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THE TOURISM AREA LIFE CYCLE
A quantitive approach of the tourism area life cycle

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Abstract: The Tourism Area Life Cycle -TALC model (Butler, 1980), has been one of the most cited models to explain the evolution of a tourism destination. However, this model has been an object of criticism, because while being a strong descriptive theory, it is not a normative or deterministic model, and consequently, has a weakness as a tool to define the best strategic policies in a competitive context. We propose a Tourism Development Index (TDI) that can identify the stage of the life cycle and, at the same time can give us the level of development of a tourism destination in a competitive context. Through a random simulation, based on specific assumptions, we confirmed the possibility of quantifying the different stages of the life cycle, and thus making it possible to identify at which stage a destination is in an international competitive context. **Keywords:** Tourism life cycle, competitiveness, tourism development, tourism strategies.

Resumen: El modelo del ciclo de vida del área turística – el llamado "TALC model" (Butler, 1980), viene siendo uno de los modelos más citados para explicar la evolución de los destinos turísticos. Sin embargo, este modelo ha sido objeto de crítica, una vez que, a pesar de su consistencia teórica, no es un modelo normativo ni determinístico y, consecuentemente, presenta debilidades como instrumento para definir las mejores políticas estratégicas en un contexto competitivo. En este estudio, proponemos un Índice de Desarrollo Turístico (IDT) que permite identificar la etapa del ciclo de vida y, al mismo tiempo, identificar el nivel de desarrollo de un destino turístico en un destino competitivo. A través de una simulación aleatoria, y basado en supuestos específicos, confirmamos la posibilidad de cuantificar distintas etapas del ciclo de vida, y así ser posible saber en que etapa se encuentra un destino en el contexto competitivo internacional. **Palabras clave:** Ciclo de vida del destino turístico, competitividad, desarrollo turístico, estrategias turísticas.

Resumo: O modelo do ciclo de vida da área turística – o chamado "TALC model" (Butler, 1980), tem sido um dos modelos mais citados para explicar a evolução dos destinos turísticos. No entanto, este modelo tem sido objeto de crítica, uma vez que, apesar da sua consistência teórica, não é um modelo normativo nem determinístico e, consequentemente, apresenta debilidades enquanto instrumento para definir as melhores políticas estratégicas num contexto competitivo. Neste estudo, propomos um Índice de Desenvolvimento Turístico (IDT) que permite identificar o estádio do ciclo de vida e, ao mesmo tempo, identificar o nível de desenvolvimento de um destino turístico num contexto competitivo. Através de uma simulação

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aleatória, e com base em assunções específicas, confirmámos a possibilidade de quantificar diferentes estádios do ciclo de vida, e assim tornar possível saber em que estádio se encontra um destino no contexto competitivo internacional. **Palavras chave:** Ciclo de vida do destino turístico, competitividade, desenvolvimento turístico, estratégias turísticas.

INTRODUCTION

Since the 1980´s researchers have been increasingly sensitive to the development of regions on a sustainable basis, and the TALC model (Butler 1980) has become a crucial paper to explain the evolution of tourist destinations (Tooman 1997b; Hovinen 2002). It is recognized as an important descriptive model but needs an upgrading for normative or descriptive use (Haywood 1986; Lundtorp and Wanhill 2001; Oppermann 1995; Cooper 1993; McElroy and de Albuquerque 1998; Karplus and Krakover 2004; Toh *et al.* 2001; Kim 2002; Getz 1992; Aguiló *et al.* 2002; Weaver 2000). On the other hand, it is also accepted that a destination need not present all the stages of the life cycle and also that each stage can be of different lengths (Buhalis 2000; Johnston 2001; Papatheodorou 2004; Baum 1998; Agarwal 2002) with overlapping features (Tooman 1997a). Consequently it is difficult to identify each stage and, in strategic terms, it is important to determine the scale and the stage of the life cycle (Cooper 1993). At the same time it has been argued that it is difficult to find deterministic paths to the model (Karplus and Krakover 2004; Cooper 2002; Zhong and Xiang 2008; Priedaux 2000), although there have been some authors who highlight the importance of a multidimensional approach (Cooper 1993, 1994). Butler (2008) argues that the TALC model has been misunderstood but there does seem to be a case for the "typical S" shape of destination growth. On the other hand, in line with World Tourism Organization (WTO) and the United Nations Development Program (UNDP) which proposes a Human Development Index (HDI) to measure the quality of life of the nations, we argue that there needs to be a tourism index that can measure additional aspects of the tourism development of the regions.

Despite the existence of several works about life cycles going back to the 1930´s (Oppermann 1995; Wells and Gubar 1966), it was through the work of Levitt (1966) that this concept appeared on the academic agenda. Thenceforward, there have been several works applying this concept to various issues and after Butler´s work (1980) the evolution of tourism destinations and tourism products has been much explored (Lagiewski 2003) (in Butler 2006) (Butler 2010). However, there has been a misunderstanding about the essence of the proposal model. First, Levitt argued that the life cycle of a product is a strong tool by which to manage competitiveness strategies, and that those strategies should anticipate the initiatives of the market. Second, Butler noted the importance of three factors ("tourism conditions – attraction and fixed capability", "local population" and "tourists") and the existence of a competitive market in a sustainability context (1980, p.10). Butler presents tourist numbers as the indicator of the model, because they have a central paper in this process, and because this is a relatively easy variable to obtain. Indeed, all the previous works that developed a normative approach centers on the existence of tourists or on variables directly connected to this factor, as if it were the only variable of the model (Haywood 1986; Lundtorp and Wanhill 2001; McElroy and de Albuquerque 1998; Karplus and Karkover 2004; Toh *et al.* 2001; Moore and Witehall 2005).

