



CRUISE SHIP TOURISM

2nd Edition

Edited by
Ross Dowling
Clare Weeden



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Ross Dowling

Edith Cowan University, Australia

and

Clare Weeden

University of Brighton, UK



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We wish to dedicate this book to the memory of the late Dr James Henry, esteemed lecturer in the Department of Marketing, University of Otago, New Zealand, one of the book's contributors, who sadly passed away on 5 March 2016.



James Arthur Henry (PhD)
(12 December 1952 – 5 March 2016)
Photo by Bill Nichol

In addition Ross Dowling wishes to dedicate the book to:

My wife Wendy, who has accompanied me to the ends of the earth, I thank you for the way you share your life, love and spirit with me.

My six children and their families who are now living in Australia, England, New Zealand and South Korea.

Miss Pat Higgins NP, Manager of Enrichment Programs, Norwegian Cruise Line Holdings Ltd, Miami, Florida, USA – the consummate cruise tourism professional and enthusiast who I have worked with since 1999.

Contents

About the Editors	xi
Contributors	xiii
Preface	xvii
Acknowledgements	xxi
1 The World of Cruising <i>Ross Dowling and Clare Weeden</i>	1
PART 1: FUNDAMENTAL PRINCIPLES	41
2 Power and Profits in the Global Cruise Industry <i>Michael Clancy</i>	43
3 Representation without Taxation <i>Ross A. Klein</i>	57
4 Flags of Convenience and the Global Cruise Labour Market <i>William C. Terry</i>	72
5 Corporate Social Responsibility in the Cruise Sector <i>Xavier Font, Mireia Guix Navarrete and Maria Jesús Bonilla</i>	86
6 Passengers and Risk: Health, Wellbeing and Liability <i>Ross A. Klein, Michael Lück and Jill Poulston</i>	106
7 Economics of Cruise Shipping: The Need for a New Business Model <i>Michael P. Vogel</i>	124
8 High Fees on the High Seas? The Provision of Extra-Fee Products and Services <i>Adam Weaver</i>	138
9 ‘Oceans Apart’: Bridging the Gap between Academic Research and Professional Practice in Cruise Tourism <i>Alexis Papathanassis</i>	145
PART 2: THE CRUISE EXPERIENCE: PEOPLE AND PASSENGERS	159
10 Talent Management and the Cruise Industry <i>Philip Gibson</i>	161
11 A Sailor’s Life for Me: An Example of How One Port of Call Has Developed in the Hope of Meeting Crew Expectations <i>Maree Thyne and James Henry</i>	177

12	Mediating the Cruise Experience <i>Jo-Anne Lester</i>	188
13	Conceptualizing the Cruise Ship Tourist Experience <i>Júlio Mendes and Manuela Guerreiro</i>	205
14	Managing Health-related Crises in the Cruise Industry <i>Bingjie Liu and Lori Pennington-Gray</i>	220
15	Cruises, Safety and Security in a Violent World <i>Peter E. Tarlow</i>	236
PART 3: MARKETS, MARKETING AND MOTIVATIONS		259
16	Safe, Secure and Sustainable: Attributes of a Strong Cruise Brand <i>Arja Lemmetyinen</i>	261
17	The Image of Cruise Ship Holidays on Italian Television: A Comparative Analysis <i>Gabriella Polizzi and Antonino Mario Oliveri</i>	274
18	Purchasing Attributes for Cruise Passengers <i>Sheree-Ann Adams and Xavier Font</i>	290
19	Motivations and Constraints of Cruising for the US and Chinese Markets <i>James F. Petrick, Suiwen (Sharon) Zou and Kam Hung</i>	304
20	Children and the Family Market <i>Claire Lambert and Ross Dowling</i>	317
21	Cruising with Pride: The LGBT Cruise Market <i>Nigel Jarvis and Clare Weeden</i>	332
22	The Changing Consumer: ‘Digital Cruising’ <i>Ioannis S. Pantelidis</i>	348
PART 4: IMPACTS OF CRUISE SHIP TOURISM: STAKEHOLDERS, POLITICS AND POWER		361
23	Stakeholders’ Perceived Gains and Obstacles of Cruise Ship Tourism Development: The Case of La Palma Island <i>Abel Duarte Alonso and Nevil Alexander</i>	363
24	Cruise Ships and Protected Areas in the Marine Biome: An Analysis of Tourism in the Brazilian Context <i>Eloise Silveira Botelho, Carla Fraga and Rodrigo Vilani</i>	378
25	Sailing into Stormy Waters? Understanding the Community Impacts of Cruise Tourism Growth in Akaroa, New Zealand <i>Michael C. Shone, Jude Wilson, David G. Simmons and Emma J. Stewart</i>	393

