-Tourism-Related Consumption Products				21
B. Non-Consumption Products				22
B.1. Valuables				23
Total Inbound Tourism Expenditure				24

Fig. 6 Outbound tourism expenditure by-products and classes of visitors

TSA Table 4: Internal tourism consumption by products						
Products	P41 Inbound tourism expenditure (1.3)	P42 Domestic tourism expenditure (2.9)	P43 Internal tourism expenditure (4.1) = (1.3) + (2.9)	P44 OTHER COMPONENTS OF TOURISM CONSUMPTION (4.2)	P45 INTERNAL TOURISM CONSUMPTION (4.3) = (4.1) + (4.2)	EGGR
A. Consumption products						1
A.1. Tourism Characteristic Products (TCP)						2
A.1.i. Internationally Comparable Tourism Characteristic Products (TCP-IC)						3
1. Accommodation services for visitors						4
1.α. Accommodation services for visitors other than 1.b						5
1.β. Accommodation services associated with all types of vacation home ownership						6
2. Food and beverage serving services						7
3. Railway passenger transport services						8
4. Road passenger transport services						9
5. Water passenger transport services						10
6. Air passenger transport services						11
7. Transport equipment rental services						12
8. Travel agencies and other reservation services						13
9. Cultural services						14
10 Sports and recreational services						15
A.1.ii. Country-Specific Tourism Characteristic Products (TCP-GR)						16
11. Country-specific tourism characteristic goods						17
12. Country-specific tourism characteristic services						18
A.2. Other Consumption Products						19
A.2.i. Tourism Connected Products (TCnP)						20
A.2.ii. Non-Tourism-Related Consumption Products						21
B. Non-Consumption Products						22
B.1. Valuables						23
Total Inbound Tourism Expenditure						24

