

The Weeping Philosopher: How Sustainable is the Global Cruise Market?

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UNDERSTANDING SUSTAINABLE GROWTH

... Why is the Philosopher Weeping?

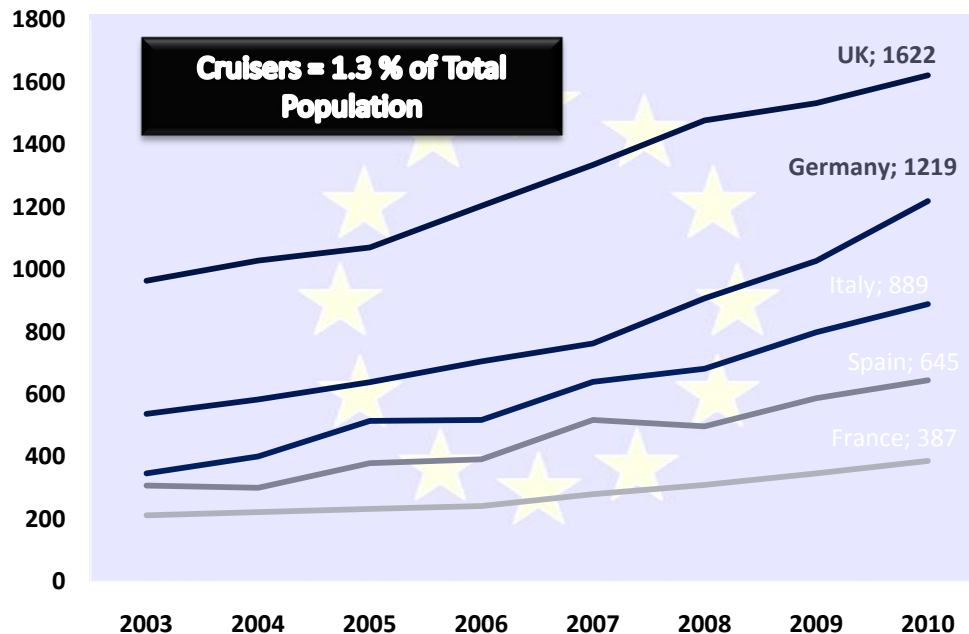
Some Cruise Brochure Covers

What is the Hidden Meaning?



Source Market Perspective: Cruise Sector Growth & Pax Developments

European Pax Development ('000)*



European Average Growth Rate

- 2006-2010 = 11.8%
- 2009-2010 = 10%

- ▶ Total Volume Outbound Cruise Holidays:
 - 6,5 million
 - 2% of all European Holiday Travel
- ▶ Volume Trend 2005 – 2010:
 - +35% cumulative growth
 - Holiday Sector: +15%
- ▶ Top Destinations:
 - Spain,
 - Italy,
 - France,
 - Sweden,
 - Greece,
 - Turkey,
 - Egypt
- ▶ Mean Expenditure per Night:
 - € 191
 - Holiday Sector: € 98
- ▶ Mean Age 54
 - Holidays Sector: 43

The Sustainability – Growth Oxymoron

τὰ ὄντα ἰέναι τε πάντα καὶ μένειν
οὐδέν

Translation:

All things move and nothing remains
still

(Heraclitus, .535 BC - 475 BC)



ὁδὸς ἄνω κάτω

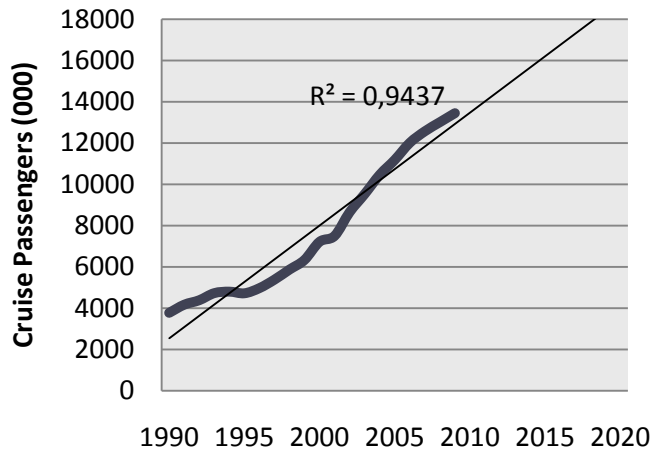
Translation:

The upward-downward path

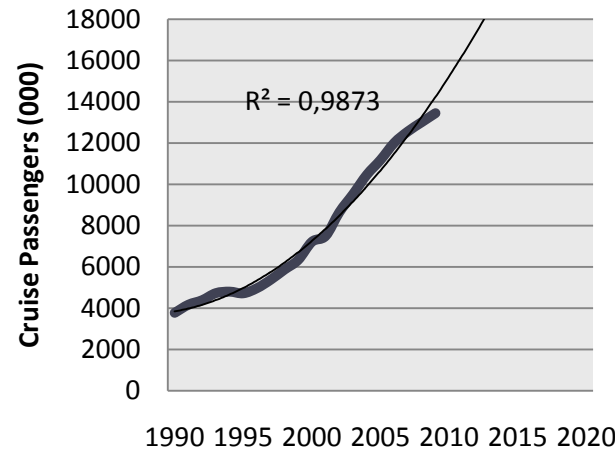
(Heraclitus, .535 BC - 475 BC)

A Critical View on Growth: Time Series Forecasting

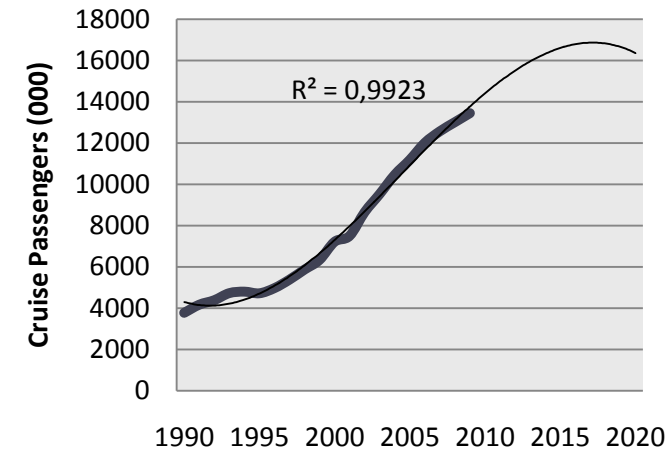
Linear Extrapolation



Quadratic Extrapolation



Cubic Extrapolation (S-Shaped Curve)



- ▶ Least data fit ($R^2 = 94\%$)
- ▶ 30 Million Pax by 2041
- ▶ Indefinite growth assumption

- ▶ Second best data fit ($R^2 = 98\%$)
- ▶ 69 Million Pax by 2041
- ▶ Indefinite growth assumption

- ▶ Best data fit ($R^2 = 99\%$)
- ▶ Compatible with the Product Life Cycle concept
 - ▶ Historically applicable for tourist destinations (Butler 1980, 2006) and
 - ▶ Tourism segments (Zimmermann 1997)

Forecast Implications?

Weak signals (e.g. ticket price reductions; mega-ships / onboard revenue)

Validity of forecasting demand on the basis of supply?

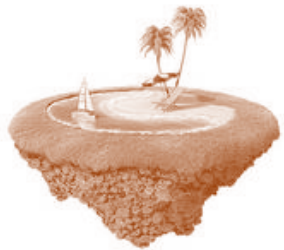
The Sustainability Point of View: The Bubble Analogy



► Soap Bubbles:

- ... Are very pretty, colourful and entertaining for humans of all ages
- ... Are very sensitive to environmental changes (e.g. wind, dry air and sun) and pressure
- ... Last longer when:
 - Everything they come in contact is wet (preferably with the same bubble solution)
 - Adding the right ingredients (e.g. corn syrup)
- ... Do not pop; they **EVENTUALLY ALL** actually dissolve!