However, it is not easy to measure the life cycle, because tourism is a holistic issue. There are issues relating to the quality of life and well-being of the local populations and also economic, socio-cultural and environmental aspects of sustainability as well as receiving tourists, thus there must be consideration of a formula that can highlight these aspects of the problem. To do so, a complex indicator as an index is needed as well as some theory principles that must be guaranteed. First, we must identify variables and indicators that can fit on the three factors above. As we know, a development process will be infinitely increasing at decreasing rates (excluding situations of severe and prolonged crises or catastrophe) as a consequence of technological innovations, and until the resource costs are bigger than the benefits (Wetzel and Wetzel 1995). Selected variables must guarantee aspects of quality of life and well-being and, consequently, they must have the characteristic of "the more is the best". In addition we must create a relationship between them that can guarantee the principles of economic well-being (as Adam Smith said "*depending on the production, or what is purchased, if put to a great or lesser extent on the number of those who will consume, the nation will be better or worse supplied of those goods necessary to life and comfort (…)*" (1987, p.69). Just as the UNDP argues "for development, we must guarantee that the population have accesses to resources" (report, 1990), competitive principles (the importance of the market share) and sustainable principles (there is no way to highlight any variable), there must be found a mathematic formula that includes all appropriate variable. If this can be achieved, it is then necessary to prove the consistency of the proposed index, both generally and in specific terms. If all of this is successful with positive results we can use this to identify the different stages of the life cycle and apply this argument to the different inclinations of the curve at each point of change between each stage. This research focuses on proposing a Tourism Development Index (TDI) applicable in an international competitive context to "*tourists of free choice for pleasure travel*", comparing a destination with 5 competitors on the basis that between three and five competitors is a good number in a competitive context (Gartner and Perdue: e-mail communication October 2008).

This paper is divided in four parts; first, the methodology to obtain the proposal index; second, illustrating the consistency of the proposal index; third the results obtained and finally conclusions that can be drawn with identifying new research approaches.

METHODOLOGY

First it is necessary to identify the factors and the correspondent variables and indicators that can be used. There have been several works that have produced studies about tourism development, tourism sustainability and tourism competitive strategies, and those are the fundamental bases on which to build our index. From Butler´s work (1980) there are three critical factors: *"(…) complex function, related to the characteristics of both visitors and* visited, *and the specific arrangements of the area involved"* (p.10). It can be assumed that there must be "resident population", "tourists" and "tourist conditions". The "resident population" presents no problem to identify, and for "tourist" in this study we use "foreign tourists" who travel for pleasure with freedom of choice, because we will deal with the international competitive context, but the "tourist conditions" variable is more difficult to identify. Dwyer and Kim (2003) argue that we only can highlight some indicators and Johnston (2001) proposes the characteristics that a resort must have: *basic resources* that must cover environmental and cultural areas; *services* that cover accommodation, animation, health and urban areas; and *governance* that covers the public services, the infrastructure and the structural plans areas. From a literature review we chose the variables listed in Table 1 following the line of reasoning below.

In the first place, it is important to include variables that measure health, education and resources for a decent life (UNDP 1990; Sagar and Najam 1998; Hicks 1997). Tooman (1997a) suggests that the life cycle must have a new approach highlighting social well-being indicators. The choice of variables must include also features of economic, socio-cultural and environmental of equal dimensions and guarantee the balance of the tourism development (McElroy 2002; Moniz 2006) and its competitiveness (Crouch and Ritchie 1999). As well a destination must be supported in the first place, by its own population (Alan *et al.* 2007, p.242-243) (Agapito *et al.* 2010). Ideally any index should avoid the myopia of the simple use of indicators of economic growth, employment and income level (Marcouiller *et al.* 2004). There are a huge number of environmental indicators (Massam 2002; Miller 2001), and it is important to find those that could fit as a generic measure reflecting the tourism situation. The level of the hotels, the tourism promotion and accessibility to communications and information are very important to the competitiveness of the regions (Claver-Cortés *et al.* 2007; Férnandez and Bedia 2004; Milne and Ateljevic 2001), along with the natural and historical attractions (Fennell and Butler 2003; Sheppard 2006; Gurnewald and Schubert 2007; Borrie *et al.* 1998). It is clear that increasing tourist numbers also depend on the existence of good mobility and appropriate urban design (Butler and Wall 1985; Speakman 2005; Lumsdon 2000; Dwyer and Kim 2003). Visitor activities are important to tourism (Koening-Lewis and Bischoff 2005; Molloy 2002; Dwyer and Kim 2003) and 66% of the variance of attractiveness are explained by tourist services and facilities, culture and history, accommodation and activities (Formica and Uysal 2006). Also visible is the increasing importance of security (Kelly 1993; Wong and Yet 2009) and healthcare (Morse 2003; Neumayer 2001; Despotis 2005). Urban planning has a great importance in political development and public acceptance of development (Lundtorp and Wanhill 2001; Butler 2000; Andriotis 2006; Farsari *et al.* 2007), thus overall we must anticipate a 3^{th} generation destination (Claver-Cortés *et al.* 2007) and obtain economic impacts of the 2^{nd} and 3^{th} order (Tooman 1997a).