Fig. 7 Internal tourism consumption by-products

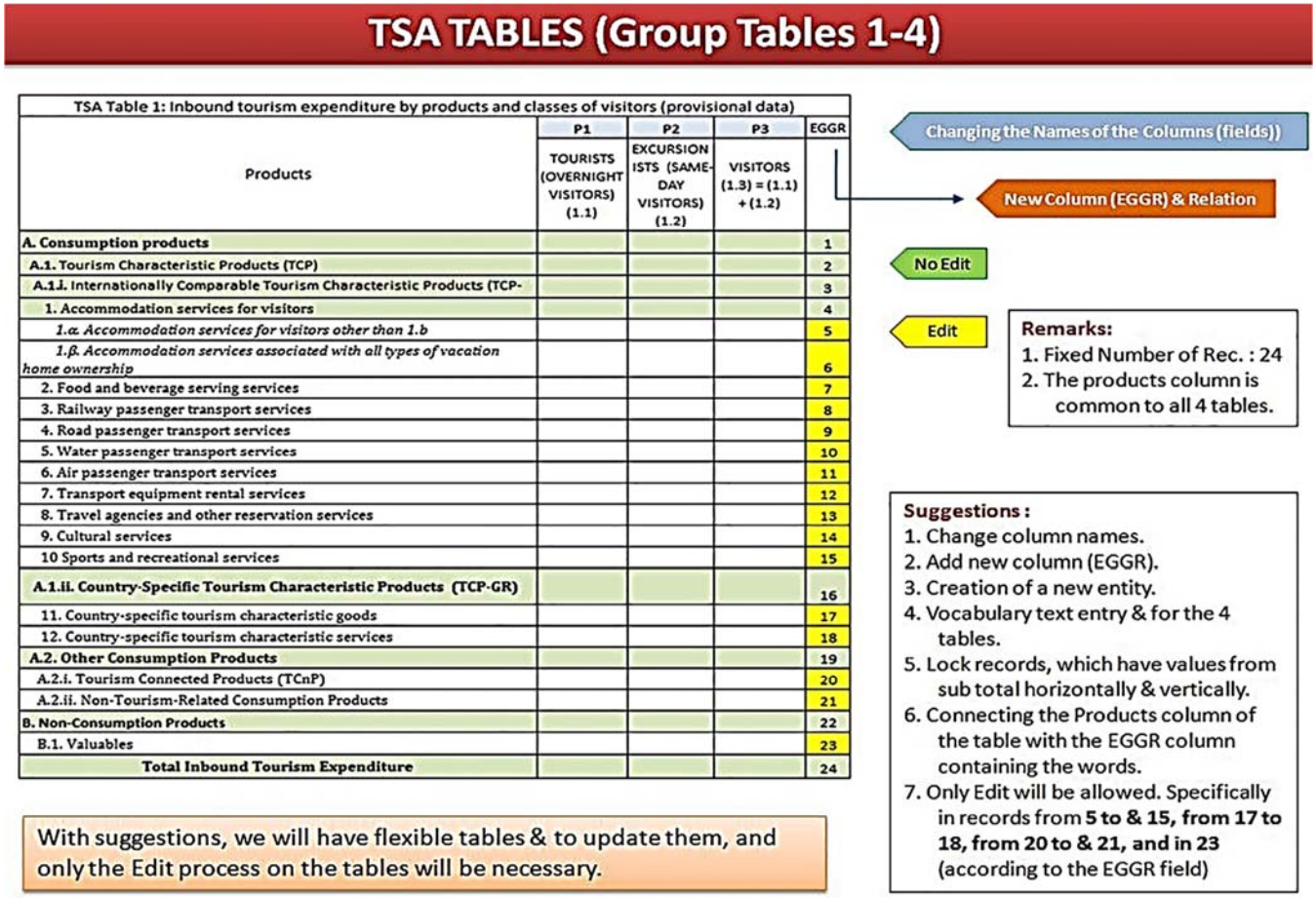

Fig. 8 Group entities 1 - 4

TSA Table 5 : Production accounts of tourism industries and other industries (at basic prices)

Products	P51 Accommodation for visitors (5.1)	P51a Accommodation services for visitors except in 1.b (5.1α)	P51b Accommodation services associated with all types of vacation home ownership (5.1β)	P52 Food- and beverageserving industry (5.2)	P53 Railway passenger transport (5.3)	P54 Road passenger transport (5.4)	P55 Water passenger transport (5.5)	P56 Air passenger transport (5.6)	P57 Transport equipment rental (5.7)	P58 Travel agencies and other reservation services industry (5.8)	P59 Cultural industry (5.9)	P510 Sports and recreational industry (5.10)	P511 Retail trade of country-specific tourism characteristic goods (5.11)	P512 Country specific tourism industries (5.12)	P513 Total (5.13)	P514 Other industries (5.14)	P515 Output of domestic producers (at basic prices) (5.15) = (5.13) + (5.14)	EGGR
A. Consumption products																		1
A.1. Tourism Characteristic Products (TCP)																		2
A.1.i. Internationally Comparable Tourism Characteristic Products (TCP-IC)																		3
1. Accommodation services for visitors																		4
1.α. Accommodation services for visitors other than 1.b																		5
1.β. Accommodation services associated with all types of vacation home ownership																		6
2. Food and beverage serving services																		7
3. Railway passenger transport services																		8
4. Road passenger transport services																		9
5. Water passenger transport services																		10
6. Air passenger transport services																		11
7. Transport equipment rental services																		12
8. Travel agencies and other reservation services																		13
9. Cultural services																		14
10 Sports and recreational services																		15
A.1.ii. Country-Specific Tourism Characteristic Products (TCP-GR)																		16
11. Country-specific tourism characteristic goods																		17
12. Country-specific tourism characteristic services																		18
A.2. Other Consumption Products																		19
A.2.i. Tourism Connected Products (TCnP)																		20
A.2.ii. Non-Tourism-Related Consumption Products																		21
B. Non-Consumption Products																		22
B.1. Valuables																		23
B.2. Other non-consumption products																		24
I. Total output (at basic prices)																		25
II. Total intermediate consumption (at purchasers price)																		26
(I - II). Total gross value added (at basic prices)																		27
Compensation of employees																		28
Other taxes less subsidies on production																		29
Gross mixed income																		30
Gross operating surplus																		31

Fig. 9 Production accounts of tourism industries

Based on entities 1 to 3, domestic tourism consumption is aggregated in entity 4 to show tourism output from the demand side, as shown in Figs. 7 and 8.