26	Cruise Tourism in a Remote Small Island – High Yield and Low Impact? <i>Joseph M. Cheer</i>	408
27	Cruise Tourists on the Mainland. Itineraries and Interactions <i>Gaetano Sabato</i>	424
	PART 5: PLANNING AND MANAGEMENT FOR SUSTAINABLE CRUISING	439
28	Environmental Reporting in the Cruise Industry <i>C. Michael Hall, Hannah Wood and Sandra Wilson</i>	441
29	Improving Sustainable Management of Expedition Cruise Destinations in Australia: Governance and Management Lessons from the Great Barrier Reef, the Kimberley and Tasmania <i>Claire Ellis, Pascal Scherrer and Kaye Walker</i>	465
30	Sailing in Icy Waters: Antarctic Cruise Tourism Development, Regulation and Management <i>Daniela Liggett and Emma J. Stewart</i>	484
	PART 6: PORTS, DESTINATIONS AND INFRASTRUCTURE DEVELOPMENT	505
31	Development of Cruise Tourism in Saudi Arabia <i>Emad Monshi and Noel Scott</i>	507
32	Cruise Itinerary Planning <i>Marianna Sigala</i>	524
33	Is China a New Goldmine for Cruise Companies? <i>Véronique Mondou and Benjamin Taunay</i>	546
34	Cruising in Asia, with a Focus on China <i>Ross Dowling and Iris Mao</i>	562
	PART 7: CONCLUSIONS AND FUTURE DIRECTIONS	573
35	Conclusions and Future Directions <i>Clare Weeden and Ross Dowling</i>	575
	Index	583

About the Editors

Ross Dowling



Ross Dowling is Foundation Professor of Tourism in the School of Business and Law, Edith Cowan University, Western Australia. Professor Dowling conducts international research in the fields of cruise ship tourism, geotourism and ecotourism, and has over 200 publications in these fields including 12 books. In 2011 he was awarded the Medal of the Order of Australia for his contributions to tourism education and development.

He has a special interest in cruise tourism and edited the first edition of *Cruise Ship Tourism* published by CAB International in 2006. He contributes to the industry through research and lecturing onboard cruise ships. He is Chair of Cruise Western Australia and is an Honorary Advisor to the Australian Cruise Association (formerly Cruise Down Under). He is also a Founding

Member of the international Cruise Research Society based in Bremerhaven University of Applied Sciences, Germany.

Professor Dowling and his wife Wendy have been shipboard lecturers for almost 20 years. Their assignments have included Cunard's *QE2* (Australia); National Geographic's *Orion* (Kimberley Region, Western Australia); Silversea Cruises' *Silver Shadow* (South East Asia), *Silver Cloud* (New Zealand) and *Silver Wind* (Indian Ocean); Cruise and Maritime Voyages' *Astor* (South West, Western Australia); Oceania's *Marina* (South Pacific) and *Regatta* (Alaska); and Metropolitan Touring's *La Pinta* (Galapagos). He has completed a research report on 'The Growth of Cruising in Australia' and appeared as a cruise expert on Australia's Channel 7's 'Sunday Nite' programme on the same topic. He provides regular commentary on cruising for the Australian print, radio and television media.

Clare Weeden

Dr Clare Weeden is a Principal Lecturer in Tourism and Marketing at the School of Sport and Service Management, University of Brighton, UK. After 12 years in the international hospitality industry, and on completion of an MBA, Clare entered academia at the University of Brighton. In 2008 she completed her PhD at the University of Glasgow. Following the publication of a monograph in 2013 entitled 'Responsible Tourist Behaviour', in 2014 she co-edited 'Managing Ethical Consumption in Tourism' with Dr Karla Boluk. She is the Tourism Editor for *Tourism and Hospitality Research*



(Sage), and a member of the Editorial Board for *Tourism in Marine Environments*. She has contributed articles to many international journals, including the *Journal of Sustainable Tourism*, the *Journal of Ecotourism* and the *International Journal of Tourism Research*. Clare's research interests are responsible tourism, ethical consumption in tourism, destination marketing and cruise tourism. Clare has examined PhDs that explored the role of values in luxury hotel consumption, and the significance of romance in marketing ocean cruise tourism. She is an experienced PhD supervisor. Her current doctoral students are studying the values, attitudes and behaviour of responsible cruise tourists; the influence of risk on consumer decision-making in ocean cruising; sustainable tourism development in Saudi Arabia; and tourists' destination image of the Gulf countries. Clare welcomes enquiries from all potential candidates interested in these and similar areas within the nexus of ethics, tourism, consumer behaviour, cruise management and marketing.

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Preface

It is now a decade since the first edition of this book (Dowling, 2006) was published as one of the first in CAB International Publications' initial foray into tourism publishing. Since that time we have witnessed the book used by researchers in many countries around the world and for teaching in both undergraduate and postgraduate courses on many continents. Over recent years we were asked to update the book by researchers, policy makers, managers and teachers, so this new edition reflects our current thinking on the subject. The first edition was born out of a passion for the world of cruising and the second continues in this same vein. As editors we have researched the subject, taught about it in university classes, been asked to speak on it at international conferences and have of course enjoyed spending time on cruise ships either as speakers, researchers or simply as passengers.

