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Efficiency of Cruise Port Management: A Comparison of Phuket and Singapore

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ABSTRACT

Cruise tourism has expanded to the Asian region, using larger cruise ships to serve new targets. Therefore, ports are one of the most important factors involved. Thus, the objective of this study is aimed at investigating and comparing cruise port management systems between Phuket and Singapore, employing quantitative research methods. The empirical findings showed that the top five biggest gaps regarding two cruise port management examples were port infrastructure, port facility, political stability, cruise tourism policy and cleanliness in rank. The results revealed that port management in Singapore was more efficient than in Phuket in most variables; however, tourism attractions, tourism activity, service providers, value for money, climate/sea conditions, and immigration formalities of Phuket were slightly better than that in Singapore.

Keywords: ASEAN cruise port, cruise port comparison, efficiency of cruise port, Phuket, port management, Singapore

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INTRODUCTION

Cruise tourism has grown most rapidly over many decades (Wang, Jung, Yeo, & Chou, 2014; Pinnock, 2014; Chen, 2016) with an average of 7.2% growth rate yearly (Florida-Caribbean Cruise Association (Florida-Caribbean Cruise Association [FCCA], 2014) as shown in Figure 1. Asia,

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as an emerging region, has recently become a popular destination (Xiaodong, Xuegang, & Gauri, 2014; Chen, 2016) with double-digit rates both in capacity and passengers (Cruise Lines International Association [CLIA], 2014) especially for new target groups from Asia (Travel Weekly Australia, 2006; Stieghorst, 2012; Drillinger, 2014), sharing the economic benefits not only for cruise lines but also the destination or port in particular.

Asia, the fastest growing region, is classified into three sub regions: 1) East Asia, 2) South Asia, and 3) Southeast Asia (Cruise Lines International Association [CLIA], 2016). The main reason of its growth is that Chinese tourists are the emerging target group for cruise tourism in Asia (Xiaodong et al., 2014). UNWTO (2016) estimated that 8 million cruise passengers will come from Asia and 50% will be from China in 2020. Hence, major cruise lines, e.g., Royal Caribbean Cruises, Costa Cruises, and Celebrity Cruises have shifted some fleets to be based in Asia to bring cruise ships close to target markets (Mathisen, 2014), while the Florida-Caribbean Cruise Association affirmed that cruise lines deployed 6% of capacity share in Asia in 2015 (Florida-Caribbean Cruise Association (FCCA), 2014, p. 3). In addition, other reasons enhancing the growth in Asia are varied, e.g., exotic ports, connectivity from home to homeport, value for money, growth of regional market, diverse tourism products, safety, friendly weather, and sea conditions for year round cruising (Cruise Lines International Association [CLIA], 2014; Drillinger, 2014; Monpanthong & Choibamroong, 2015).

Likewise, the paradigm of cruise tourism has shifted as summarized in Table 1; the cruise phenomenon has also changed, e.g., lower priced cruise packages, larger cruise ships (Bayley, 2009; Carnival Corporation and PLC, 2012; Economic Commission for Latin America and the Caribbean [ECLAC]), 2005; European Commission, 2009; Hull & Losekoot, 2012; Port-Net, 2007; Royal Caribbean Cruises Limited [RCCL], 2014; TEC inc, 2007; UNWTO, 2011), higher demand of exotic ports, diverse cruise itinerary (Cruise Lines International Association [CLIA], 2014) and duration of cruise itinerary (European Commission, 2009; Hull & Losekoot, 2012; Pavlic, 2013), around 2-5 days (CRISIL, 2005).

As aforementioned, ports are a vital part in the cruise tourism value chain that motivates cruise lines to be added to the cruise itinerary and attracts potential clients to cruise (Gibson, 2012). According to the significant growth of cruise tourism worldwide, the efficient ports are in greater demands to make the cruise itinerary more attractive.Therefore, many ports have improved themselves (Brida, Pulina, Riaño, & Zapata-Aguirre, 2012; Wang et al., 2014) in seeking cruise traffic.Even though the major obstacle of certain ports in Asia is low infrastructure development, especially those in the Southeast Asian region, port development does not focus only on infrastructure, facility or safety, but involves various factors to drive

competitiveness, e.g., tourist attractions, tourist activity, sanitation, services, and immigration formalities. Evidently, some old ports, e.g., Singapore and Hong Kong have expanded their capacity to take advantage as first movers. They have been hubs of cruise tourism in Asia while new ports are being developed to respond to the growth of cruise tourism in Asia, e.g., China and Korea (Stieghorst, 2012).

The Southeast Asian region has served cruise tourism for over three decades, consisting of a number of popular ports. Singapore acts as the leading homeport or gateway, making diverse cruise itineraries within this area while other ports including Phuket are the ports of call, offering unique experiences for cruise passengers. Singapore has been rated one of the best cruise ports due to its infrastructure development (Cruise Industry News Quarterly, 2012; Cruise Industry News Quarterly, 2014b; Mathisen, 2010), policy, tourism products (Lyons, 2003), and port management (Braine, 2008; Mathisen, 2010; Pacific Asia Travel News – Americas, 1995). A new cruise port was built at Marina Bay where the channel is deeper with wider turning basin to accommodate mega cruise ships (Braine, 2008; CRISIL, 2005; Cruise Industry News Quarterly, 2014a) as the old one is located at the dead-end channel with obstacles to mega cruise ships (Stieghorst, 2012). It had 111 scheduled calls from 2013- 2014 and increased to 374 in 2015 and 391 in 2016 (Cruise Lines International Association [CLIA], 2016) and expects more cruise calls in the following years.With this regard, Singapore port management serves as a benchmark for other ports.