Entity 5 presents production accounts of tourism and other industries in the economy, see Fig. 9. Entity 6 summarizes the regional TSA results, combining data from entities 4 and 5, to assess the direct economic impact of tourism industries, as shown in Fig. 10. Entities 7-10 concern employment in tourism industries, and collective tourism consumption, and some non-monetary indicators, as shown in Fig. 11.

TSA Table 6 : Total domestic supply and internal tourism consumption (at purchasers' prices)

Products	P61	P62	P63	P64	P65	P66	P67	P68	P69	P610	P611	P612	P613	P614	P615	P616	P617	P618	P619	P620	P621	P622	P623	P624	P625	EGGR
	Tourism industries																									
	1. Accommodation for visitors		1.a. Accommodation services for visitors except in 1.b.		1.b. Accommodation services associated with all types of vacation home		...		12. Country specific tourism industries		Total		Other industries		Output of domestic producers (at basic prices)		Imports		Taxes less subsidies on products nationally produced and imported		Trade and transport margins		Domestic supply (at purchasers' prices)	Internal tourism consumption	Tourism ratios (%)	
	(5.1)		(5.1α)		(5.1β)		(5....)		(5.12)		(5.13)		(5.14)		(5.15) = (5.13) + (5.14)		(6.1)		(6.2)		(6.3)					
A. Consumption products																										1
A.1. Tourism Characteristic Products (TCP)																										2
A.1.i. Internationally Comparable Tourism																										3
1. Accommodation services for visitors																										4
1.α. Accommodation services for visitors other than 1.b																										5
1.β. Accommodation services associated with all types of vacation home ownership																										6
2. Food and beverage serving services																										7
3. Railway passenger transport services																										8
4. Road passenger transport services																										9
5. Water passenger transport services																										10
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10 Sports and recreational services																										15
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11. Country-specific tourism characteristic goods																										17
12. Country-specific tourism characteristic services																										18
A.2. Other Consumption Products																										19
A.2.i. Tourism Connected Products (TCnP)																										20
A.2.ii. Non-Tourism-Related Consumption Products																										21
B. Non-Consumption Products																										22
B.1. Valuables																										23
B.2. Other non-consumption products																										24
I. Total output (at basic prices)																										25
II. Total intermediate consumption																										26
(I - II). Total gross value added (at basic prices)																										27
Compensation of employees																										28
Other taxes less subsidies on production																										29
Gross mixed income																										30
Gross operating surplus																										31

Fig. 10 Total domestic supply

TSA TABLE 7 : Employment in the Tourism Industries

Tourism Industries	P71	P72	P73	P74	P75	P76	P77	P78	P79	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	EGR
	Number of establishments	Number of jobs per position in the						Number of working hours per						Full-time equivalent						
		Paid Employment			Self employment			Paid Employment			Self employment			Paid Employment			Self employment			
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	
1. Accommodation for visitors																				1
1.a Accommodation for guests other than 1.b																				2
1.b Accommodation relating to each type of holiday home property																				3
2. Food and beverage activities																				4
3. Rail passenger transport																				5
4. Road passenger transport																				6
5. Floating passenger transport																				7
6. Air passenger transportation																				8
7. Rental of transport equipment																				9
8. Activities of travel agencies and other reservation services																				10
9. Cultural activities																				11
10. Sports and leisure activities																				12
11. Retail trade of tourist characteristic goods of the specific country																				13
12. Touristic activities characteristic of the specific country																				14
total																				15

Fig. 11 Employment in the Tourism Industries

The RMF 2008 standard, which is an updated version of a 2000 framework created by UNSD, EUROSTAT, OECD, and UNWTO, aimed at designing the TSA, proposes 13 entities. The first four are key entities, containing data on visitor spending and demand-side tourism consumption. However, data availability problems are preventing full aggregation by destination.

The proposed TSA information system automatically

collects demand and supply data, thus improving efficiency and establishing consistent collection principles, for TSA comparability across spatial and temporal dimensions, making this module very essential.