Extended Sustainability & the Cruise Lifecycle





SUSTAINABILITY AND CRUISE OPERATORS

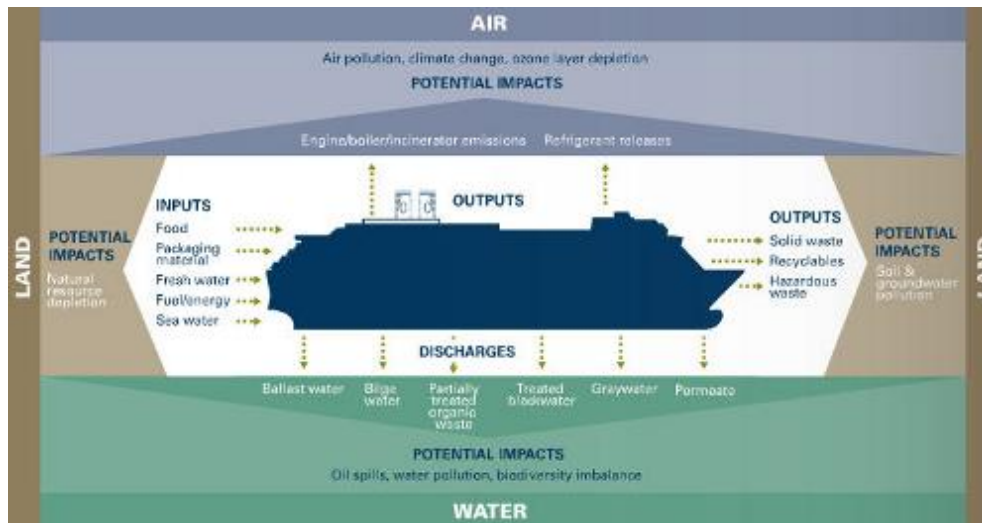
... Responsibility?

Holland America Line: Sustainability Report

A Holistic Approach

All of our business decisions are made on the basis of certain fundamental principles. Ensuring safety and protecting the environment are two of the most important of these principles. Whenever we act or choose not to act, we need to ask ourselves whether doing so will maintain safety and prevent damage to the environment. This philosophy underlies our Safety and Environmental Policy. As stated in the policy:

Safeguarding our guests, crews, ships and the environment in which we live and operate is not only the right thing to do, it is essential to the successful conduct of our business.



We take care of the Planet

Our award winning ships are as environmentally sound as they are beautiful. Here are just a few of our environmental efforts:

- **Environmental Management System:** All of our ships are ISO 14001 certified by Lloyd's Register Quality Assurance (LRQA).
- **Environmental Officers:** Stationed onboard every ship to provide environmental training and oversee shipboard compliance with environmental requirements.
- **Advanced Waste Water Purification Systems:** These systems treat wastewater to a higher quality than most municipal treatment systems and the discharge is clean enough to meet the drinking water standards in many communities.
- **Shore Power:** The Noordam, Westerdam, Oosterdam and Amsterdam have been modified to connect to shore power in Seattle and where compatible facilities are available.
- **Cleaning Supplies:** All ships use cleaning products specifically designed for environmentally friendly application onboard ships.
- **Waste Management and Recycling:** All ships have waste and recycling programs that address bottles, cans, paper, cardboard, plastic, solid and hazardous waste.
- **Dry Cleaning Machines:** Perchloroethylene based dry cleaning equipment is being replaced by machines using non-hazardous detergents formulated with soy, banana and orange extracts.
- **X-ray Facilities:** Digital technology has been implemented onboard to eliminate the chemicals used by traditional x-ray machines.
- **Soy Inks:** All onboard materials are printed with environmentally friendly soy based ink.
- **Water Conservation:** All staterooms have low flow systems for toilets and showers installed.
- **Ship to Shelter Donation Program:** Rather than being thrown away, unneeded beds, furniture, electronics, linens, individual-sized toiletries and other items from our ships are donated around the world to worthy charitable organizations.