Overall it is necessary to find the best way to put everything into a mathematic formula. To guarantee the principles of well-being, sustainability and competitiveness as previously listed, we should consider: (a) the relationship of the "tourist conditions" to the resident population in the tourist destination; (b) the relationship of the "tourist conditions" to the resident population in the competitive region; (c) the market share of the specific tourist destination in the competitive region. The TDI as proposed is therefore a function of "resident population" (P), "foreign tourists" (T) and "tourist conditions" (D):

$$TDI = f(P, T, D)$$

Reilly (1931) (in Brooks *et al.* 2008) and Archer (1987) say that a gravity model is suitable to explain attraction. Thus:

$$TDI_{jt} = \sum_{i=1}^{n} \frac{1}{n} \left(\frac{\frac{D_{ijt}}{P_{jt}}}{\frac{D_{iTt}}{P_{Tt}}} \right) \times \left(\frac{T_{jt}}{T_{Tt}} \right) \qquad (1)$$

Where:

D_{ijt} = Values of the "tourist conditions" variables (i) of the destination (j) in moment (t)

P_{jt} = Values of the "resident population" of the destination (j) in moment (t)

T_{jt} = Values of the arrivals of the "foreign tourists" of the destination (j) in moment (t)

n = Number of variables of the "tourist conditions"

t = Moment of consider time

D_{iTt} = Sum of the value of the "tourist conditions" variables (i) of all the destinations (j) in moment (t)

P_{Tt} = Sum of the population of all the destinations (j) in moment (t)

T_{Tt} = Sum of the tourists of all the destinations (j) in moment (t)

w = Number of consider destinations ("competitive context")

And:

$\frac{D_{ijt}}{P_{jt}}$, is the a) above

$\frac{D_{iTt}}{P_{Tt}}$, is the b) above

$\frac{T_{jt}}{T_{Tt}}$, is the c) above

However, to guarantee the same weight to each variable, we must use a proportional relation. In our case it will be 1/n, with "n" representing the number of variables.

The TDI depends on a positive relationship with the "tourist condition" and "tourists" and a negative relationship with the "resident population". This means that there will be a better quality of life in a tourist destination, if there are better conditions, many tourists and not many residents. This guarantees that the benefits will be transmitted mostly to the residents. In other words, there will be few residents, relatively, to benefit from the existence of tourists and facilities of high quality. Through the expression (2) we can see that the factors are essential and the variables of the "tourism conditions" are replaceable (overcoming a weakness of the Human Development Index - HDI (Sagar and Najam 1998)), because the first are arithmetical multiplied and the second are summed.

Table 1. Variables for each factor and reasons of the choice

Dimensions	Factors	Characteristics	Areas	Variables	Authors	Reasons	Indicators
Economic, Socio-cultural and Environmental	Tourist Conditions – Attraction and Fixed Capability	Basic Resources	Environmental	Protected Areas	Hughes (2002) Weaver (2000) Butler (2000) Simón et al. (2004) Marcouiller et al. (2004) Davenport and Davenport (2006) Andriotis (2006) Sheppard (2006) Borrie et al.(1998) Zhong and Xiang (2008).	Management; regulation; competitiveness; growth of local communities; landscapes; biological diversity; economic wealth; environmental education	% of occupied area
			Cultural	Classified Heritage	Massan (2002) Russo and Borg (2002) Andriotis (2006) Ark and Richards (2006) Zhong and Xiang (2008)	Quality of supply; visit the cities; symbolic importance and sense of belonging	No. of UNESCO classification
		Services	Accommodations	Hotels (4 and more stars)	Claver-Cortés et al.(2007) Fernández and Bedia (2004) Aguiló and Rosselló. (2005)	High quality service; capability to fix tourists	No. of beds
			Animation	Animation Activities	Molloy (2002) Oppermann (1996) Koenig-Lewis and Bischoff (2005) Getz (1993)	Personal enrichment and cultural preservation	No. of international events
			Health	Medical Care	Morse (2003) Neumayer (2001) Despositis (2005) Sagar and Hajam (1998) Hicks (1997)	Longevity of populations and health as a desire of all	No. of medical persons
			Urban	Habitation Park	Johnston (2001) Giannias (1997)	Development of a region and quality of life	% of houses with water, electricity and sanitation

(Continued)

(cont.)