The field of cruise tourism is a rapidly emerging one. It has enjoyed huge growth and awareness, especially since 2000 as travel consumers look for novel alternatives to their traditional holidays. Today the traditional preserve of cruisers being dominated by seniors has been added to significantly by Baby Boomers, who have discovered the affordability of the larger liners with their family oriented cruises (Fig. P1).



Fig. P1. People are the heart of cruising, and passenger numbers are growing exponentially on cruise ships around the world. Here passengers on Oceania Cruises' *Marina* (66,000 t) are participating with crew in a King Neptune ceremony to celebrate the crossing of the equator in the Pacific Ocean. (Source: Ross Dowling.)

In addition a much younger generation has discovered cruising and now cruisers also belong to Generation X (1965–1976; aged 41–52 in 2017), Generation Y (1977–1994; aged 23–40) and Generation Z (1995–2009; aged 8–22). This last group forms part of the family and multigenerational family sector, which is rapidly increasing with more than 2 million under 18s cruising in 2015 (Ward, 2016).

Complementing this growth, or in fact the driver behind it, is the extensive investment being made in the cruise industry with new ships, larger ships, new lines and growing corporations. A decade ago the world's largest cruise ship was Royal Caribbean International (RCI's) *Freedom of the Seas* (154,407 t). Today the largest ships in the world are RCI's 'Oasis Class' ships *Oasis of the Seas* (2009), *Allure of the Seas* (2010) and *Harmony of the Seas* (2016), all of which are significantly larger at approximately 225,000 t (Fig. P2). The cruise line has also set the standard for innovation in cruising with its three latest 167,800-t 'Quantum Class' ships *Quantum of the Seas* (2014), *Anthem of the Seas* (2015) and *Ovation of the Seas* (2016).



Fig. P2. Royal Caribbean International's Oasis Class ship *Harmony of the Seas*. At 227,700 t it is the largest ship in the world and was launched in 2016. (Source: Royal Caribbean International.)

These have been complemented by the huge upsurge in river cruising, which has generated a large number of river cruise ships. Parallel to this is the growth over the past decade of expedition cruising with a growing number of expedition ships now travelling to all parts of the globe. Whereas in the past these ships might have been former Russian icebreakers (such as the *Kapitan Dranitsyn* on which one of us led a trip to the Antarctic in 1999), to the purpose-built luxury expedition vessel *La Pinta*, which we cruised on in the Galapagos Islands, Ecuador in 2015, the change from basic to luxury cruising in the ensuing 16 years could not have been more stark! And, whereas in the past expedition cruises were taken on small ships run by small cruise lines, today the major cruise companies have got on board and all are now playing in this space. Pushing the boundaries even further is Carnival Corporation's new (2016)

Fathom brand, which is marketed as being ‘impact travel with a purpose’. Its ship *Adonia* (30,277 t) makes round trip voyages from Miami to the Dominican Republic and Cuba with passengers engaging in sustainable activities ashore working alongside local residents on community and/or environmental projects.

Since the first edition of this book appeared in 2006, there have been a number of other books on the subject. These include *Cruise Operations Management* (Gibson, 2006), *Cruising in the Global Economy* (Chin, 2008), *The Business and Management of Ocean Cruises* (Vogel *et al.*, 2010) and *Nautical Tourism* (Luković, 2013). Of course the definitive industry and consumer guide is *Berlitz – Ocean Cruising and Cruise Ships*, now in its 31st year (Ward, 2016). In addition the ‘Cruise Research Society’ was founded in 2009 and is located at Bremerhaven University, Germany. The Society has held five International Cruise Conferences and has published the proceedings of most of them.

Thus, much has already been written about the subject but the focus of this book is aimed at lifting the level of awareness of the subject generally, as well as its theory, issues, impacts, marketing and management considerations. Our belief is that the cruise industry can provide a number of benefits to governments, businesses, tourists and host communities. But this synergy will only be attained through increased knowledge, appropriate planning, sensitive development and active management. This is what this book is all about. The underpinning base of the approach to the subject is embedded firmly in our belief that cruise tourism is an exciting venture based on the twin goals of fostering client satisfaction alongside economic development.

The book has been written for a broad audience including students pursuing university and training programmes, tourism industry professionals, planners and managers in the cruise industry, and finally government agency employees. As a general text, it should be useful to students in a range of disciplines including tourism, business development, geography, planning and regional studies. As a specific text it provides an insightful overview of the industry covering a broad range of topics and issues. The book also has been written as a contribution to research and as such it brings together the essential elements of the cruise industry in addressing the provision of cruise ship tourism.