AIDA Cares: 2010 Sustainability Report

Focus on Environmental Dialogue












Objectives and achievements of sustainable corporate management

Stakeholder dialog on environment: overview of participants and issues

Stakeholder	Issue	Type of contact
Politics and administration		
German Federal Government	Environmental policy	Information sharing, implementation, cooperation
European Commission	Integrated maritime policy, Marine Strategy Framework Directive, Strategy for the Baltic Sea Region	Information sharing, implementation
State government of Mecklenburg-West Pomerania	Environmental policy	Information sharing, implementation
United Nations Environmental Programme (UNEP)	2010 International Year of Biodiversity, Regional Seas Program	Information sharing
Port authorities	Disposal	Implementation
International organizations and non-governmental organizations (NGOs)		
IFM-GEOMAR	Route management	Continual dialog
International Maritime Organization (IMO)	MARPOL, SOLAS	Implementation
Helsinki Commission (HELCOM)	Baltic Sea Action Plan	Continual dialog and cooperation
Trade associations		
European Cruise Council (ECC)	Maritime policies: explanation – no waste water in the Baltic Sea	Member
Deutscher ReiseVerband e.V. (DRV)	Environmental protection	Member
Verband Deutscher Reeder (VDR)	Reduction of CO ₂ emissions	Consultations, member
Companies		
WetterWelt GmbH	Route management	Continual dialog

Environment

Objectives 2008/2009	Implementation in 2009	Objectives for 2010
Resource consumption – reducing fuel and specific emissions		
<ul style="list-style-type: none">• Make low friction underwater silicone paint coating standard for fleet in the medium term	 <ul style="list-style-type: none">• AIDAdiva and AIDAluna were coated with silicone paint	<ul style="list-style-type: none">• Silicone paint coating for all newbuildings in the fleet• AIDAbella to follow in 2011
<ul style="list-style-type: none">• Reduce specific fresh water consumption by a further 5% per guest	 <ul style="list-style-type: none">• Specific fresh water consumption reduced	<ul style="list-style-type: none">• Maintain consumption at current levels
<ul style="list-style-type: none">• Reduce our specific emissions during ship's operation		
<h2>Ten golden rules for shore excursions</h2>		
		
		
<ul style="list-style-type: none">• Equip all newbuildings with technical prerequisites for shoreside power supply		
Reducing waste generated		
<ul style="list-style-type: none">• Maximize shoreside waste disposal, particularly in Baltic Sea ports		
<ul style="list-style-type: none">• Increase our maritime recycling quota to 5% in 2009		
Stakeholder dialog		
<ul style="list-style-type: none">• Develop our cooperation with independent research institutes and non-governmental organizations (NGOs)		

P&O Cruises: 2010 Sustainability Report

Focus on Social Responsibility

P&O Cruises - Sustainability Report *'Charting a responsible course'*

Our approach to sustainability

P&O Cruises' business is about providing passengers with memorable cruise holidays in some of the world's most idyllic and hard-to-reach locations. We understand that to continue to do that, we need to operate in an environmentally, socially and financially responsible way.

To us, sustainable management means remaining a strong and successful business that fulfils our obligations as a responsible employer, business partner, customer and neighbour in the Pacific Islands.

However, it is also much more than that. We want to contribute to communities in our 'backyard' in the Pacific Islands in ways that deliver jobs and opportunities for those communities. It also means working within our own business to reduce our environmental footprint as part of being a responsible citizen in a global community.

