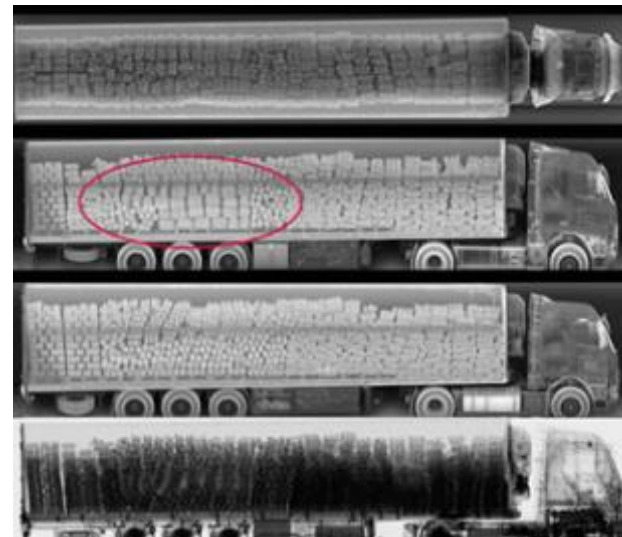


SCANNING FOR PORT SECURITY, REVENUE GENERATION AND LOGISTICAL EFFICIENCY

10th Indian Ocean Ports & Logistics 2016
Paul Hollingshead, Regional Director - Africa
American Science & Engineering, Inc.