In this book we have tried to present a ‘snapshot’ of what is happening in the world of cruise tourism at this time. It is not meant to provide a comprehensive overview as the subject is still in its relative infancy. The book has been enriched immeasurably by each of the contributions of the chapter authors, who are an eclectic group comprising established academics as well as new and emerging researchers. The chapters represent a varied approach to the subject with a range of shades of meaning ascribed to the subject and differing levels of understanding about it. Some of the chapters are well detailed and illustrated, others are more descriptive. Some are critical, others less so. All are included because they represent the views of people passionate about the subject from a range of countries around the world. Issues such as economic, social and environmental impacts are explored together with that of globalization, as well as the industry’s policies on taxation, corporate social responsibility (CSR) and human resources. Case studies provide information on the phenomenal growth of the industry through real-world examples of markets, destinations and products. Through it all our hope is that further interest in this rapidly emerging subject has been generated, which will be the subject of considerably more books and papers in future years.

The book is organized into seven parts. The first introduces the industry and some of its fundamental principles including economics, CSR, passengers' health and well-being, and the relationship between academic research and professional practice on the subject. The second part focuses on the cruise experience, that is, cruise passengers and crew. The third part explores markets, marketing and the motivations for cruising. In the fourth part of the book the impacts of cruise ship tourism are investigated through the examination of the social and natural environments. This is complemented by Part 5, which looks at the planning and management for sustainable cruising. The sixth part investigates ports, destinations and infrastructure development including the recent, rapid emergence of cruising in China. The seventh and final part is a single chapter, which brings the topic to a close whilst providing a brief discussion on the future of the industry.

We wish the reader to note that this book is neither a definitive text nor an encyclopaedic overview of the subject. It has been compiled simply as an 'entrée' to the subject served with passion by the editors and contributors in order to communicate our love of the subject so that more will be done for it. We know that more detailed, scholarly research volumes will follow and this book is presented as a marker to stimulate further interest in, and research of, the subject.

We hope that you enjoy it.

Ross Dowling
Perth
Australia
April 2016

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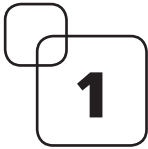
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The World of Cruising

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Introduction

The cruise industry has evolved markedly since the early days of the first passenger ships. This evolution has involved excursion voyages, transatlantic travel, the post-war boom, the demise of passenger ships and the advent of modern cruising (Dickinson and Vladimir, 1997). The industry is again growing rapidly and remains one of the major areas of tourism growth since the start of the new millennium. Between 2008 and 2014 cruise travel outpaced general leisure travel in the USA by 22%, and global cruising is evolving at a record pace increasing from 18 million passengers in 2009 to a projected 24 million in 2016, a 33% growth over the 9-year period (CLIA, 2016; [Table 1.1](#)). The economic impact of cruising in 2014 was 939,232 jobs, US\$39.3 billion in wages and salaries. The average daily passenger spending was US\$134.72 with a total economic impact of US\$120 billion (CLIA, 2016). The industry continues to focus on consolidation, with more than 80% of the global market share held by three cruise companies – Royal Caribbean Cruise Lines (RCCL), Carnival Cruise Lines (CCL) and Norwegian Cruise Lines (NCL) (Pinnock, 2014; Clancy, see Chapter 2, this volume).

The two most popular cruise destination regions are the Caribbean (33.7%) and the Mediterranean (18.7%). Rapidly growing destinations include Asia (9.2%), and Australasia and the Pacific (6.1%). These latter regions are experiencing spectacular increases in demand, and the world's leading cruise lines have established regional headquarters in both Asia and Australia. Although markedly different, China and Cuba have been identified as the markets with the greatest growth potential (AEC, 2015).

A regional example of the increasing appeal of cruising is its phenomenal increase in Australia. In the past decade the number of people cruising there has risen six-fold from 158,415 (2004) to 1,003,256 (2014) (CLIA, 2015a). These figures confirm Australia's position as the world's fastest growing source of cruise passengers, with numbers surging 20.4% from 2013 to 2014. The achievement of 1 million passengers in a calendar year comes 6 years before originally anticipated, and has been driven by an impressive 20% annual average growth for the past 12 years. Australia has also retained its position as the world leader for market penetration, with the equivalent of 4.2% of Australians taking a cruise in 2014, significantly ahead of the well-established North American market, which ranked second with a market penetration rate of 3.4% (CLIA, 2015a).

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Table 1.1. Worldwide cruise demand 1995–2020. (From: CLIA (2016), Ward (2016) and authors' estimate for 2020.)

Year	Number (rounded millions)
1995	6
2000	10
2005	16
2010	19
2015	24
2020	30

It is not just ocean cruising that is increasing in popularity. River cruising is also growing rapidly around the world, and today around 1 million people cruise on river ships (Ward, 2014). Key destinations include the Danube, Rhine, Elbe, Rhone, Seine, Po and Douro (Europe), Mississippi (USA), Yangtze (China), Lower Ganges (India), Mekong (Vietnam and Cambodia), Irrawaddy (Myanmar), Murray (Australia), Chobe (Botswana and Namibia), Nile (Egypt) and the Amazon (South America).