Thailand has become one of the most preferred ports in the Southeast Asian region as it offers dominant tourism products and services. Definitely, Phuket has been Thailand's most popular cruise port for over three decades, serving several cruise lines. After the strong demand of Phuket port since 2010, two temporary pontoons have been provided at Patong Beach, serving large and mega cruise ships during the summer season in addition to Phuket Deep Sea Port, which has no capacity to accommodate large cruise ships. Even Phuket port always serves as a port of call for many cruise ships, several obstacles discourage the growth of cruise tourism (Monpanthong & Choibamroong, 2015).

Referring to Figure 2, five countries in the Southeast Asian region have been among the top 10 most visited ports in Asia. When we look closer, the number of cruise-calls in Thailand has decreased since 2015. Most countries in East Asia have higher growth rates compared with those in the Southeast Asian region as ports in East Asia have been developed holistically. In contrast, only Singapore has intensively developed the port solely in the Southeast Asian region for being a homeport while other ports have not put enough effort in cruise development. Therefore, it has created obstacles for large cruise ships to have ports of call added to the cruise itinerary. In this regard, ports in the Southeast Asian region should compare port management systems with Singapore to explore new strategies to develop.

Referring to the research interest on cruise tourism, most studies focused on various areas, e.g., cruise passengers' behavior and experiences (Andriotis & Agiomirgianakis, 2010; Duman & Mattila, 2005; Gabe, Lynch, & McConnon, 2006; Jones, 2011; Petrick, 2005; Petrick, 2011; Sangchoul, Jonathon, & Liping, 2014), cruise product development (Cai & Shi, 2013), marketing Petrick, 2005, 2011, major ports in other regions (Andriotis & Agiomirgianakis, 2010; Brida, Chiappa, Meleddu, & Pulina, 2014; Caribbean Tourism Report, 2014; Gabe et al., 2006; Lawrey, 2015), and impacts from cruise development (Hritz & Cecil, 2008; Klein, 2011). Certain studies about Asian ports can be found, but mainly about Chinese ports (Cai & Shi, 2013). However, few studies have focused on cruise tourism in the Southeast Asia region, particularly highlighting the efficiency assessment. Therefore, the results of this study will benefit Phuket port, in particular, for its further improvement in responding to the growth of cruise tourism. Furthermore, Singapore will benefit from a higher number of cruise calls when other ports in the region are developed.

In accordance with 28 studies reviewed to extract the variables of port management to be used for the questionnaire design, 35 variables related to port management were selected as shown in Table 2. The focus group discussion with cruise experts in Phuket regarding the 35 variables produced 22 variables classified into four factors, namely, 1) Tourism Products & Services, 2) Safety Issues, 3) Port Operations, and 4) Cruise Tourism Mechanisms as shown in Table 3. The cruise experts in Phuket consisted of six persons which are; 1) Representative from Travel Agency, 2) Representative from Tourism Authority of Thailand, 3) Cruise Tourism Lecturer, 4) Shipping Agent, 5) Port Executive, and 6) Representative from Phuket Tourism Business Association. Thus, the objective of this study was to investigate and compare the efficiency of Phuket and Singapore port management systems. The scope of port management in this study is not only port area but refers to the destination as a whole.

MATERIALS AND METHODS

Quantitative research methods were employed in this study, investigating and

Table 1
Global cruise circumstance and Southeast Asia cruise tourism

Global Cruise Circumstance	Southeast Asia Cruise Tourism
Larger size of cruise ship	Lack of infrastructure at certain ports
Multi-generational mix as a new target	Diverse tourism products at most ports fulfilled all demands
Shorter cruise itinerary	Proximity between ports
Higher demand of exotic ports	Various exotic and unique ports
Growth of Chinese market	Easy access from any Asian countries to homeport Tourism products suit the preference of Chinese.
Lower rate of cruise package	Higher value for money at most ports
Require year-round cruising	Possibility of cruising year-round