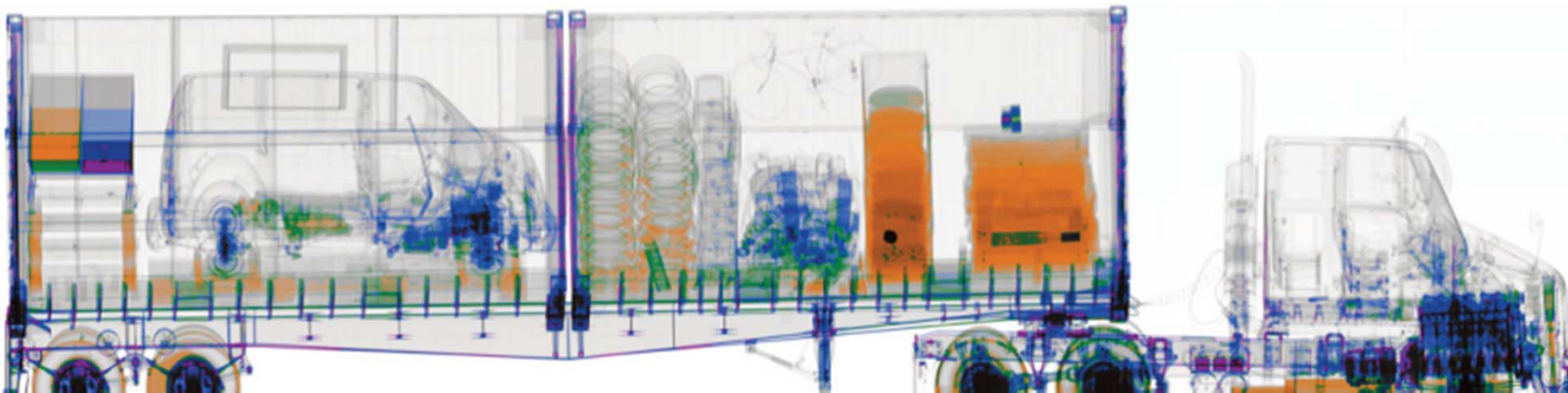
SCOPE

Port efficiency & scanning experiences in African ports

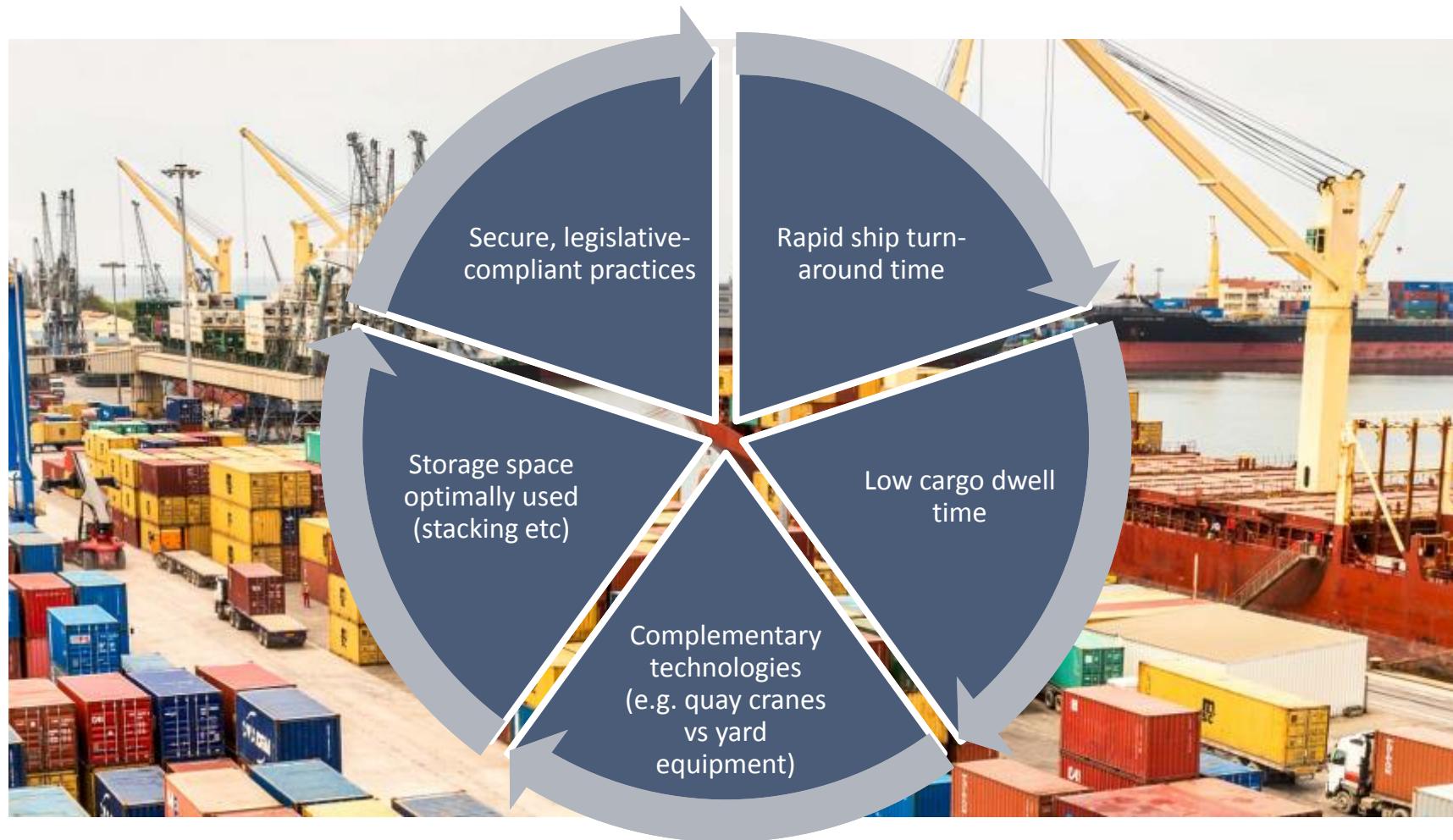
How to fit scanners into existing operational practices *and* increase port efficiency