Cruise Supply

A cruise is defined as ‘to make a trip by sea in a liner for pleasure, usually calling at a number of ports’ (Collins English Dictionary, n.d.). Traditionally, cruise ships have been evaluated according to size, number of passengers and state rooms (Mancini, 2011). Ships range from very small or micro (under 10,000 t and 200 passengers), to megaships (over 70,000 t and carrying more than 2000 passengers). The largest cruise ships in the world are Royal Caribbean International’s three ‘Oasis-class’ ships. *Harmony of the Seas* (227,000 gross registered tonnes (GRT)) was launched in 2016 (see Introduction to Part 1), *Allure of the Seas* (225,282 GRT, 2010) (Fig. 1.1) and *Oasis of the Seas* (225,282 GRT, 2009) (Table 1.2).

A different classification categorizes ships from boutique to large resort ships (Ward, 2016) (Table 1.3).

The most widely used rating is that of Berlitz, which categorizes ships according to facilities, accommodation, cuisine, service, entertainment and the overall cruise experience (Ward, 2016). Their 2016 publication rated Hapag-Lloyd Cruises *Europa 2* as the best cruise ship in the world (Fig. 1.2; Table 1.4).

Cruise ships are getting larger. In the 1970s it was considered that a 25,000-t, 800-passenger vessel was the most cost effective and therefore profitable (Peisley, 1989). Cruise ship builders now believe the economies of scale argument applies to much larger vessels, with many new ships weighing more than 150,000 t and capable of accommodating over 3000 passengers. These ships offer a greater choice of facilities and activities and are designed for a new generation of passenger who has broader, more varied interests. Known as mega-liners, these vessels are recognized as giant floating resorts, and compete directly with luxury shore-based hotels (Dowling and Vasudavan, 2000). They have large multi-level hotel-style atrium-lobbies, glass elevators, impressive art works, glitzy casinos, show-lounges, shopping centres, health



Fig. 1.1. Royal Caribbean International's Oasis Class ship *Allure of the Seas*. At 225,062 t it is the second largest ship in the world. The ship is in the port of Labahee, Haiti, a private resort leased to Royal Caribbean Cruises Ltd until 2050. (From: Lois Godfrey.)

Table 1.2. The world's largest cruise ships. (From: Ward, 2016, and authors' research.)

No.	Ship	Cruise line	Tonnage	Passengers
1	<i>Harmony of the Seas</i>	Royal Caribbean International	227,000	5,496
2	<i>Allure of the Seas</i>	Royal Caribbean International	225,282	5,400
3	<i>Oasis of the Seas</i>	Royal Caribbean International	225,282	5,400
4	<i>Anthem of the Seas</i>	Royal Caribbean International	168,666	4,180
5	<i>Quantum of the Seas</i>	Royal Caribbean International	168,666	4,180
6	<i>Norwegian Escape</i>	Norwegian Cruise Line	163,000	4,200
7	<i>Freedom of the Seas</i>	Royal Caribbean International	154,407	3,634
8	<i>Independence of the Seas</i>	Royal Caribbean International	154,407	3,634
9	<i>Liberty of the Seas</i>	Royal Caribbean International	154,407	3,634
10	<i>Norwegian Epic</i>	Norwegian Cruise Line	153,000	4,200
11	<i>Queen Mary 2</i>	Cunard Line	148,528	2,620

Table 1.3. Cruise ship categories. (From: Ward, 2016.)

No.	Type	Ship size Gross tonnage (GRT)	Passengers
1	Boutique	1,000–5,000	50–250
2	Small	5,000–25,000	251–750
3	Mid-size	25,000–50,000	751–2,000
4	Large	50,000–220,000	2,001–6,500



Fig. 1.2. Hapag-Lloyd Cruises' *Europa 2* (42,830 GRT). The *Berlitz Guide to Cruising and Cruise Ships 2016* rates this ship as the best in the world, just ahead of its sister ship *Europa*. (From: Hapag-Lloyd Cruises.)

Table 1.4. Berlitz top cruise ships, 2016. (From: Ward, 2016.)

No.	Ship	Category	Cruise line	Points (max 2000)
1	<i>Europa 2</i>	Small (251–750 pax)	Hapag-Lloyd Cruises	1860
2	<i>Europa</i>	Small	Hapag-Lloyd Cruises	1852
3	<i>Hanseatic</i>	Boutique (50–250 pax)	Hapag-Lloyd Cruises	1758
4	<i>Sea Dream I</i>	Boutique	Seadream Yacht Club	1756
5	<i>Sea Dream II</i>	Boutique	Seadream Yacht Club	1752
6	<i>Silver Whisper</i>	Small	Silversea Cruises	1743
7	<i>Silver Shadow</i>	Small	Silversea Cruises	1741
8	<i>Silver Spirit</i>	Small	Silversea Cruises	1735
9	<i>Sea Cloud</i>	Boutique	Sea Cloud Cruises	1706
10	<i>Sea Cloud II</i>	Boutique	Sea Cloud Cruises	1701
11=	<i>Mein Schiff 4</i>	Large Resort (2001–6500 pax)	TUI Cruises	1698
11=	<i>Viking Star</i>	Mid-size (751–2000 pax)	Viking Cruises	1698

centres, computer and business centres, discos and observation lounges. Cruising is no longer a sedentary experience, and as shore-side lifestyles become more active, new ships offer a range of options, which cover sports, recreation, entertainment and culture. Cruise companies are also investing heavily in the 'biggest', 'grandest' and 'first', such as the first wedding chapel, most impressive ice rink, best in-line skating track or biggest rock climbing wall.