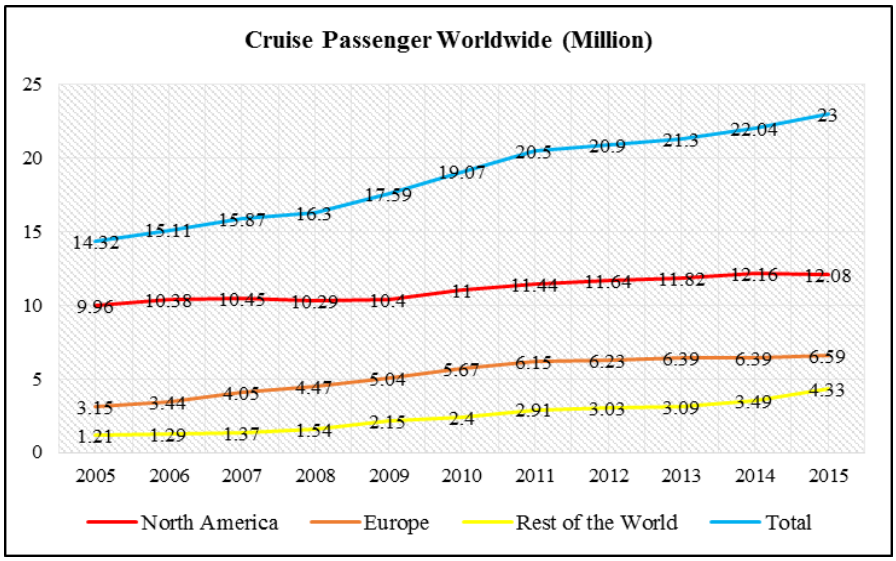

Figure 1. Number of cruise passenger worldwide
Source: Statista (2016)

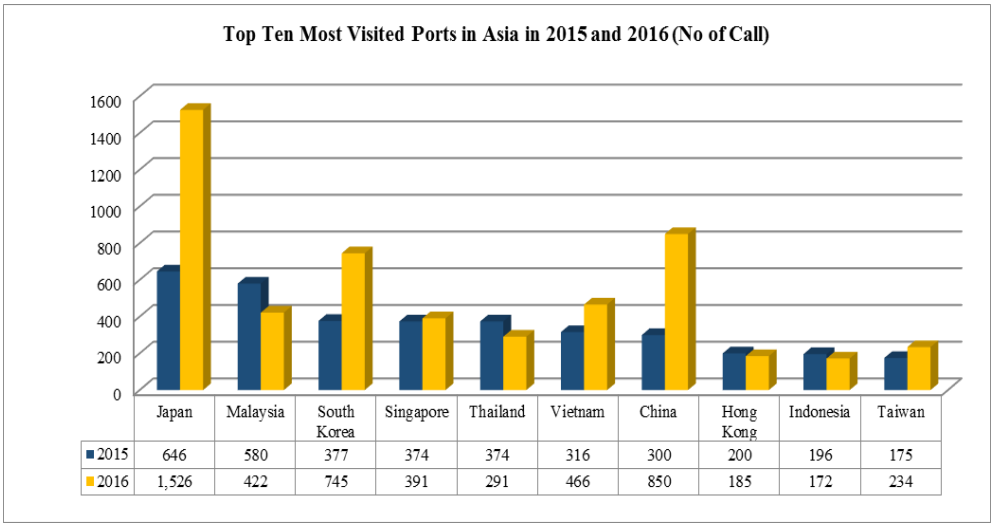

Figure 2. Top ten most visited ports in Asia in 2015 and 2016
Source: Cruise Lines International Association [CLIA] (2016)

Table 2
Variables of port management (28 Studies)

Author/Year/Variables	McCalla, 1997	ASEAN, 2002	Pizam & Fleischer, 2002	Neumayer, 2004	Tonzon & Heng, 2005	Dowling, 2006	Ontario Ministry of Tourism, 2006
Tourist Attraction		√					√
Tourism Activity							√
Tourism Amenity		√					√
Accommodation	√	√					
Service					√		
Shore Excursion							
Shore Excursion Agent							√
Value for Money						√	
Experience							
Suitable Cruise Itinerary							√
Safety & Security		√	√	√			√
Hygiene & Sanitation							
Emergency Plan							
Connectivity (Air-Sea)		√					
Connectivity with ports							
Proximity from Home to Homeport	√						
Accessibility		√					√
Nautical Access							
Infrastructure & Facility		√					√
Port Characteristic		√					√
Season & Sea Conditions						√	
Port Operations							
Welcome Ceremony at Pier							
Information & Directional Signage							
Port Fee							
Cruise Terminal		√					
Immigration Procedure		√					√
Regulation							
Politic Stability			√	√			
Policy / Politic							
Carrying Capacity							
Stakeholder Involvement					√		
Shipping Agent							
Reputation of Port							
Community Acceptance							

Table 2 *(Comtinue)*

Author/Year/Variables	Tourist Attraction	Tourism Activity	Tourism Amenity	Accommodation	Service	Shore Excursion	Shore Excursion Agent	Value for Money	Experience	Suitable Cruise Itinerary	Safety & Security	Hygiene & Sanitation	Emergency Plan	Connectivity (Air-Sea)	Connectivity with ports	Proximity from Home to Homeport	Accessibility	Nautical Access	Infrastructure & Facility	Port Characteristic	Season & Sea Conditions	Port Operations	Welcome Ceremony at Pier	Information & Directional Signage	Port Fee	Cruise Terminal	Immigration Procedure	Regulation	Politic Stability	Policy / Politic	Carrying Capacity	Stakeholder Involvement	Shipping Agent	Reputation of Port	Community Acceptance
Tourism Queensland, 2006		✓			✓			✓	✓								✓															✓			
Port-Net, 2007				✓			✓				✓			✓			✓										✓								
TEC inc, 2007	✓					✓										✓		✓																✓	
Magala & Sammons, 2008					✓															✓	✓										✓			
European Commission, 2009			✓												✓	✓			✓														✓		
Tan, 2009	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓			✓	✓	✓				✓			✓	✓			✓
Lekakou, Palli, & Vaggelas, 2009	✓		✓		✓			✓			✓				✓				✓	✓		✓						✓							