Key Indicators

Indicator		Performance
Water Consumption	Total	432,049.2 tonnes
	Sourced from land (bunkered)	124,764.5 tonnes (29%)
	Produced from sea water (withdrawn)	307,284.7 tonnes (71%)
	Water used per person (guests and crew)	252 litres per person
Water Discharge	Total water discharged	711,337 tonnes
	Discharged at Sea	
	• Untreated black water	0.3 - Litres/person
	• Treated black water and permeate	94 - Litres/person

Aim	Action
Increase the amount of waste recycled	Sorting and processing of garbage and special waste ready for recycling.
Generate waste with reduced environmental impact	Use on board of plates, cups, straws and other disposable items made of biodegradable material. Use on board of wooden cutlery, olive picks and cocktail stirrers instead of plastic products.
Reduce the amount of waste produced	Use of sauce dispensers and jam & honey bowls in place of sachets and plastic packaging. Replace throw-away plastic bottles in cabin bathrooms with liquid soap and shampoo dispensers.

Costa Cruises: Sustainability Report

Green Management by Objectives

STATUS OF IMPLEMENTATION AND PERFORMANCE OF OBJECTIVES 2009*

SOCIAL

Objective 2009	Activity	Status of implementation November 2009	C
Creation of website for the Costa Campus management.	Implementation of the website.	In progress The site has been prepared but is still awaiting internal approval.	
Definition of an on-the-job training model as completion of the "Ready for Excellence" program.		In progress The project is still in progress in line with the change in timing agreed on during the year. Given the decision to include the Mentor role in the MISTRAL software, the project was given an extension of about 6 months to enable the developers to add this functionality to the system. The pilot is scheduled for May 2010. The shipboard RfE completion project has been renamed "Introduction to Work" (ITW). The term "On-the-Job Training" has been adopted to indicate a new project to be developed in 2010.	
Implementation of the Accenture plan for the rationalization of the shipboard payroll process.	Start-up of detailed analysis of the variable compensation on board to define the magnitude and clarify the procedure for elaboration of the actual balance.	In progress The project has been validated by the Top Management and is now in the pilot phase.	
Increase in the presence on board of Cadet Deck Officers (doubling the current number), with the aim of promoting careers in Costa.		In progress Their presence on board was increased in the Engine Department starting in July 2009. The project is still in progress for the Deck Department insofar as it is linked to other organizational changes.	
Completion of objective: Review the "Family & Friends" policy for shipboard personnel.	Updating of the policy.	In progress	
Completion of objective: Building of career paths.	Definition of career paths for all shipboard positions and functions.	Completed The career paths for shipboard personnel have been defined and implemented in the MISTRAL software.	
Association of training path with Company positions.	Training path.	In progress	
Implementation of incentive system for the sales force.	Definition of a homogeneous system applicable across the fleet.	Completed The official procedure defining the new policy was drafted in July 2009.	

* December 2008 - November 2009

STATUS OF IMPLEMENTATION AND PERFORMANCE OF OBJECTIVES 2009*

ENVIRONMENT

Objective 2009	Activity	Status of implementation November 2009	C
Extension of waste recycling program to other materials in other ports.	Investigation of new possibilities for recycling waste.	Completed The recycling program for glass, aluminum and cooking oil was extended to the ports of Salvador De Bahia and Santos, for ships deployed in Brazil.	
Maintenance or reduction of the amount of potable water consumed on board.	Monitoring of consumption and verification that actions aimed at limiting water consumption introduced in past years are still effective.	Completed Water consumption per person increased in comparison with 2008, but is still well below the figure recorded in 2007. During FY 2009 there were no irregular patterns of consumption across the fleet such as to require further measures.	
Elimination of overboard discharge of garbage other than food waste.	In spite of the requirements in force allowing overboard discharge of garbage of other types, introduction of a fleetwide ban on dumping of all garbage except food waste.	Completed The ships only discharge food waste at sea (in full compliance with the laws in force); the Company's instructions have been updated accordingly.	
Completion of objective: 10% reduction in the amount of garbage per person landed each day (objective already achieved in 2007, but retained in 2008 to obtain a further improvement).	Replacement of obsolete machinery, where necessary, and sensitization of the personnel to the need for better garbage management.	Completed The garbage produced per day per person fell from 8.2 liters in 2007 to 7.6 l/p in 2008 and 7.5 l/p in 2009.	
Completion of objective: Feasibility study for the reduction of energy demand and fuel consumption across the fleet.	Feasibility study for the introduction on board the ships of equipment and measures aimed at minimizing fuel consumption.	Completed Measures have been introduced on the ships in order to optimize their stability and trim at sea and thereby reduce fuel consumption. Regular planned cleaning of the propulsion systems and the hull so as to reduce resistance.	
Completion of objective: Implementation of a recycling collection program at the Savona Palacrociere cruise terminal.	Selection of the methods of collection and storage of separate waste streams.	Completed Recycling collection has been introduced at the Savona Palacrociere cruise terminal.	