Trends and innovation in cruise ship design

As already noted, the trend for larger ocean cruise vessels is growing. For instance, Royal Caribbean International's (RCI) latest vessel, Oasis-class *Harmony of the Seas* is the largest cruise ship ever built (see Introduction to Part 1). It weighs 227,000 t, and has capacity for 5496 passengers and 2300 crew.

Although not every company offers ocean cruises on mega-liners, cruise companies are focusing on refitting and upgrading their fleets to take advantage of an upsurge in demand. For example, Swiss-registered MSC Cruises, the fourth largest cruise company in the world, will take delivery in 2017 of the first of three 'Vista' generation vessels. These ships each offer 2444 cabins and a combined passenger/crew capacity of 8000 people, with two additional ships launched in 2019 and 2020. Similarly, Crystal Cruises is currently undertaking a global expansion, with three new ocean ships (their first ship builds in 12 years), a river cruise operation, a yachting venture, air cruising and residences at sea. The company's new 1000-passenger luxury expedition-style ships, branded Crystal Cruise Exclusive, will sail the Seychelles Islands, the Middle East and the Adriatic Coast. Passengers will have access to expedition-style activities with a two-person submarine, zodiacs for shore excursions, a small yacht for boating tours, water skis, kayaks, and fishing and scuba gear.

The company is also financing a new hybrid concept, where 48 'Crystal Residences' are available for private purchase on these ships (*The Australian*, 2016). This novel development shares similarities with *The World*, a ship that has been offering apartment living for wealthy people since 2002. Accommodation on *The World* comprises 165 apartments for passengers to live onboard and, if they wish, retire at sea. The estimated price of these apartments is approximately US\$1 million, with another US\$120,000 a year in service charges. It is likely further opportunities to live at sea will be available in future.

In another initiative, Crystal Cruises is also setting out to restore and reinstate the historic SS *United States* as a modern luxury passenger liner, through a cooperative initiative with the SS United States Conservancy (Miller, 2016). Launched in 1952 and retired in 1969, the famed vessel was once nicknamed 'America's Flagship', and is best known for capturing the transatlantic speed record. It still remains the largest passenger ship ever built in America, having carried a million passengers in its time. The 800-guest-capacity ship will restore its original décor and feature 400 suites with luxury dining, spa and entertainment amenities.

It is not only size that is significant – technological innovations onboard are also critical to stay competitive. For instance, two of RCI's *Harmony of the Seas* predecessors, the Quantum-class ships *Anthem of the Seas* and *Quantum of the Seas*, feature an array of technological innovations, including an aerial gondola, dodgems, skydiving simulator, internal cabins with 'virtual balconies' and SeaPlex, the biggest indoor area at sea. A third Quantum-class ship, *Ovation of the Seas*, was launched in 2016 and two further ships in this class are on order for 2019 and 2020. A different, yet no less significant innovation comes from Virgin Cruises, which has announced its entry into the market with a futuristic hull design that represents a significant move away from conventional design. The cruise itself has been described by Virgin's Richard Branson as aiming for 'an intimate, boutique-style experience for cruisers and non-cruisers alike' (Davis, 2015). The first of three mid-size 110,000-t, 2800-passenger ships will be launched in 2020, with two further ships delivered in 2021 and 2022, at a combined cost of US\$2 billion.

Further novelties, in the form of creative product and price packages, include opportunities to overnight mid-cruise (Azamara Cruises), or take short trips (2–3 days) away from the ship during the cruise (Seabourn). Service innovations include Internet service at no extra cost (see Viking Ocean, Regent Seven Seas and RCI), as well as partnerships with non-cruise brands. Examples of the latter are Princess Cruises' cooperation with the Discovery Channel, and Holland America's joint offering with BBC Earth, both of which will offer a greater choice of enrichment programmes onboard, as well as themed excursions ashore. Intensive competition among cruise brands has forced companies to move on from providing a passive experience in a celebrity-themed restaurant or demonstration, to offering novel enrichment programmes, such as P&O Cruises' 'Food Heroes' concept onboard *Britannia*, where guests can take cookery classes with their favourite celebrity chef.

Beyond the appeal of standard themed cruises, passengers can also now participate in 'voluncruising', which although marketed to appeal to the potentially 'responsible' cruiser, is also critical to a cruise line's corporate social responsibility (CSR) strategy. For example, Hurtigruten's 'Clean up Svalbard' project enables guests to remove pollution and shipboard waste on selected landings on the archipelago. Viking River Cruises has adopted a school in Jingzhou City, China, and renamed it Viking River Cruises School. Excursions to meet the children and see them perform traditional songs and dance routines are available as an option. Crystal Cruises 'You Care We Care' is an initiative where passengers can help pack food for the Estonian Food Bank in Tallinn, or assist in gardening projects at a care home for the disabled in Livorno, Italy.