Table 2 *(Comtinue)*

Author/Year/Variables	Tourist Attraction	Tourism Activity	Tourism Amenity	Accommodation	Service	Shore Excursion	Shore Excursion Agent	Value for Money	Experience	Suitable Cruise Itinerary	Safety & Security	Hygiene & Sanitation	Emergency Plan	Connectivity (Air-Sea)	Connectivity with ports	Proximity from Home to Homeport	Accessibility	Nautical Access	Infrastructure & Facility	Port Characteristic	Season & Sea Conditions	Port Operations	Welcome Ceremony at Pier	Information & Directional Signage	Port Fee	Cruise Terminal	Immigration Procedure	Regulation	Politic Stability	Policy / Politic	Carrying Capacity	Stakeholder Involvement	Shipping Agent	Reputation of Port	Community Acceptance
London, 2010						√		√			√				√												√					√			
UNWTO, 2010									√																									
Scarft, 2011																	√								√									
PATA, 2011															√	√											√							
Rodrigue & Notteboom, 2012										√								√			√													
Gibson, 2012	√			√	√	√			√		√			√			√			√	√				√					√		√		
Cruise Gateway North Sea, 2012	√		√		√		√	√			√						√		√										√				√	
Hawke, 2012			√								√								√								√				√			
Brida et al., 2012	√																																	
UNWTO, 2013																					√													

Table 2 *(Comtinue)*

Author/Year/Variables	Pavlic, 2013	Busby & O'Neill, 2013	Tongzon & Heng, 2013	Sangchoul et al., 2014
Tourist Attraction		√		
Tourism Activity		√	√	√
Tourism Amenity		√		√
Accommodation				
Service				√
Shore Excursion				
Shore Excursion Agent				
Value for Money		√		√
Experience			√	√
Suitable Cruise Itinerary		√		
Safety & Security		√		
Hygiene & Sanitation				
Emergency Plan				
Connectivity (Air-Sea)				
Connectivity with ports		√		
Proximity from Home to Homeport				
Accessibility			√	
Nautical Access		√		
Infrastructure & Facility		√		
Port Characteristic			√	
Season & Sea Conditions				
Port Operations			√	
Welcome Ceremony at Pier				
Information & Directional Signage				
Port Fee			√	
Cruise Terminal				
Immigration Procedure				
Regulation				
Politic Stability				
Policy / Politic				
Carrying Capacity		√	√	
Stakeholder Involvement				
Shipping Agent				
Reputation of Port			√	
Community Acceptance	√			

Table 3
Factors and variables of port management

Factors	Variables
1. Tourism Products and Services (Six variables)	Tourism Attraction Tourism Activity Tourism Amenity Service Provider Shore Excursion Management Value for Money
2. Safety Issues (Six variables)	Safety and Security on Shore Health and Sanitation Cleanliness Emergency Plan Political Stability Climate and Sea Conditions
3. Port Operations (Six variables)	Connectivity Accessibility Port Facility Port Characteristic Port Management Port Infrastructure
4. Cruise Tourism Mechanisms (Four variables)	Immigration Formality Cruise Tourism Policy Collaboration of Stakeholder Social Acceptance
Total four factors	**Total 22 variables**

comparing the efficiency of Phuket and Singapore port management systems from the perspective of cruise passengers who experienced both ports. The research data was collected at Phuket Port in 2015.

Unit of Analysis

According to Cruise Lines International Association [CLIA] (2014), four Thai major ports serve cruise tourism. Phuket Port is in Andaman Sea while Koh Samui Port, Leam Chabang Port and Klong Teoi Port are in the Gulf of Thailand. Referring to Cruise Lines International Association [CLIA] (2016), Phuket Port known as Patong Beach Port was the most visited port in Thailand, having 140 ship calls in 2015 but it unbelievably went down to 90 calls in 2016 (Figure 3). However, Singapore Port received the highest number of cruise-calls in 2015 (Cruise Lines International Association [CLIA], 2016) and was known as one of the world's leading cruise ports. These two ports are located in the same cruise routing and both can be added to the same cruise itinerary. Thus, Phuket was selected to compare its efficiency with Singapore port. To do so, data was collected from cruise passengers at Phuket port.

Population

The population of this study comprised cruise passengers who experienced both Singapore and Phuket ports. According to the Phuket Immigration Office (2015), the cruise ships that visited Singapore and Phuket ports carried 170,890 individuals in 2014. The population has been categorized in four groups, using the ship size as the criterion.