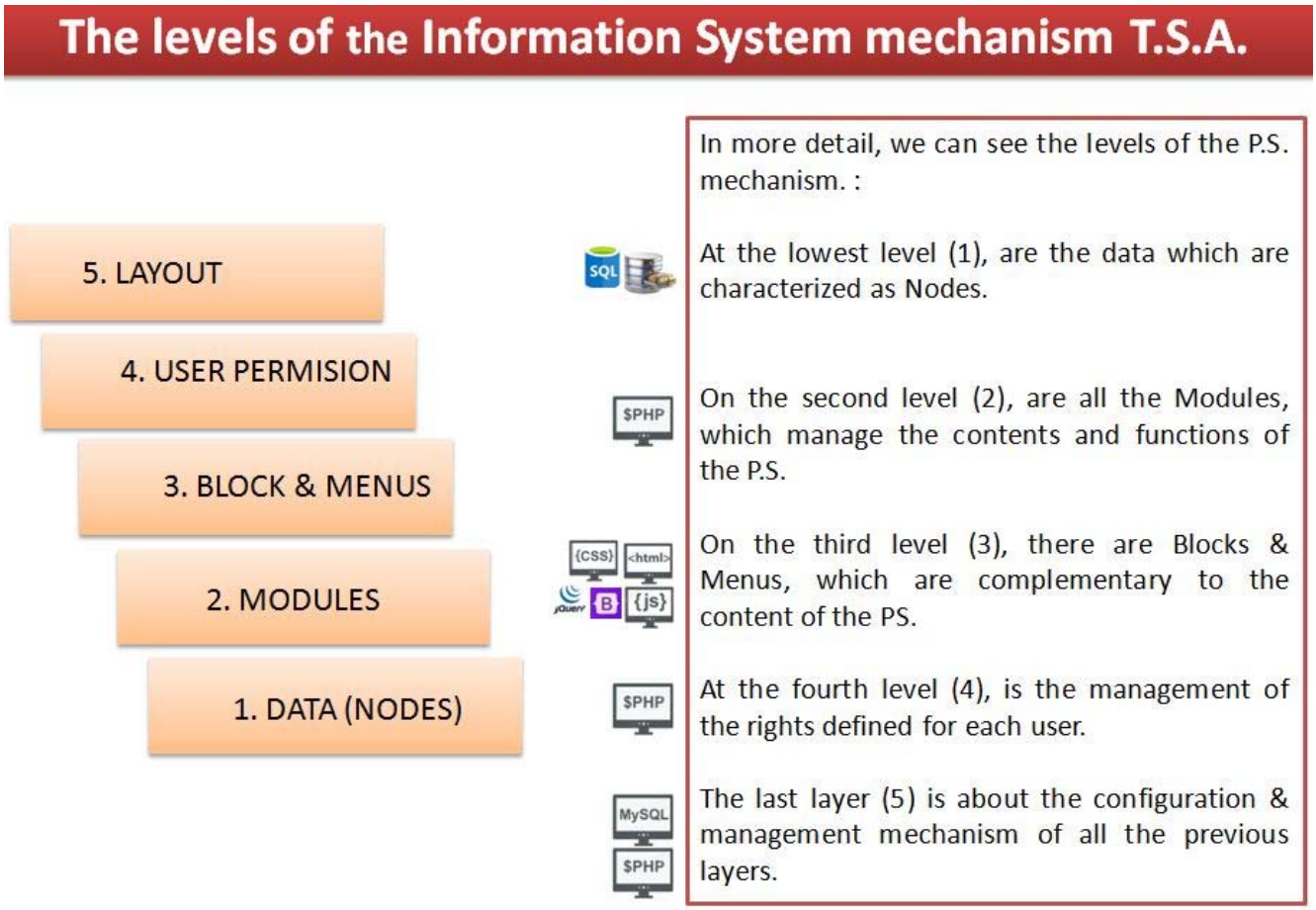

Fig. 12 The levels of the Information System

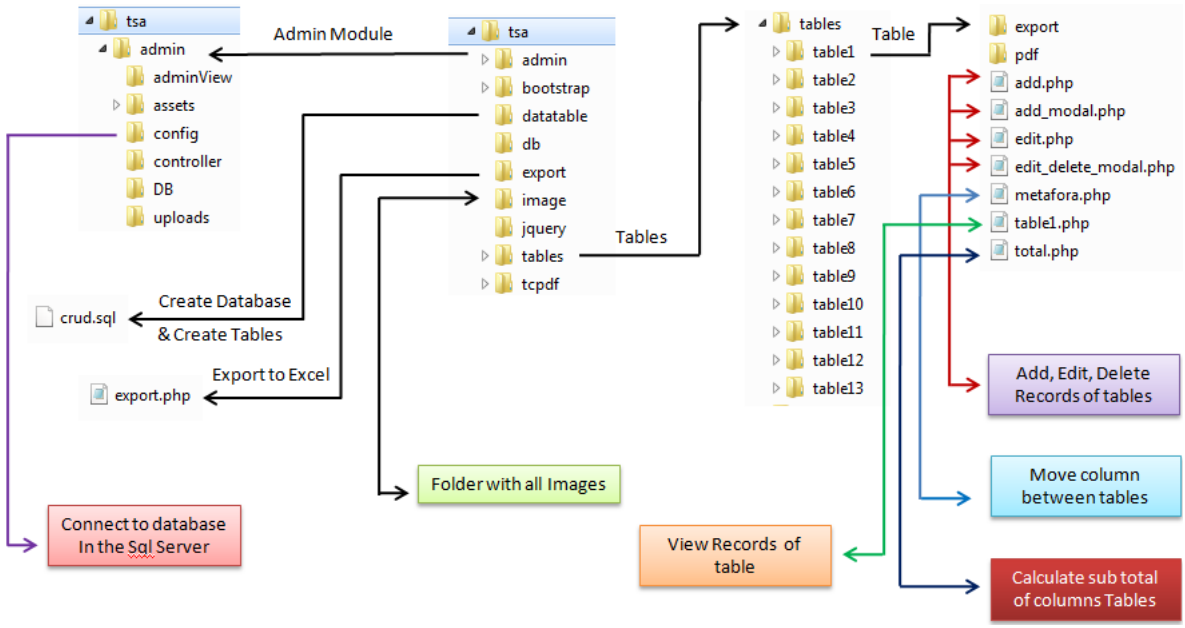

Fig. 13 Structure of folders and files

Through the analysis of the results offered by the information system, valuable data and statistics are extracted, beneficial for any scientific use.

In addition, the system, used in conjunction with a geographical information system, will have the ability to spatially distinguish visitor arrivals and expenditure data.

Analysis of geographic distribution and tourism data will assist governments and industries in allocating resources, understanding visitor preferences, and determining future destination preferences so that TSA can analyze the effects of tourism on production, added value, employment, and forecast visitor arrivals.

The following observations and highlights are crucial, as they reveal the need for several essential actions to implement the proposed information system. Finally, Figs. 12 and 13 illustrate the levels and shape (path) of the structure, folders, and subfolders of the information system.

IV. Evaluation and Validation

The validation and evaluation of a learning information system is a very important task and consists of a series of steps to ensure the effectiveness and accuracy of the system while it is implemented based on specific criteria which include various factors such as usability, effectiveness, scalability, efficiency, and compliance with data protection laws.

Based on the above criteria, we collected relevant data such as quantitative (e.g. usage statistics, performance measurements, etc.) and qualitative data (e.g. surveys, user comments, interviews, observations, etc.). We analyzed the data to evaluate the effectiveness of the information system. We used statistical analysis and data visualization techniques to identify patterns, trends, and correlations and this helped provide a benchmark for evaluation and validation.

The system offers several advantages in that it is user-friendly, integrated, and easy to manage, which improves the efficiency of TSA deployment and use. The information system will be an effective way to bridge the gap between the theoretical development of TSAs and their empirical application in different case study areas by different stakeholder groups.

It covers all important points in the chain of the TSA compilation process, i.e., data collection, data storage and management, statistical analysis, annual TSA use, as well as other extensive future applications, and significantly improves the efficiency of TSA compilation and TSA implementation in destinations/regions where tourism plays a significant role in the economy.