Central to all these and future development is the increasing sophistication of passengers and their expectations of service and product quality. For instance, Hwang and Hyun (2015) researched luxury cruise travellers in the USA to examine how company innovations influenced their experiences and perceptions of luxury. Cruisers reported that innovations were significant factors in both their experiences and perceptions of luxury in four areas – education (through increased travellers' knowledge), entertainment (from new onboard activities), aesthetics (via innovative spaces) and escapism (via innovative services). As ships are now destinations in themselves, many ports of call have become almost secondary to the experience (Mendes and Guerreiro, see Chapter 13, this volume).

Cruise Line Economics

The cruise corporations make large amounts of profit and a full explanation of how this is achieved is outlined by Vogel (see Chapter 7, this volume). However, dropping down to the level of revenue management based on the sale of cruises, this approach is widely used across a number of industries including the rental car and airline markets to increase profits. It is also used in the cruise industry and is central to controlling demand. On a cruise ship, there are many types of cabins and different fares, some of which are sold in advance, with given purchase restrictions over a finite booking window. Thus, revenue management problems for the cruise industry include its segmented market, fixed capacity, perishable inventory, finite selling horizons, advanced sales and stochastic demand (Sun *et al.*, 2011). The authors suggest that pricing and revenue optimization provide consistent pricing decisions in relation to each segment

within each channel. This can be achieved through an examination of the four dimensions of products, consumers, channels and time.

Cruise line revenue management therefore depends on making correct decisions about pricing and room capacity. Market demand is typically defined by such criteria as view requirements, bed configurations, room location and amenities (Li *et al.*, 2014). The essence is to price each market segment and allocate cruise room capacity at the same time in order to maximize potential revenue. Additional constraints include capacity limits on lifeboats and personnel requirements. Some companies have a policy where they do not reduce cabin price as the time of departure approaches. Such a price protection practice is referred to as a non-decreasing policy and allows early bookings to be cancelled for a specific period prior to departure at zero cost. Since the booking window is wide, deeper discounts at a later date can create a situation where passengers who have already booked a cruise cancel their booking and re-book at a lower price (Li *et al.*, 2014).

According to Li (2014) the fundamental booking decision for a cruise line involves how many reservations to accept to avoid two outcomes – either sailing with empty cabins, or denying some customers’ bookings. Cruise lines accept reservations that overbook a cruise because they anticipate a number of cancellations and no-shows. The question is how many overbooked reservations to accept such that no one is denied boarding. To overcome this a Real Options Analysis (ROA) approach has been developed that formulates risk decision models for cruise line dynamic overbooking with two, three and multiple cabin types (Li, 2014). In these models, two given decision schemes are suggested. In each scheme the extra revenue from overbooking is seen as investment revenue, and the loss caused by the denied bookings is viewed as investment cost. Thus, the values of these two decision schemes are compared to choose the better, most profitable overbooking decision.

Apart from the sale of the cruise itself, today the cruise companies are selling extra-charge add-ons to passengers in an attempt to generate even more profits. An outline of this is provided by Weaver (see Chapter 8, this volume). Finally, the cruise industry makes a lot of money and its overall global economic impact in 2013 was US\$117 billion. However, there are a number of issues related to these profits, with one being the relatively low taxes they pay in the USA (Ruskin, 2004). Insights into this dilemma and the industry’s ability to lobby in Washington, DC are described by Klein (see Chapter 3, this volume).

Challenges for the Cruise Industry

The rapid growth of the cruise industry has led to a number of challenges involving complex supply and demand structures. Central issues are the globalization of the industry, its corporatization (Klein, see Chapter 3, this volume) and the issue of ‘flags of convenience’ (Terry, see Chapter 4, this volume). Other issues include an intensively competitive commercial environment, concerns about over-capacity, destination ability to cater for larger ships and the sustainability imperative of balancing economic, societal and environmental wellbeing (Weeden *et al.*, 2011; Font *et al.*, see Chapter 5, this volume). A recent report for the International Transport Forum stated capacity growth was due to economies of scale, and effective market segmentation. Whereas the former multiplies onboard amenities, the latter matches distinctive demand characteristics.

In combination, they offer passengers product variety and novel experiences, all of which increase demand each year (Pallis, 2015).

Popularity of cruise vacations

Growth in the popularity of cruising has meant cruise ports have undergone extensive structural change, both in size and expansion of the facilities and services on offer (Pallis, 2015). Specialized terminals are replacing multi-purpose docks, and new forms of investment are enabling ports to cope with issues such as seasonality and specialization. Intensive cruise port competition has also resulted in short- and long-term shifts in market share. Many more ports are pursuing inclusion in cruise itineraries, while others focus on providing home-port facilities. Indeed, the confluence of consumer awareness, distribution channel development, availability of suitable harbour facilities, and substantially improved product and services continues to facilitate rapid growth and expansion of cruise tourism (Coggins Jr, 2014).