Sample Size and Sampling Techniques

Quota and convenient sampling techniques were applied to determine cruise passengers from all ship sizes. Referring to the number of cruise passengers visiting Singapore and Phuket Port in 2014, i.e., 170,890 individuals, a sample size was calculated

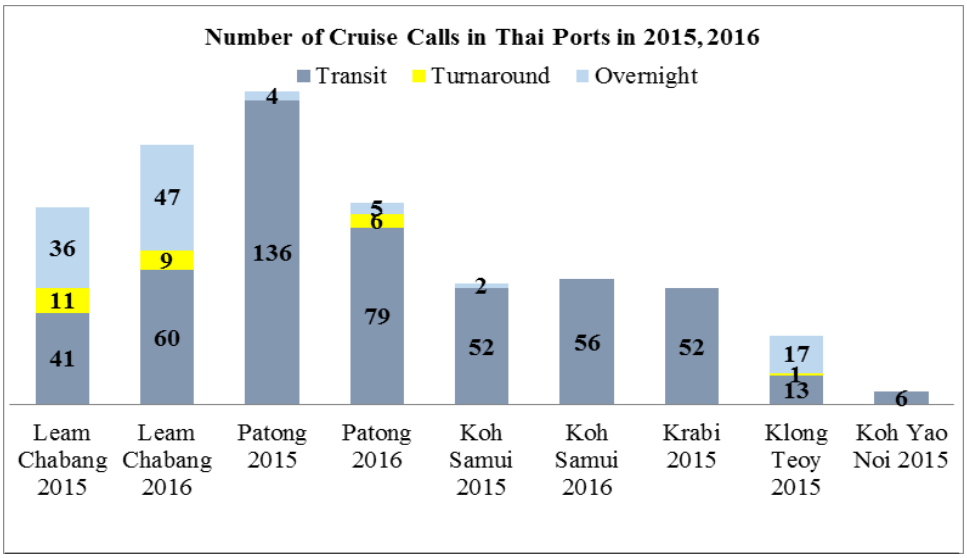

Figure 3. Number of cruise calls in Thai ports in 2015 and 2016
Source: Cruise Lines International Association [CLIA] (2015, 2016)

using the sample size of Yamane (1973) at a 95% significance level, which resulted in a sample size of 399 in this particular study. To minimize bias, 100 individuals represented the population of each ship size, referring to ship sizes categorized by Gibson (2012), namely, 1) small size from 3,000-30,000 Gross registered Tonnage or GRT, 2) midsize from 30,001-70,000 GRT, 3) large size from 70,001-90,000 GRT, and 4) mega cruise ship from 90,001 onward. Therefore, the appropriate sample size was 400.

Research Tools and Data Analysis

To meet the study objective, a close-ended questionnaire was critically designed to obtain data from cruise passengers, using a six-item Likert scale to avoid the median. It was analyzed with regards to validity and reliability. The results of content validity were measured by the Index of Item Objective Congruence (IOC), showing scores from 0.80-1.00. The reliability was tested with 30 respondents, resulting in an alpha coefficient of 0.965. Data was collected at port in Phuket from cruise passengers who had already experienced Singapore and Phuket ports before boarding the cruise ships. The data was finally analyzed by paired sample correlation tests.

RESULTS AND DISCUSSION

The efficiency of port management was assessed by cruise passengers who experienced both ports. The results and discussion are presented below.

Efficiency of Phuket and Singapore Port Management Systems

The results, in general, revealed that port management in Singapore was more

efficient than in Phuket including most factors especially port operations, safety issues as well as cruise tourism mechanisms. In contrast, Phuket had higher efficiency concerning tourism products and services than Singapore.

Tourism Products and Services. Referring to tourism products and services (Table 4), the results reflected the strengths of Phuket over Singapore, which has greater tourism attractions, tourism activity, service providers as well as value for money, while tourism amenity of Singapore ($\bar{x}$=5.16) was more efficient than Phuket ($\bar{x}$=4.44), showing the highest gap. Apparently, tourism products and services at port are the major factors involving decision making of potential clients to cruise, as stressed in certain studies (Brida et al., 2012; Busby & O'Neill, 2013). Therefore, cruise lines are concerned more about selecting ports where tourism attractions and activities are diverse (Cruise Gateway North Sea, 2012; Gibson, 2012), unique (Tongzon & Heng, 2005), worth visiting (Busby & O'Neill, 2013) and suitable for all targets (Tan, 2009; Tourism Queensland, 2006) as the new target groups of cruise tourism constitute a multigenerational mix.

In conclusion, Phuket's tourism products and services serve as a magnet to attract cruise ships to its port while Singapore needs to enhance service quality and value creation to offer a higher quality experience to cruise passengers.

Safety Issue. Safety is the first priority in the context of cruise tourism both onboard and onshore as cruise tourism is affected by weather, sea conditions, piracy and terrorism (Busby & O'Neill, 2013; Gibson, 2012). Therefore, cruise lines take it seriously that the ports selected should be assured on safety matters when designing the cruise itinerary under the regulations of the International Maritime Organization (IMO). Additionally, safety at port is assessed by International Ship and Port Facility Security Code (ISPS Code). The safety issue also concerns natural disasters, sanitation (Gibson, 2012), cleanliness (Dowling, 2006; Tan, 2009) and political stability (Monpanthong & Choibamroong, 2015). Therefore, emergency plans are vital for protection from unexpected matters.