The information system will provide an ergonomic environment for the continuous and timely collection of TSA data, where different data sources will be efficiently entered and organized in a TSA tabular platform with the possibility for users to access data and information at any time. The information system will advance the state of the art in terms of TSA development and go at least some way in bridging the gap between academic knowledge and practice in the field of tourism economics.

The main objective of the proposed electronic system will be to allow the input of statistical entities and to give results on the TSA in an automated way. It will store the whole process of investigation for each period of TSA Use - Calculation (Annual TSA Table Inputs and Outputs), securely and will make the data search easier and more efficient. It will have the ability to efficiently evaluate the tourism data - expenditure, so that, it will save a lot of time.

The system administrator will prepare the necessary procedures for each annual TSA use (New Use Opening/TSA Data Year), so that the data are in separate entities, and the necessary interconnection between them, to avoid accidental errors and to guarantee the safe issuance of results.

The ordinary authorized users (clients) will be able to connect through their computers, in a local network, with their provided password, given to them, and will be able to get the results they want through various parameters, initially created in the proposed system by the authorized administrator.

Thus, the processing and analysis of the results will be immediate and will be done by the system with significant time savings. It provides a friendly and accessible TSA information system to improve the practical use of TSA, by relevant stakeholders and is an effective way to bridge the gap between academic development of TSA methodologies and their empirical application in different sectors.

Numerous functions have been foreseen, to be planned as well as the additional future integration of new ones, thus covering the entire TSA collection process chain. The proposed system not only improves the efficiency of TSA training but also provides researchers with a perspective for future research and applications in this area. Based on the proposed system, it is possible to compile TSAs at regular intervals.

The main functions of the TSA information system cover data collection, data management, statistical analysis, and other extensive future functions. Tourism and national accounts data from relevant government agencies can be downloaded through procedures (import) when required. After checking, the collected data can be used to compile the regional TSA tables based on the International TSA Standard: RMF 2008. Finally, the information system provides 17 inputs and 13 outputs.

V. Conclusion and Future Work

This research proposes a TSA information system based on a Local Application, which can solve all the problems and improve the efficiency and practical implementation of a TSA. This system is particularly valuable for government and industrial decision-makers. Based on the results of the system, it will be possible to publish tourism data and information on the economic contribution of tourism to the country.

In the proposed literature we can see that only a methodological approach and analysis are made, without any reference to any future implementation of an automated system, which can be able to give answers very quickly, through specific procedures.

Also, considering all the previous methodological analyses of all the Greek theses, as well as the International Bibliographies, which exist towards the end of the proposal, it is proposed to create and implement a new system, that will be

fully secure electronic/computerized and effective, hoping to complete and finalize the whole spectrum of the investigation of the issue, concerning the Satellite Accounts of Tourism.

After a detailed study of the International Standard TSA: RMF 2008, and for the present modeling to be in line with the rules and recommendations required by this standard, some conclusions are drawn and some important observations are made, which constitute future work.

It is worth mentioning that the entries in the 13 entities are constant with very small differences in the number of entries for each entity. A future work will be through a related algorithm the information system will automatically prepare and create the structure of all entities (structure), with their respective fields, as well as the primary keys, offering in addition the option to the user to re-create the entities, only in case the respective entity has not been processed.

In addition, in the information system, it is proposed that the use of the data be done by annual period, as it exists in all accounting programs with the uses of previous years and with the possibility of creating a new use for each current year. Through this process, the data will exist in separate entities, and it will be easier to extract the statistical data, both for all years and for each current year.

In each entity, the first field, which describes verbally the expenditure or consumption in question, will always be filled in, and the verbal descriptions of the 13 entities (belonging to the first field) will be automatically entered for each entity so that the user is only required to update the numerical fields. In addition, the dictionaries of the 13 entities have been edited separately, for each entity, and have been entered in a common entity on the local server hosting the information system (IS) database and, through an import procedure, are automatically imported into all 13 entities.

Because in all 13 entities, there are computational fields (holding total results), in which the user cannot intervene, a future task will be for each entity to have a child entity. This entity will hold the totals, so that after updating a field in the main table, automatically, the totals will be entered in the child entity as independent data and at the same time transferred to the main entity, where the main data processing is done.

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