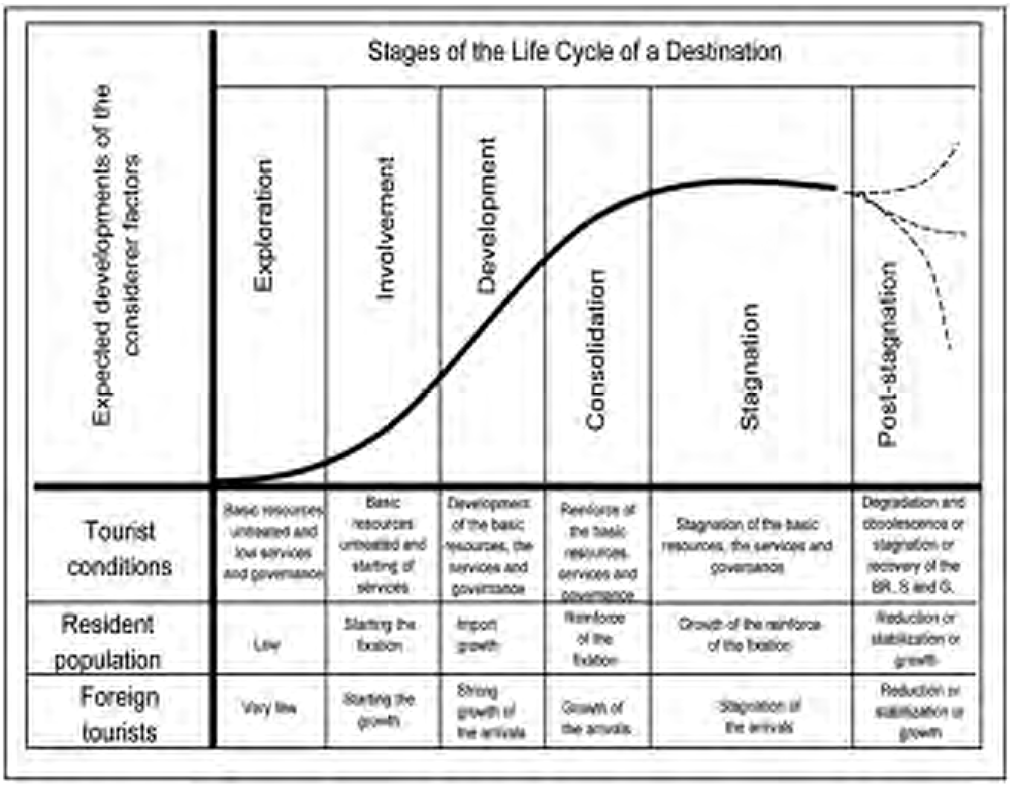
Dimensions	Factors	Characteristics	Areas	Variables	Authors	Reasons	Indicators
Economic, Socio-cultural and Environmental	Tourist Conditions – Attraction and Fixed Capability	Governance	Public Services	Security	Kelly (1993) Karplus and Krakover (2004) Dwyer and Kim (2003)	Its absence is a cause of concern and it is important as a sense of security	No. of policeman
			Infra-structure	Internal Accessibility	Lew and Mckercher (2006) Ark and Richards (2006) Speakman (2005) Butler and Wall (1985) Dwyer and Kim (2003) Oppermann (1992) Lumsdon (2000) Dickinson *et al.* (2009) Russo and Borg (2002)	Proximity; cultural tourism; “car culture”; direct access; competitiveness; different transport; important for the mobility of tourists and improves the natural attractions	No. of kilometers of paved road
				Human Resource Education	Marcouiller *et al.* (2004) Davies and Quinlivan (2006)	Mobility employment; adjustment to demand and human development	No. of tourism human resources with specific formation
				Communication and Information	Marcouiller *et al.* (2004) Buhalis (2000) Milne and Ateljevic (2001)	Important for the competitiveness of the destinations	No. of internet connections
			Structural Plans	Urbanization Plans	Fallon and Schofield (2006) Stead (2005) Piga (2003) Phillips and Jones (2006) Lundtorp and Wanhill (2001) Butler (2000) Andriotis (2006) Farsari *et al.* (2007)	The importance of signage; preservation areas; competitive advantage; sustainable tourism; management tool; minimize impacts and economic regeneration of areas	% of occupied area
	Population	Resident Population			Kim (2002); Alan *et al.* (2007, p.283); Koening-Lewis and Bischoff (2005); Getz (1993); Butler (2000); Dwyer and Kim (2003)	The essence of a local	No. of resident population
	Tourists	Foreign Tourists (“*tourists on pleasure travel with freedom of choice*”)			Aguiló and Rosselló (2005); Leiper (2007); Bansal and Eiselt (2004); Dwyer and Kim (2003)	The essence of tourism	No. of foreign tourists

Source: Author (adapted from Johnston, 2001)

The consistency of the Tourism Development Index (TDI):

In the first place, it is necessary to see if the proposed index is consistent with the "typical" TALC model in descriptive terms. To do so involves translating the original description to the proposed factors, in order to confirm that a regular evolution in the long-term will be verified.

Figure 1. The factors evolution



Source: Author (adapted from Butler, 1980)

To verify this, we tested the TDI with a random simulation of data, (18 periods of time), starting with a created scenario, which can give us its quantitative consistency. To do this, we created 20 scenarios of differing competitive contexts. To understand the evolution over the long-term of the TDI of a destination it is important to measure this in a competitive context, confronting a "typical" evolution with "atypical" ones. Thus we compared four different evolution scenarios for the specific destination ("typical"; "constant increasing rate"; "heterogeneous positive rates" and "heterogeneous positive and negative rates") with five different evolution scenarios for the four competitors ("typical", "constant", "constant increasing rate", "heterogeneous positive rates" and "heterogeneous positive and negative rates").