The results revealed that the safety issue of both ports is efficient in general (Table 5). However, Singapore delivered a much higher safety assurance regarding cruise passengers, than Phuket did. Radically, the political stability of Phuket was perceived as somewhat efficient ($\bar{x}$=3.73) because Thailand has long been involved with national political uncertainty that inevitably affects the image of Phuket even though far.

Port Operations. Ports are vital for cruise tourism because the size of the cruise ships has become larger than ever while cruise itineraries have become shorter, and cruise fares have decreased (Gibson, 2012). Nevertheless, port operations, unlike before, have many concerns, e.g., infrastructure, facilities, and geographic location which ships can access easily or even involving distance between ports.

Therefore, well developed ports with good facilities and infrastructure are in greater demand, especially for large cruise ships.

The results in Table 6 showed that Singapore has very efficient port operations while Phuket, in contrast, is not efficient in terms of port facility ($\bar{x}$=3.44)and infrastructure ($\bar{x}$=3.37). Undeniably, they are strong requirements under the new paradigm of global cruise tourism to provide safety and convenience for cruise passengers. Currently, Singapore has built a new state-of-the-art port at Marina Bay which can accommodate larger cruise ships (Mathisen, 2010) while Phuket has set up a temporary pontoon where large cruise ships anchor off outside.Thus, cruise passengers are transferred to shore (using the beach as an assembly area for shore excursions without a passenger terminal) by the shore tender boat which might leave the cruise passenger unsatisfied.

Cruise Tourism Mechanisms. Tourism mechanisms are critical in driving cruise tourism successfully.It requires various actors to become involved to drive it.The results showed that Singapore had higher efficiency than Phuket, especially regarding cruise tourism policy and collaboration of stakeholders (Table 7).Singapore implemented cruise tourism development long ago while Phuket has only recently initiated the policy in driving cruise tourism under the current military government according to the Thailand National Tourism Development Plan (volume 2) which will

Table 4
Efficiency of tourism products and services of Singapore and Phuket

Tourism Products and Services	Performance of Singapore Port			Performance of Phuket Port			Gaps (Singapore-Phuket)	correlation	t	Sig.
	Mean	SD	Meaning	Mean	SD	Meaning				
Tourism attraction	4.64	0.90	efficient	5.09	0.80	efficient	-0.45	0.17 (.001*)	-8.15	.000
Tourism activity	4.62	0.83	efficient	5.03	0.81	efficient	-0.41	0.13 (.008*)	-7.51	.000
Tourism amenity	5.16	0.77	efficient	4.44	0.84	efficient	0.72	0.09 (.077)	13.18	.000
Service provider	4.33	1.03	somewhat efficient	5.09	0.72	efficient	-0.76	0.08 (.110)	-12.16	.000
Shore excursion management	4.86	0.80	efficient	4.84	0.81	efficient	0.02	0.36 (.000*)	0.44	.658
Value for money	4.10	1.07	somewhat efficient	5.08	0.80	efficient	-0.98	0.12 (.020*)	-15.58	.000

become effective from 2017-2021 (Thailand National Tourism Policy Council, 2017).

Previously, cruise tourism in Phuket was driven aimlessly by the private sector and with lack of support from responsible public sectors. Cruise tourism policy of Phuket was rated at somewhat efficient ($\bar{x}$=4.26) and similarly, collaboration of stakeholders was somewhat efficient ($\bar{x}$ =4.30). Notably, the immigration formalities in Phuket ($\bar{x}$=5.26) had higher efficiency than Singapore ($\bar{x}$=5.21).The procedures of immigration in Phuket are simplified by allowing the cruise passengers to disembark after ship arrival without queuing (Monpanthong & Choibamroong, 2015).

Comparison of Phuket and Singapore Port Management by Gap Analysis

To identify the efficiency of port management of Phuket and Singapore, the gaps between these two port management systems should be explored. The gaps are crucial in identifying how port management issues should be prioritized for improvement. As Singapore is the leading port in the Southeast Asia region, Phuket should compare its port management with Singapore.The results presenting the widest gap can be used as data to be considered for development, though the narrowest gaps remain.

Table 5
Efficiency of safety issues of Singapore and Phuket

Safety Issues	Performance of Singapore Port			Performance of Phuket Port			Gaps (Singapore-Phuket)	correlation	t	Sig.
	Mean	SD	Meaning	Mean	SD	Meaning				
Safety & security	5.63	0.60	extremely efficient	5.01	0.86	efficient	0.61	0.38 (.000*)	14.48	.000
Health & sanitation	5.55	0.58	extremely efficient	4.78	0.89	efficient	0.77	0.33 (.000*)	17.27	.000
Cleanliness	5.71	0.55	extremely efficient	4.62	0.95	efficient	1.09	0.26 (.000*)	22.64	.000
Emergency plan	5.19	0.69	efficient	4.55	0.87	efficient	0.64	0.43 (.000*)	14.94	.000
Political stability	5.55	0.67	extremely efficient	3.73	1.13	somewhat efficient	1.83	0.00 (.950)	27.82	.000
Climate/ sea condition	5.00	0.70	efficient	5.08	0.83	efficient	-0.09	0.34 (.000*)	-1.98	.048