Traditional technologies vs modern systems

AS&E's portfolio and willingness to collaborate with you



Infrastructure's role in port efficiency



Africa's experience of scanning; barriers to efficiency



Slow cargo inspection procedures

Uses up valuable storage space

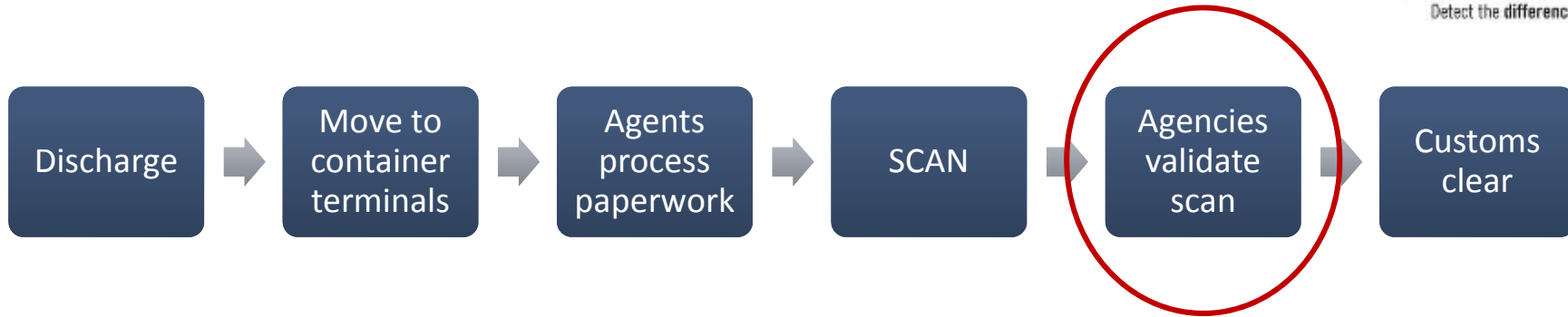
Outdated, unreliable or slow equipment

Poor interfacing between stakeholders

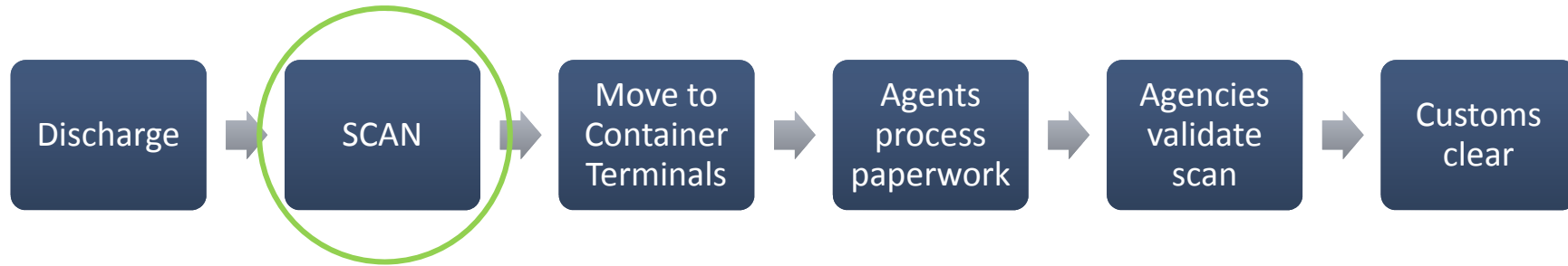
Lack of flexibility in providing alternate solutions

Cost of equipment/ Funding

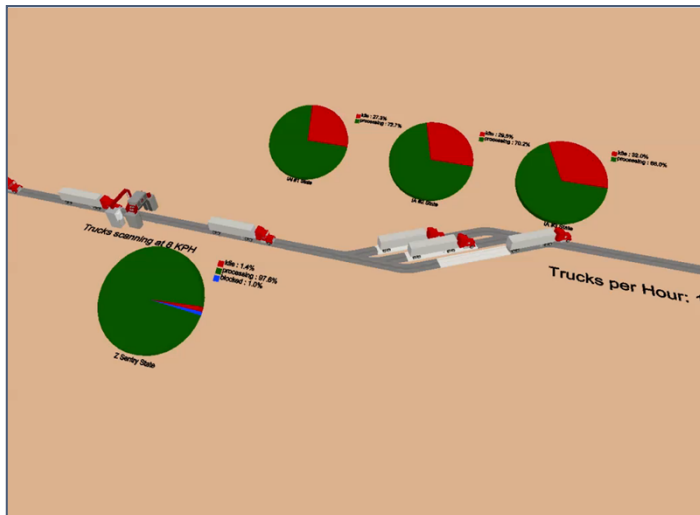
Scanning impact on port efficiency – an African experience - *before*



Scanning impact on port efficiency – an African experience - *after*



Scanning - Efficiency comes through collaboration & planning



What's the mission?

