Smart Terminal Case – Hamburg Cruise Terminal

Sacha Rougier, Cruise Gate Hamburg GmbH

at the Workshop “Modern Cruise Port Architecture”, Tallinn

Tallinn / Estonia, May 18th- 19th 2017
SMART: Steering towards efficiency

The future of a port:
Efficient use of energy resources and infrastructure facilities in order to allow sustainable growth

„Steering towards efficiency“
Cruise Terminal Development

4 KEY DRIVERS:
Accessibility / Functionality/Sustainability & Safety

Smart Terminal Design
smartPort Energy
Smart Guest Experience
**Accessibility**

**Intelligent online vessel coordination centre**
@ Nautische Zentrale Hamburg

- North Sea <-> Hamburg: 80 nautical miles
- Average Travelling Time: 6.5 hrs
- No bridges, no locks

**Smart tag** providing instant information for our integrated Traffic Management
Terminal Design: Architects Perspective

Kaohsiung Port cruise terminal

Functionality ????
## Terminal Design: Terminal Operator

### Land Side Port Infrastructure

- **Terminal home port**
  - Passengers
  - Luggage

- **Transport Hub**
  - Ground transportation and access

### Key Drivers

- **Marine Operations**
  - Ship L.O.A/GRT
  - Operations on Apron

- **Ship (shell door, life boat)**
- **Passenger (number, flow)**
- **Tide**

### Key Side Port Infrastructure

- **Pier/Apron**
- **Gangway**
Functionality: Smart Terminal Design

Efficiency on Key Side

Smart Gangway

Efficiency on Land Side: sustainability and intelligent remote monitoring

- Programmable illumination with LEDs
- Remote access to building control system
- Sensor-controlled ventilation via roof hatches
- Charging poles for electric cars
- Landline for vessels enabling communication with the cruise line’s computing center
- Free WiFi for passengers and crew
- Open Terminal in order to use natural light
3 primary project aims for smartPORT energy:

- Reduce dependency on conventionally generated energy
- Reduce energy consumption and energy costs
- Reduce emissions

3 Projects Pillars

- New innovative technologies
- Increased energy efficiency
- New innovative mobility concepts
First Results

✔️ 3 Cruise Centers with 3 alternative energy solutions

1. Landside Power
2. Liquefied natural gas (LNG) from LNG truck
3. Low emission LNG via the Power Barge
Sustainability: smartPORT energy

Alternative Energy Provision to Cruise Ships

- New cable management system to connect the network connection system to the ship
- No cable handling landside necessary
- Operated by only one person
- Self-propelled, motorized vehicle

Co-financed by the European Union
Trans-European Transport Network (TEN-T)
More safety for Hamburg by the help of PORTprotect

- Digital registration of all related happening in the port
- Continuous tracking of the action implementation progress
- Possible visualization on mobile devices
Smart Guest Experience

• mobile check-in services per smartphone / tablet pc at the terminal (in future online check-in possible comparable to airlines)

• baggage transfer directly from / to airport

• just in time call-off of provisioning trucks onto the pier (only manually possible at present at Steinwerder Cruise Center; will be possible via information screens or via app at the new Terminal)

• online car park reservation
Smart Guest Experience

Southern Überseequartier
Überseeboulevard looking south – weatherproof access to cruise terminal areas
Situation: Ship Size is changing rapidly

48% of all new cruise ships are > 4000 Pax

So we need to upgrade and expand port infrastructure

- Mega Cruise Ships
  - > 200,000 GRT
    - 6 Orders
- Contemporary Ships
  - 100,000 GRT – 200,000 GRT
    - 45 Orders
- Expeditions and luxury Ships
  - < 100,000 GRT
    - 23 Orders

* Source CLIA
Next generation cruise terminals will be... smart

- Single terminal servicing multiple brands
  - Airport style concept

- Overlapping operations
  - Centralized Customs & Immigration units
    - Technology savvy space
  - Back of house functions combined
    - Baggage screening with RFID

- Cruise lines using more technology for check-in / baggage
  - Check-in processes will disappear as we know it
  - Increase efficiencies / reduce costs

- Smaller terminal spaces
  - Relying on adjacencies, flow, technology and intuitive flow planning

- Terminals equipped for green power supply all over Europe