* December 2008 - November 2009

The background of the slide is a grayscale photograph of ocean waves. The top half of the image is obscured by a dark blue horizontal band containing the title. The bottom half shows the texture of the water and the white foam of the waves.

CRUISE SECTOR SUSTAINABILITY: CRITICAL VIEWS

Friends of the Earth

Some Interesting Facts...

Emissions

Main Sources:

- Incinerators
- Engines

An average cruise ship's daily emissions

- = 12.000 automobiles

401g of CO₂ is emitted per Cruise Pax / Km

- 36 times more than a Eurostar Pax / Km
- 3 times more than a Boeing 747 Pax / Km
- An estimated 60,000 people die worldwide each year as a result of under-regulated shipping air emissions
- This estimated to grow by 40 percent by 2012

Some Interesting Facts...

Discharges

Black Water:

- Human Waste (Toilets, Medical Facilities)
- 30 Litres per Cruise Pax / day

Gray Water:

- Wastewater from sinks, showers, galleys, laundry, and cleaning activities
- 340 Litres per Cruise Pax / Day

Solid Waste:

- Plastic, paper, wood, cardboard, food waste, cans, glass, etc.
- 1990s: 3.5 Kg per Cruise Pax / Day
- 2010: 1.7 Kg per Cruise Pax / Day

Oily Bilge Water

- Water containing fuel, oil, wastewater from engines and other machinery
- Average cruise ship produces 8 tons in 24 hours of operation

Ballast Water:

- To stabilize the vessel during transport
- Often taken on in one location after a ship discharges wastewater or unloads cargo and then discharged at the next port of call
- Contains a variety of biological materials, including non-native plants, animals, viruses and bacteria

Friends of the Earth: 2010 Cruise Ship Report Card*

Cruise Lines	Sewage Treatment	Air Pollution Reduction	Water Quality Compliance	Web Enviro Info*	Change From 2009	2010 Final Grade
Holland America Line	B+	C-	B+	✓	↓	B-
Norwegian Cruise Lines	A	C-	C+	✓	↔	B-
Princess Cruises	C+	A-	D+	✗	↓	C+
Cunard Cruise Line	A	F	no Alaska voyages	✗	↔	C-
Disney Cruise Line	A	F	no Alaska voyages	✗	↑ Most Improved	C-
Regent Seven Seas Cruises	C+	F	A	✗	↔	C-
Celebrity Cruises	A	F	n/a	✓	↔	D+
Royal Caribbean Int'l	D+	F	A-	✓	↑	D+
Carnival Cruise Lines	F	F	A	✗	↔	D-
Silversea Cruises	F	F	B-	✗	↔	D-
Crystal Cruises	F	F	no Alaska voyages	✗	n/a	F

Whether a cruise line has installed the most advanced sewage and wastewater treatment systems available instead of dumping raw or minimally treated sewage directly into the water

Whether a cruise line has retrofitted its ships to “plug in” to available shore-side electrical grids instead of running polluting engines when docked

To what degree cruise ships violated 2009 water pollution standards designed to better protect the Alaskan coast

How easy the cruise lines have made it for the average consumer to find information on their websites about cruise industry environmental practices and technology

The background of the slide is a grayscale photograph of ocean waves. The waves are breaking, creating white foam and spray. The sky is overcast with soft, diffused light. The overall tone is somber and powerful.