Table 2. Created Scenario

N	R	Tourist Conditions											Resident Population	Foreign Tourists
		%	No.	No.	No.	No.	%	No.	No.	No.	No.	%		
		PA	CH	AC	A	MA	HP	S	IA	HR	CI	UP		
1	A	10,00%	1	0	120	30	30,00%	200	50	300	3.000	20,00%	100.000	500.000
2	B	13,00%	0	0	100	40	28,00%	100	75	240	5.100	12,00%	60.000	70.000
3	C	3,00%	0	0	83	10	5,50%	30	20	0	1.000	5,00%	20.000	10.000
4	D	5,00%	1	0	80	5	80,00%	17	30	70	2000	80,00%	5.500	50.000
5	E	17,50%	0	0	87	8	90,00%	42	15	330	1.500	5,00%	5.000	120.000
	T.	48,50%	2	0	470	93	233,50%	389	190	940	12.600	122,00%	190.500	750.000

Source: Author

Legend:
N – Number of competitors
R – Identification of the competitors
PA – Protected areas
CH – Classified heritage
AC – Accommodations
A – Animation
MA – Medical assistance
HP – Habitation park
S – Security
IA – Internal accessibility
HR – Human resources
CI – Information and communication
UP – Urbanization plans

"C" is the specific destination, the poorest of the set, although all have some fragility. After the simulation we obtained 360 tables of data and 400 graphics, with which we could see that the TDI shows different curve shapes, that sometimes there are destinations that do not go through all the stages, and there are different lengths for each stage.

We then tested the intrinsic consistency of the TDI by the analysis of the behavior of the factors, on the assumption that an evolution of one of any one of these should provoke an expected impact on the TDI. To do this, we used the following expression:

$$IDT_{jt} = \sum_{i=1}^{n} \frac{1}{n} \left(\frac{D_{ijt}}{D_{iTt}} \right) \times \left(\frac{P_{Tt}}{P_{jt}} \right) \times \left(\frac{T_{jt}}{T_{Tt}} \right) \qquad (2)$$

We obtained 78 different combinations of the factors that could provoke positive or negative impacts in the TDI (39 positive and 39 negative), with increases or decreases in each factor (D_{ijt} , P_{jt} , T_{jt}). We also found that there were 7 combinations that only provoked positive impacts and another 7 combinations resulting in only negative impacts. We therefore confirmed the consistency of the proposed TDI with the TALC model, because it was consistent with the shape of the curve and consistent with its own evaluation.

RESULTS

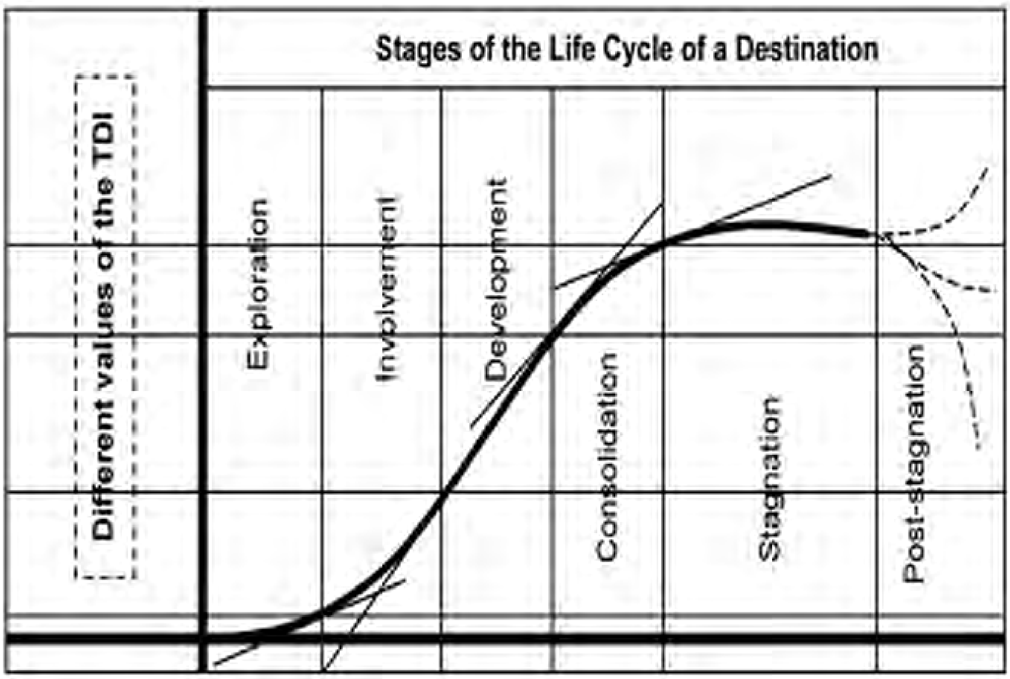
After the analyses of the data we can highlight the follow issues:

1. It is possible to identify an "Absolute Balance", in the competitive context when $\sum TDI_{ij} = 1$. This means that all the competitors have the same values to all the different variables. If that sum presents a value different from 1 that means there exists a destination with a development level different from others.
2. It is possible to identify a maximum asymptotic curve of the life cycle, but, in our case it depends on the existence of "tourists". In other words, the TDI will increase at a decreasing rate when "tourists" increase at constant rates. This means that there can be an evolution in the life cycle, with decreasing quality of life to the resident population and also for tourist experience, as tourist numbers increase and nothing else varies.
3. It is possible to identify a minimum asymptotic curve of the life cycle, caused by the "resident population". In other words, the TDI will decrease at decreasing rates as the "resident population" increases at constant rates. This means that there can be a decline in the life cycle of development, but without reaching the end of the destination, with a decreasing quality of life to the resident population and also for the tourist experience, as the resident population increases and nothing else varies.
4. Table 3 (Appendix), shows the several data sets obtained with our study. From these, we can suggest that:
   - An S-Shape does not always translate to the complete 6 stages of the life cycle;
   - Not every destination goes through the 6 stages;
   - A high development level of a destination will be in a mature level of the life cycle, in a competitive context;
   - It is possible for a destination to fail to leave the exploration stage if its TDI stays small;
   - A decrease of the TDI shows the decline stage of the life cycle;
   - A small TDI suggests the exploration stage, a middle value of the TDI suggests the involvement or development stages and a high value suggests the consolidation or stagnation stages;
   - In general, the exploration stage presents a slow growth, the involvement stage presents a moderate growth, the development stage presents a strong growth, the consolidation stage presents a moderate or very moderate

growth, the stagnation stage presents a very moderate or null growth and the decline stage presents a decrease;
- What distinguishes the exploration and involvement stages from the consolidation and stagnation stages are the values of the TDI rather than the shape of the curve.