Future expansion will also require a greater emphasis on cooperation and partnerships, particularly in geographic areas that are closely linked across itineraries. For instance, within Europe's river cruise market, Romania has developed a successful industry along the lower Danube River and the western Black Sea (Nedelcu *et al.*, 2015). This was achieved through a cross-border cooperation programme (called the Black Sea Basin), which identified a range of sustainable economic cooperation opportunities (including cruise tourism), between the harbours of the Black Sea basin and those on the Danube River. The Danube has ten harbours included on the tourist circuit with over 1000 cruise calls per year, where more than 150,000 passengers travelled onboard 400 cruise ships on the Danube in 2014 (Mazilu *et al.*, 2015). Significant future growth in cruises will be due to a combination of new geographic source markets, fleet renewal trends and new ship builds, all of which are establishing the foundations for the industry's future (CLIA, 2016).

Health

The health and wellbeing of passengers and crew is an essential priority for the cruise industry. However, there exist a number of health challenges on cruise ships (Liu and Pennington-Gray, see Chapter 14, this volume), the most commonly reported being norovirus (Klein *et al.*, see Chapter 6, this volume). The virus is recognized as a leading cause of human acute viral gastroenteritis, and the rate of outbreaks on cruise ships has grown significantly in recent years (Bert *et al.*, 2014). Transmitted through person-to-person contact, noroviruses are likely to arrive via contaminated foods and water (Ward, 2015), and manifest as nausea, vomiting, diarrhoea and abdominal pain. The highly infectious nature of noroviruses, especially in close communities onboard ship, highlights the importance of strengthening preventative measures and devising more rigorous controls by public health professionals, cruise lines and crewmembers (Bert *et al.*, 2014). These researchers suggest improved detection, monitoring and implementation of preventive measures on cruise ships are essential, a claim also supported by a US survey of food safety professionals, which found 66% correctly identified norovirus as one of the three most common causes of food-borne disease in

the USA. However, only 5% of respondents correctly identified the three most common settings for the infection, while approximately 30% incorrectly claimed restaurant workers infected with norovirus could safely handle packaged food, food equipment and utensils (Kosa *et al.*, 2014). Although only a single study, it illustrates a potential gap in food safety professionals' knowledge about noroviruses.

A related problem is Cyclosporiasis, an infection transmitted by faeces or faeces-infected fresh produce and water, with outbreaks blamed on contaminated fruits and vegetables. Although not spread from person to person, it can be a hazard for cruisers through causing diarrhoea. In 2010, an outbreak of Cyclosporiasis affected passengers and crew on two successive voyages of a cruise ship out of Fremantle, Australia, and 73 laboratory-confirmed and 241 suspected cases of *Cyclospora* infection were reported in passengers and crew from these combined cruises (Gibbs *et al.*, 2013). A medical examination of crewmembers found the illness was associated with eating items of fresh produce served onboard, although the study was unable to conclusively identify the food responsible. It is likely that one or more of the fresh produce items taken onboard at a South East Asian port during the first cruise was contaminated. If fresh produce supplied to cruise ships is sourced from countries or regions where *Cyclospora* is endemic, extremely robust standards of food production and hygiene need to be applied to the supply chain (Gibbs *et al.*, 2013). Given the potentially harmful consequence of outbreaks for passengers and crewmembers, and subsequent high cost for cruise companies, disease outbreaks on ships represent a serious public health issue for the industry.

Safety and security

The rise of global acts of terrorism combined with the growth of the cruise industry, has inevitably led to a heightened interest in and practice of security and safety (Coates-Erkan, 2012; Tarlow, see Chapter 15, this volume; Fig. 1.3). The two key elements of cruise safety are guarding against incidents onboard (such as ship flooding or fire), and direct threats from hijacking, piracy and/or terrorism. The International Maritime Organization (IMO) Safety Committee generally addresses such issues. In the weeks following the 11 September 2001 terrorist attacks on the USA, eight cruise lines went bankrupt (Ward, 2005). Several others redeployed their ships, while others experienced a dramatic (albeit short-term) drop in passenger numbers. As a direct result of this incident, and the subsequent war against Iraq in 2003, US citizens have travelled overseas less, preferring to vacation within their own borders. In response, the US cruise industry developed 'homeland' cruising, with ships being home-ported in a range of newly established ports across the country, which thus reduced the need for Americans to fly in order to embark on their cruise, and meant ships stayed within US waters. According to Ward (2005) the effects of increased attacks and global conflicts over the past 5 years has led to a lack of confidence in travel safety, which is why homeland cruising has become increasingly popular in the USA.

Given all of the above it is surprising that maritime terrorism is a neglected area of research in tourism. Indeed, an attack on a cruise ship is considered by cruisers to be a distinct possibility, despite safety and security being a 'hallmark' of cruising (Bowen *et al.*, 2014). A number of different attack scenarios for cruise ships have been identified (Greenberg *et al.*, 2006), although recent research has extended these in