STATUS QUO & THE WAY FORWARD

Triple E⁴ Strategy

The Triple E Approach...

Building on Accountability!

Enforcement

- ▶ Since 1998, the cruise sector has paid over \$55 million in fines for **environmental violations**
 - Need for better controls / environmental policing (e.g. discharge transponders – informing land authorities, onboard observers, speed-limits)
- ▶ MARPOL (Maritime Organization's Convention for the Prevention of Pollution from Ships)
 - Flag states (MARPOL signatories) are responsible for its enforcement
 - Need deal with the structural issue (**Patchwork Issue**)



Engineering

- ▶ Adoption of Advanced Wastewater Treatment Systems (AWTS)
 - Phase-out Type II Marine Sanitation Devices (MSDs)
- ▶ 'Cleaner' fuels (Marine Gas Oil, Marine Diesel)
- ▶ Hull design / Coating
- ▶ Larger Vessels (Scale economies on Energy?)
- ▶ Open Innovation Initiatives?
 - Soy Ink for onboard printed materials
 - Tinted windows to reduce need for Air Conditioning
 - Using empty cabins to transport cargo
 - Waste2Biofuel, Solar Panels



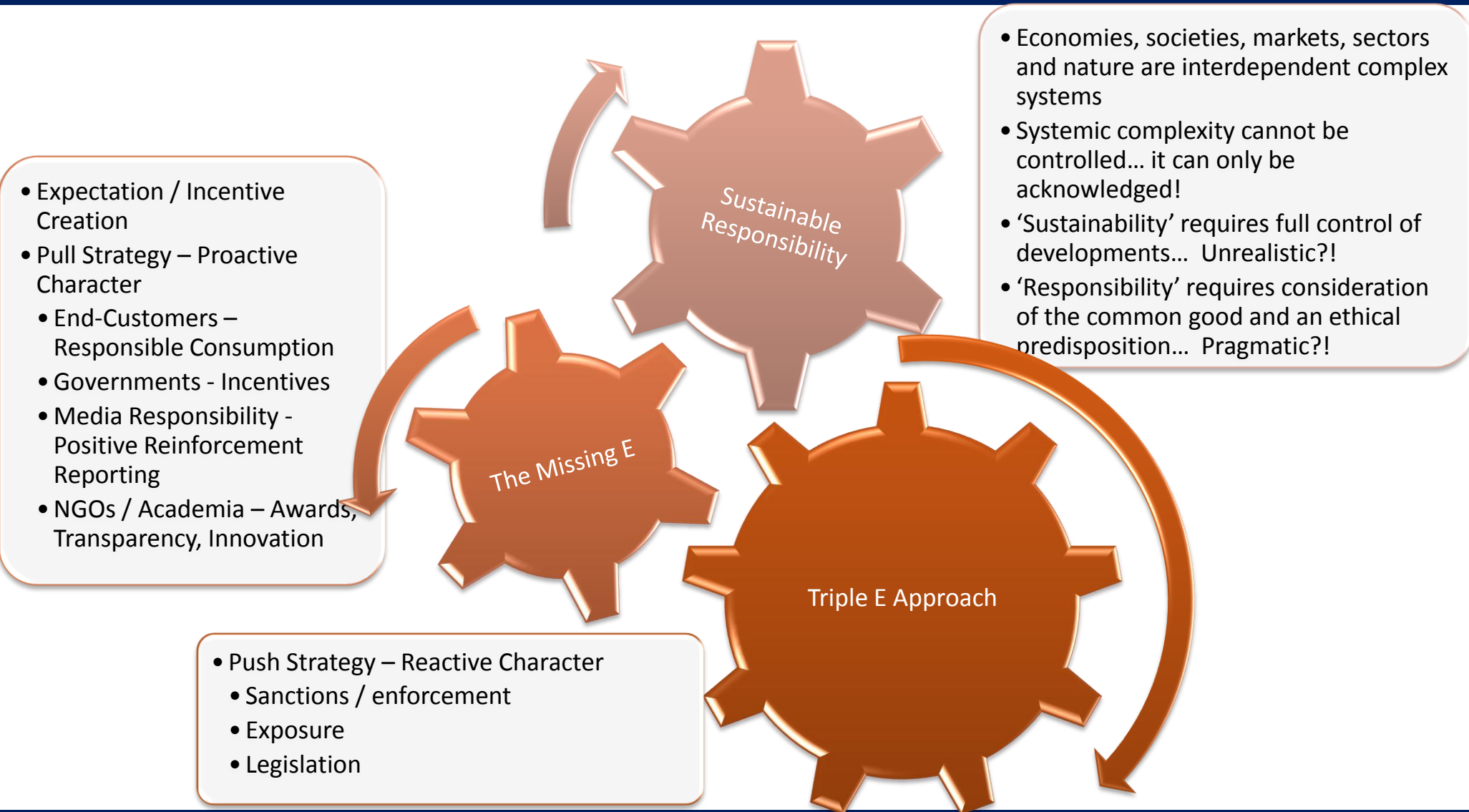
Education

- ▶ Sustainability Reports / Rankings / GRI
- ▶ **Guest Education / Participation** (e.g. HAL - Guest Invitation to Env/tal Excellence:
 - Guest Presentations, Towel Re-Use Option, Turn Off Cabin Lights and TV When Not in Use, Close Exterior Doors, No Garbage Overboard, Use the Proper Waste Container, Protect Wildlife, No Litter Ashore)
- ▶ **Green Shore Excursions** (e.g. Crystal Cruises)
 - Cruise passengers helping local community



The Missing E

Sustainable Responsibility...





IN A NUTSHELL...

Key Point Summary

The sustainability challenge accompanies every development