It is important to compare our results with the "typical" S-Shape of Butler´s model, in order to develop more connections with it. If we consider the "typical" S-Shape of that curve as a matrix, in order to make comparisons with our results, it is possible to highlight the relationships between the inclinations of the different stages with the different values of the TDI for those stages.

Figure 2. The inclinations of the different stages of the life cycle



Source: Author (adapted from Butler, 1980)

Table 4 uses the data from table 3, and shows that the TDI presents different values for each stage of the life cycle, and by calculating the tangent in the changing point of each stage, we can suggest different angles for the different stages associated with the TDI values.

In this way, the results of this research suggest the possibility of quantifying the different stages of the life cycle and also suggest the possibility of identifying different angles for each stage of the life cycle.

Table 4. Different values of TDI corresponding to different angles of the stages of the life cycle

Stage of the Life Cycle	Scenarios	Maximum IDT	Angle of each Stage[1]
Exploration	(1)	0,133	$0^o < \alpha < 11^o$
	(2)	0,025	
	(3)	0,089	
	(4)	0,071	
	(5)	0,183	
	(6)	0,181	
	(7)	0,174	
	(8)	0,179	
	(9)	0,105	
	(10)	0,181	
	(11)	0,180	
	(12)	0,180	
	(13)	0,064	
	(14)	0,066	
	(15)	0,066	
	(16)	0,066	
	(17)	0,063	
	(18)	0,080	
	(19)	0,075	
	(20)	0,076	
Involvement	(1)	0,560	$11^o \leq \alpha < 30^o$
	(2)	-	
	(3)	-	
	(4)	-	
	(5)	0,380	
	(6)	-	
	(7)	-	
	(8)	-	
	(9)	0,430	
	(10)	0,336	
	(11)	0,336	
	(12)	0,336	
	(13)	0,340	
	(14)	-	
	(15)	-	
	(16)	-	
	(17)	0,324	
	(18)	-	
	(19)	-	
	(20)	-	

(Continued)

[1] (Author)
$tg\alpha=0,183$
$tg^{-1}(0,183)=10,37^o$
*rounded_to*_11^o
so_tg$11^o=0,194$

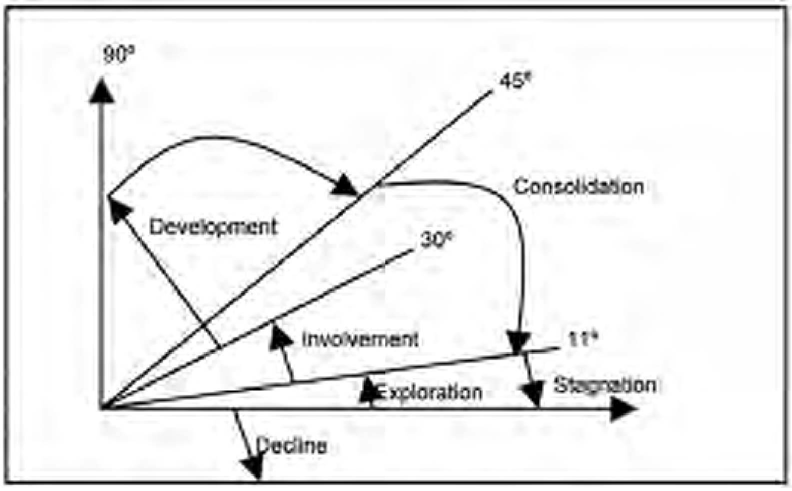
(cont.)

Development	(1)	1,379	30º ≤ α < 90º
	(2)	-	
	(3)	-	
	(4)	-	
	(5)	1,212	
	(6)	1,234	
	(7)	1,234	
	(8)	1,235	
	(9)	1,091	
	(10)	1,296	
	(11)	1,204	
	(12)	1,292	
	(13)	1,064	
	(14)	1,064	
	(15)	1,084	
	(16)	1,084	
	(17)	1,068	
	(18)	1,091	
	(19)	1,091	
	(20)	1,091	
Consolidation	(1)	1,884	11º < α < 45º
	(2)	-	
	(3)	-	
	(4)	-	
	(5)	2,186	
	(6)	3,019	
	(7)	2,952	
	(8)	2,942	
	(9)	1,401	
	(10)	-	
	(11)	-	
	(12)	-	
	(13)	1,945	
	(14)	2,247	
	(15)	2,386	
	(16)	2,387	
	(17)	1,993	
	(18)	1,589	
	(19)	1,560	
	(20)	1,556	

Table 5. Synthesis

Stages of the Life Cycle	Values of the TDI	Angle of the curve n the chancing point
Exploration	0 < TDIex < 0,194	0º < α < 11º
Involvement	0,194 ≤ TDIi < 0,577	11º ≤ α < 30º
Development	0,577 ≤ TDId < 1,401	30º ≤ α < 90º
Consolidation	1,401 ≤ TDIc ≤ 3,019	11º < α < 45º
Stagnation	IDTs > 3,019	0º ≤ α ≤ 11º
Decline	TDIde (t) > TDIde (t+1)	-90º < α < 0º

Figure 3. Synthesis



As the original model says, after stagnation, there are several options in the life cycle. In our case, the most important element was to identify the decline stage, because the other stages will have similar characteristics to each other with increasing evolution.