Gap Analysis of Tourism Products and Services of Phuket and Singapore. Figure 4 illustrates the gaps of tourism products and services between these two ports. The results showed that value for money, service provider, tourism attraction and tourism activity of Phuket were more efficient than in Singapore. In serious contrast, tourism

Table 6
Efficiency of port operations of Singapore and Phuket

Port Operations	Performance of Singapore Port			Performance of Phuket Port			Gaps (Singapore-Phuket)	correlation	t	Sig.
	Mean	SD	Meaning	Mean	SD	Meaning				
Connectivity	5.19	0.66	efficient	4.45	0.88	efficient	0.74	0.29 (.000*)	15.83	.000
Accessibility	5.21	0.62	extremely efficient	4.66	0.94	efficient	0.55	0.24 (.000*)	11.11	.000
Port facility	5.51	0.75	extremely efficient	3.44	1.10	somewhat inefficient	2.07	-0.01 (.776)	31.03	.000
Port characteristic	5.29	0.67	Extremely efficient	4.72	0.96	efficient	0.57	0.26 (.000*)	11.01	.000
Port management	5.23	0.63	extremely efficient	4.45	0.90	efficient	0.78	0.24 (.000*)	16.18	.000
Port infrastructure	5.57	0.70	extremely efficient	3.37	1.09	somewhat inefficient	2.20	-0.04 (.402)	33.39	.000

Table 7
Efficiency of cruise tourism mechanisms of Singapore and Phuket

Cruise Tourism Mechanisms	Performance of Singapore Port			Performance of Phuket Port			Gaps (Singapore-Phuket)	correlation	t	Sig.
	Mean	SD	Meaning	Mean	SD	Meaning				
Immigration formality	5.21	0.75	extremely efficient	5.26	0.84	extremely efficient	-0.05	0.29 (.000*)	-1.21	.227
Cruise tourism policy	5.40	0.74	extremely efficient	4.26	0.94	Somewhat efficient	1.14	0.19 (.000*)	21.09	.000
Collaboration of stakeholders	4.71	0.79	efficient	4.30	0.87	Somewhat efficient	0.41	0.42 (.000*)	9.09	.000
Community acceptance	4.72	0.82	efficient	4.42	0.92	efficient	0.30	0.47 (.000*)	6.75	.000

amenity and shore excursion of Singapore were more efficient than in Phuket.

When considering these issues superficially, tourism amenity (Gap = 0.72) should be improved as the first priority when compared with Singapore even though it was efficient ($\bar{x}$=4.44). In addition, the gaps of other variables showed that Phuket was more efficient than Singapore.

Gap Analysis of Safety Issue of Phuket and Singapore. Turning now to safety issues, six variables are shown in Figure 5. Safety is, particularly, the most important factor that motivates people to cruise as per various studies (Bateman, 2010; Busby & O'Neill, 2013; European Commission, 2009; Gibson, 2012; Port-Net, 2007; Tongzon & Heng, 2005; Tarlow, Korstanje, Amorin, & Gandara, 2012).

The results of this study demonstrated that most variables under safety issues of Singapore were more efficient than in Phuket, except climate/sea conditions. The widest gaps comprised political stability, cleanliness, health and sanitation, emergency plan and safety, and security in rank. However, most variables of Phuket port were still efficient even when a big gap was observed compared with Singapore. Inevitably, Phuket has to put more effort in the negative perceptions concerning the political situation, as it has negatively affected the image which cruise passengers perceived as insecure. Thus, political image should receive a more intense scrutiny.

Gap Analysis of Port Operations of Phuket and Singapore. Ports had fewer concerns in the past decades as cruise ships were small. It only acted as a gateway leading to the tourist attractions. Currently, port operations are the most serious concerns when analyzing port management. Therefore, ports have become more significant for cruise tourism due to the larger cruise ships and higher number of cruise passengers. Many vital criteria are used by cruise liners for port selection. In this regard, many countries have spent huge amounts on port development. Port operations involve not only hardware, e.g., port infrastructure or facility, but accessibility to major attractions or towns, connectivity between ports, port management or even its characteristics.

According to the results, most variables showed substantial gaps between Phuket and Singapore (Figure 6). Port operations were the greatest strengths of Singapore cruise tourism. Undoubtedly, it has continued to be one of the world's best cruise ports. In comparison with these two ports, port infrastructure and port facility are the most critical issues for Phuket as these two variables displayed the widest gaps. Therefore, urgent development on this particular issues for Phuket Port should be the concern. While other variables, e.g., accessibility, connectivity, and port management, were acceptable as they were rated at efficient levels even though some gaps were observed when compared with Singapore.

Gap Analysis of Cruise Tourism Mechanisms of Phuket and Singapore. Tourism mechanisms do not directly affect cruise passengers, but these are

basic elements to drive cruise tourism sustainably. As aforementioned, cruise tourism mechanisms require strategic policy and planning with diverse actors involved; the public sector actually acts as a leader while the private sector is the driver and the local community is the base. When the mechanisms are well settled, cruise tourism development will benefit everyone at the destination.