- Sustainability goes hand in hand with complexity
- Is development controllable?
- Is sustainability pragmatic?



Cruise Operators have been reacting to public pressure for environmental and social concerns... But not sufficiently

- Sustainability reports and GRI standards are being adopted
- There are quite a few good examples and initiatives
- Critics – Paper2Practice Gap



Sustainable cruising is a systemic / complex problem that requires a multitude of measures:

- Legislative structures and enforcement
- Technological innovation
- Educational initiatives / awareness training
- Responsibility development



From Sustainability to Responsibility

διὸ δεῖ ἔπεσθαι τῷ ξυνῷ. τοῦ λόγου δ' ἐόντος ξυνοῦ
ζώουσιν οἱ πολλοὶ ὡς ἰδίαν ἔχοντες φρόνησιν

Translation:

one needs to surrender oneself to the common. But
although the word is common, the majority live as if they
owned their thinking.

(Heraclitus, .535 BC - 475 BC)



Thank You for your Attention



► Research Functions:

- Founder & Chairman of the **Cruise Research Society**
(<http://www.cruiseresearchsociety.com>)
- Co-Director of the **Institute for Maritime Tourism (IMT)**
(<http://www.imt.hs-bremerhaven.de/>)
- Editorial Board Member of the Journal of the European Journal of Tourism, Hospitality and Recreation (EJTHR) –
(<http://www.ejthr.com/>)
- Reviewer of the Tourism Management Journal
(<http://journals.elsevier.com/02615177/tourism-management/>)

► Administrative Functions:

- Dean of Studies – Faculty of Business & Economics
- Chairman of the CIM Examinations Committee
- Member of the CIM Study Affairs Committee

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BACKUPS

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