To finish this study we compared our results with the matrix "typical" curve of Butler´s TALC model. It was possible to confirm that in Butler´s curve the exploration stage presents 8º of inclination at the changing point to involvement. Between this stage and the development the angle is 29º, while between development and consolidation it is 75º. Between consolidation and stagnation it is 25º and finally in the stagnation stage it is 0º. These values are inside the range proposed earlier.

CONCLUSIONS

It seems that the Life Cycle Theory, when applied in a competitive context, can give us a better understanding of the studied issue, instead of using it to compare indicators in an isolating form, in the sense of not considering the competition between destinations that are competing for the same markets, as suggest McElroy and Hamma (2010). When applied to tourism, as proposed, we can note the importance of the three factors "tourist conditions", "resident population" and "foreign tourists" as objects of policy to be considered in the context of international competitiveness. If we assume some theoretic conditions, as:

- Existence of a competitive context;
- Existence of "resident population";
- Existence of "foreign tourists";
- A destination that has any of the proposal variables of "tourist conditions" can be unique.

Then, we can identify the different stages of the life cycle using a quantitative approach.

We can see that it is not very correct to analyze the life cycle looking only to the shape of the life cycle curve, because we can find similar shapes to different stages, and on the other hand it´s not liquid that all destination will go through a development process, in an international competitive context.

There are several works that point out a slow increase in the first two stages, a strong increase in the development stage, and a slower increase in the consolidation and stagnation stages. We can say that there is no doubt about the development stage presenting a value higher than 45º of inclination when it is increasing but this will stop there when is decreasing. In other words, it will start somewhere before 45º and it will stop at 45º in a decreasing evolution. In our study it began at 30º. It seems that the changing point between the exploration and involvement stages is the same as at the consolidation and the stagnation stages. In our study this is 11 degrees.

We have demonstrated the existence of several types of shapes, that not every destination passes through all the six stages of the life cycle, and also, that there can be different lengths for each stage. This allows us to improve the TALC model into a stronger tool, were the knowledge of each stage is important to manage and to develop strategic plans to tourism, because it will be possible to anticipate the stage of its evolution and through this to select the best strategic choice of planning, particularly in a competitive context. The position of a destination, taking into account the policy options depends on its initial position in the competitive context and on the choice of the different policies of its competitors, and not on the own decision to do that, like suggests McElroy and Hamma (2010). The proposed index suggests the possibility of different analyses because of the different variables and/or factors utilized as a destination or entity is developed more or less reflecting the relevant variables and its competitive context.

This work highlights the importance of using the TALC model in an international competitive context and not as a tool to compare isolated indicators. In other words, the stage in the life cycle of a tourist destination depends on the context where that destination is included. This way, it is suggested that we can find the right stage of the life cycle of a destination, with a quantitative approach.

This paper has presented some new issues that can, and should, be submitted to more profound study, involving the use of other variables, and the use of a different competitive context, to determine the consistency of the critical point division and its application to other contexts, for example domestic rather than international tourists, other specific resorts and different business areas.

Appendix

Table 3. Data of the tested 20 Scenarios

Scenarios	Desti-nation	Curve	TDI Start	TDI End	Stage of the Life Cycle that suggests
(1)	A	Decreasing	0,336	0,068	Decline
Destination C – "Typical"	B	Decreasing	0,066	0,013	Decline
Others - Fixed	C	S-Shape	0,008	1,918	Increase stages
	D	Decreasing	0,474	0,096	Decline
	E	Decreasing	0,951	0,193	Decline
(2)	A	Decreasing	0,336	0,322	Decline
Destination C – Moderate increase	B	Decreasing	0,066	0,062	Decline
Others - Fixed	C	Increasing	0,008	0,025	Exploration
	D	Decreasing	0,474	0,443	Decline
	E	Decreasing	0,951	0,904	Decline
(3)	A	Decreasing	0,336	0,298	Decline
Destination C – Positive increase	B	Decreasing	0,066	0,061	Decline
Others - Fixed	C	Increasing	0,008	0,089	Exploration
	D	Decreasing	0,474	0,406	Decline
	E	Decreasing	0,951	0,883	Decline
(4)	A	Decreasing	0,336	0,319	Decline
Destination C – Positive and	B	Decreasing	0,066	0,061	Decline
negative fluctuation	C	Increasing	0,008	0,071	Exploration
Others - Fixed	D	Decreasing	0,474	0,441	Decline
	E	Decreasing	0,951	0,895	Decline
(5)	A	S-Shape	0,336	0,086	Decline
Destination C – "Typical"	B	Decreasing	0,066	0,045	Decline
Others – "Typical"	C	S-Shape	0,008	0,740	Increase-stages
	D	Decreasing	0,474	0,049	Decline
	E	S-Shape	0,951	1,451	Increase-stages
(6)	A	S-Shape	0,336	0,181	Decline
Destination C – Moderate increase	B	Increasing	0,066	0,096	Exploration
Others – "Typical"	C	Decreasing	0,008	0,006	Decline
	D	Decreasing	0,474	0,101	Decline
	E	S-Shape	0,951	3,086	Increase-stages
(7)	A	S-Shape	0,336	0,174	Decline
Destination C – Positive increase	B	Increase	0,066	0,093	Exploration
Others – "Typical"	C	Increase	0,008	0,014	Exploration
	D	Decreasing	0,474	0,099	Decline
	E	S-Shape	0,951	2,998	Increase-stages
(8)	A	S-Shape	0,336	0,179	Decline
Destination C – Positive and	B	Increase	0,066	0,095	Exploration
negative fluctuation	C	S-Shape	0,008	0,010	Exploration
Others – "Typical"	D	Decreasing	0,474	0,101	Decline
	E	S-Shape	0,951	3,000	Increase-stages
(9)	A	Decreasing	0,336	0,071	Decline
Destination C – "Typical"	B	S-Shape	0,066	0,062	Exploration
Others – Moderate increase	C	S-Shape	0,008	1,434	Increase-stages
	D	S-Shape	0,474	0,429	Increase-stages
	E	Decreasing	0,951	0,160	Decline