- What threats are we looking for? Manifest discrepancies? Contraband?
- What are the conveyances?
- Are there any sensitive goods? Medicines etc

What are the constraints of the port?

- Space
- Time to scan and analyse
- Cost of systems

What is the best system and concept of operations?

- Which technology is appropriate?
- How can the operation be delivered effectively (operators, analysts, engineers etc)

Scanning - Efficiency comes through collaboration & planning



“We needed to integrate the cargo inspection technologies at Khalifa Port and AS&E responded with a first-of-its-kind Integrated Detection Solution...*the world’s most technologically advanced port scanning solution...giving our operators all the necessary information to make an informed decision on every inspected import and export container.*”

—Patrick Simmons, Chief Advisor to Abu Dhabi Customs

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Traditional technologies used in the African port environment



Mobile or gantry x-ray systems

- Good penetration and imaging quality
- Very slow throughput (20 – 25 trucks per hour)
- Large radiation exclusion zones and high dose to cargo
- Single technology (can be easy to smuggle organic goods e.g. ivory, drugs, explosives)
- Offer only one view
- No flexibility if the system has a fault

High throughput, multi-technology scanners from AS&E



Transmission & Backscatter x-ray high throughput portals

- Capture up to 6 views of cargo for holistic threat recognition
- >200 trucks (400 TEUs) per hour
- Located and managed to prevent delays in traffic flow due to inspection
- All images centrally archived for subsequent, remote analysis
- Minor civil engineering requirements
- Employed by elite international Customs agencies & already installed in Africa
- Fully maintained for duration of contract by OEM

Co-located transmission and backscatter portals –
6 views for maximum detection



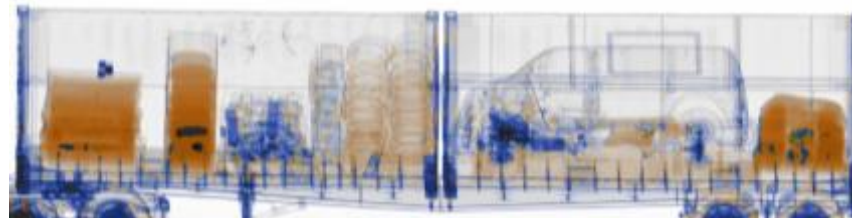
AS&E[®]

Detect the **difference.**

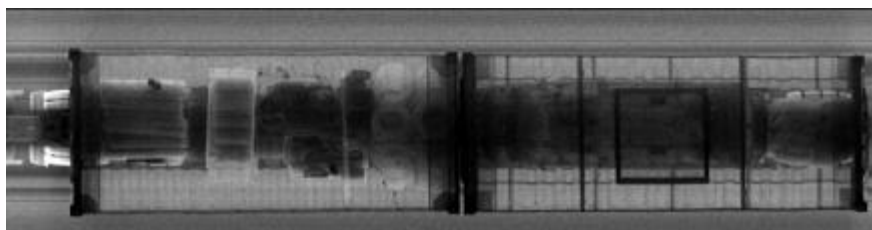
Co-located transmission and backscatter portals



Left side Backscatter



Dual-energy transmission



Top down Backscatter



Left side Forwardscatter



Right side Backscatter



Right side Forwardscatter

6 views for *maximum* detection

A GLOBAL LEADER IN X-RAY DETECTION SOLUTIONS



- Global leader in x-ray technology
- Publically-listed (NASDAQ: ASEI)
- >50 years experience

- Highest selling cargo inspection system in the industry
- >1000 cargo inspection systems
- 135 customers worldwide, including 14 African countries

- Elite customers in strategic markets
- Worldwide service
- Flexible financing, partnering options

- Best in class systems
- Outstanding service reputation
- Continued innovation

Africa's experience of scanning; barriers to port efficiency



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AS&E – A PARTNER TO DELIVER YOUR TOTAL SCANNING SOLUTION



www.as-e.com

Rapid cargo inspection, detecting more threats

Small footprint, limited civil works systems

Lead technologies, best-in-class

Full networking capability

Multiple technologies, outstanding service

Flexible partnering, financing collaboration, PPPs (BOT)