The results shown in Figure 7 indicated that Singapore had higher efficient cruise tourism mechanisms than Phuket, in general. Surprisingly, immigration formalities of Phuket showed slightly higher efficiency than Singapore because cruise passengers were allowed to disembark the ship without queuing for passport check. Cruise tourism policy of Singapore is, indeed, much stronger than Phuket. Logically, Singapore has developed cruise tourism proactively for years and has become the hub of cruise tourism in the Southeast Asian region while Thailand has implemented no policy on cruise tourism development as cruise passengers are not counted as tourist arrivals in statistics.

CONCLUSIONS

Cruise tourism has grown significantly, especially in Asia, regarding two aspects; cruise ships and passengers. Its circumstances have changed radically over the decades, e.g., size of cruise ship, target markets, cruising rates, and cruise itinerary. Thus, ports are vital factors required to improve, to respond to the changing circumstances mentioned above. Efficient port management is important not only to satisfy cruise passengers but also cruise lines which finally drives the port more competitively. In cruise context, onboard cruise management and port management are integrated links to delivering the total experience to cruise passengers. Therefore, cruise lines play their roles to create experiences for cruise passengers and require the port to offer the best experiences for cruise passengers in parallel. Nevertheless, few studies have been conducted on port management in Thailand; studies focusing on port management comparisons showing areas of improvement should drive and attract cruise lines to the region. Thus, the aim of this study was to investigate the efficiency of both port management systems as Phuket and Singapore are interdependent in bundling two ports in one cruise itinerary.

The core concepts from these findings in developing cruise tourism are that it should provide port infrastructure, port facilities and amenities for the comfort, convenience and safety of the cruise passengers. In addition, political turmoil affected the image of the destination, therefore, the government should pay more attention to this matter as the country relies on tourism. The cruise tourism policy should be initiated and balanced between promoting cruise tourism and protecting the destination. To sustain Phuket from cruise tourism over development, all actors should be involved, especially residents and indigenous people, who are strongly required in the planning and management process. In conclusion

from gap analysis, Phuket port should focus on the inefficient areas which have wide gaps and benchmarks using the key success factors from Singapore to enhance its port management, which will drive the overall Southeast Asia region cruise tourism more competitively.

The recommendations for further research are to evaluate the efficiency of other significant ports in Thailand e.g., Samui port and Leam Chabang port and to study how the collaboration network among ports in ASEAN region can be initiated in order to drive regional cruise tourism.

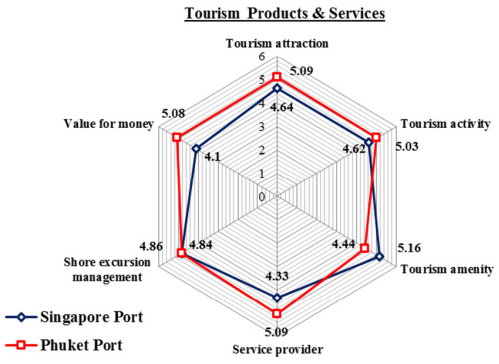

Figure 4. Gaps of tourism products and services between Phuket and Singapore

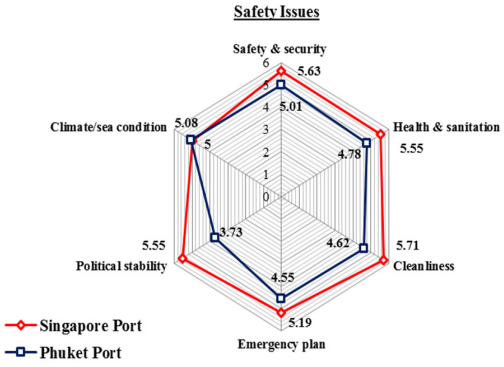

Figure 5. Gaps of safety issues between Phuket and Singapore

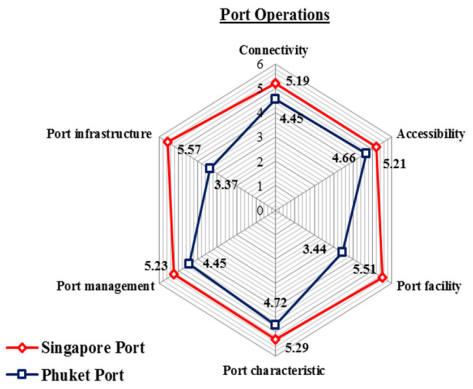

Figure 6. Gaps of port operations between Phuket and Singapore

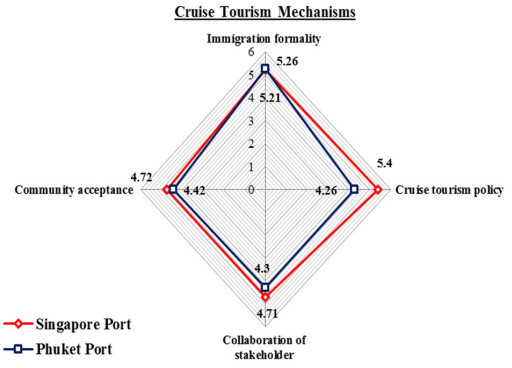

Figure 7. Gaps of cruise tourism mechanism between Phuket and Singapore

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