(Continued)

(cont.)

Scenarios	Desti-nation	Curve	TDI Start	TDI End	Stage of the Life Cycle that suggests
(10)	A	Decreasing	0,336	0,210	Decline
Destination C – Moderate increase	B	Increasing	0,066	0,181	Exploration
Others – Moderate increase	C	Increasing	0,008	0,011	Exploration
	D	Increasing	0,474	1,237	Increase-stages
	E	Decreasing	0,951	0,439	Decline
(11)	A	Decreasing	0,336	0,194	Decline
Destination C – Positive increase	B	Increasing	0,066	0,180	Exploration
Others – Moderate increase	C	S-Shape	0,008	0,050	Exploration
	D	Increasing	0,474	1,204	Increase-stages
	E	Decreasing	0,951	0,437	Decline
(12)	A	Decreasing	0,336	0,209	Decline
Destination C – Positive and	B	Increasing	0,066	0,180	Exploration
negative fluctuation	C	S-Shape	0,008	0,039	Exploration
Others – Moderate increase	D	Increasing	0,474	1,292	Increase-stages
	E	Decreasing	0,951	0,438	Decline
(13)	A	S-Shape	0,336	0,076	Decline
Destination C – "Typical"	B	Decreasing	0,066	0,016	Decline
Others – Positive increase	C	S-Shape	0,008	0,847	Increase-stages
	D	Decreasing	0,474	0,169	Decline
	E	S-Shape	0,951	1,113	Increase-stages
(14)	A	S-Shape	0,336	0,185	Decline
Destination C – Moderate increase	B	Decreasing	0,066	0,040	Decline
Others – Positive increase	C	S-Shape	0,008	0,007	Exploration
	D	Decreasing	0,474	0,391	Decline
	E	Increasing	0,951	2,703	Increase-stages
(15)	A	S-Shape	0,336	0,178	Decline
Destination C – Positive increase	B	Decreasing	0,066	0,038	Decline
Others – Positive increase	C	S-Shape	0,008	0,017	Exploration
	D	Decreasing	0,474	0,381	Decline
	E	S-Shape	0,951	2,622	Increase-stages
(16)	A	S-Shape	0,336	0,181	Decline
Destination C – Positive and	B	Decreasing	0,066	0,039	Decline
negative fluctuation	C	S-Shape	0,008	0,012	Exploration
Others – Positive increase	D	Decreasing	0,474	0,391	Decline
	E	S-Shape	0,951	2,625	Increase-stages
(17)	A	S-Shape	0,336	0,070	Decline
Destination C – "Typical"	B	Decreasing	0,066	0,016	Decline
Others – Positive and negative	C	S-Shape	0,008	0,887	Increase-stages
fluctuation	D	Decreasing	0,474	0,166	Decline
	E	S-Shape	0,951	1,195	Increase-stages
(18)	A	S-Shape	0,336	0,322	Decline
Destination C – Moderate increase	B	Increasing	0,066	0,071	Exploration
Others – Positive and negative	C	Increasing	0,008	0,013	Exploration
fluctuation	D	Increasing	0,474	0,562	Increase-stages
	E	S-Shape	0,951	1,260	Increase-stages
(19)	A	S-Shape	0,336	0,305	Decline
Destination C – Positive increase	B	S-Shape	0,066	0,068	Exploration
Others – Positive and negative	C	S-Shape	0,008	0,035	Exploration
fluctuation	D	Increasing	0,474	0,532	Increase-stages
	E	S-Shape	0,951	1,206	Increase-stages

(Continued)

(cont.)

Scenarios	Desti-nation	Curve	TDI Start	TDI End	Stage of the Life Cycle that suggests
(20)	A	S-Shape	0,336	0,314	Decline
Destination C – Positive and	B	S-Shape	0,066	0,070	Exploration
negative fluctuation	C	S-Shape	0,008	0,024	Exploration
Others – Positive and negative	D	Increasing	0,474	0,558	Increase-stages
fluctuation	E	S-Shape	0,951	1,212	Increase-stages

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