TOTEX DECISION MAKING

A holistic program and asset management solution for today’s dynamic operating environment

October, 2016
Infrastructure owners face a challenging environment in which to deliver a sustainable, resilient, improving asset base.

- Climate Change
- Demanding Customers
- Aging infrastructure
- Constrained Capacity
- Limited Funding
- Security

Complexity and the need for resiliency is increasing as is the speed of change.
High performing infrastructure organizations are adopting TOTEX principles

Where has this approach come from?

- Asset Management innovations
- Regulatory changes in the UK
- Advances in technologies such as BIM, portfolio and program management tools, maintenance management systems
- Step changes in resiliency and risk management tools

Leverages best practices in program and asset management, risk and resiliency tools, and advances in technology.
Moving from...  

“Projects”  “Issues”  “Contracts”  “Silos”  

....to....  

“Benefits”  “Risks”  “Data”  “Collaboration”
Total Expenditure ("TOTEX") approach to optimized infrastructure investment can yield significant lifetime program savings

Total Expenditure (Before):

- Capex
- Opex

Total Expenditure (with a TOTEX approach):

- Capex
- Opex
  - 10-15% savings
  - 20 – 25% savings
Enhancing Customer Experience in a Cost-Restricted World

Heathrow

- $20bn Asset base at 99% Capacity
- Flight every 45 seconds, 74.3 million Passengers per year
- 5th largest UK Shopping Center

Best Airport in Western Europe

Quarterly passenger satisfaction Q4 2006 – Q3 2015

$20bn capital plan optimized to $5bn

$250m opex savings over 5 years
## Enhancing Customer Experience in a Cost-Restricted World

### Aligning Decision Making

<table>
<thead>
<tr>
<th>SHAREHOLDER REQUIREMENTS</th>
<th>LONG TERM GOALS</th>
<th>ASSET MANAGEMENT OBJECTIVES</th>
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<tbody>
<tr>
<td>The UK's direct connection to the world and Europe is a hub of choice by passengers</td>
<td>Deliver a noticeably better &quot;hub of choice&quot; passenger experience through airport, evaluating &amp; delivering improvements in areas that matter for our passengers</td>
<td>Understand, define and improve the performance that our customers (passengers and airlines) want from our assets – no surprises</td>
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<tr>
<td>Ensure a continued focus on <strong>improved resilience</strong> and availability of sufficient <strong>hub capacity</strong> for forecast aircraft and passengers</td>
<td></td>
<td>Enable the flying schedule to be fully complete every day</td>
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<td>Ensure Airport investments support efficient <strong>airline operations</strong>, have defined and realistic benefits to airlines and passengers</td>
<td></td>
<td>Meet our environmental and sustainability targets</td>
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<td>Ensure Airport's <strong>total cost of operation</strong> is efficient and competitive relative to the passenger mix, service and facilities</td>
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<td>Meet 100% of our licensing and legislative requirements</td>
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<td>Understand and manage asset-related risks so that we continuously improve operational resilience</td>
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<td>Deliver the masterplan as efficiently as possible and provide capacity just ahead of planned demand</td>
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<td>Harm no-one that builds, maintains, operates or uses our assets</td>
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<td>Reduce total expenditure by optimizing cost, risk and performance and maximize revenue generation</td>
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<td>Ensure our assets are adaptable and can efficiently meet our customers' future needs</td>
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<td><strong>Enabled by:</strong></td>
<td></td>
<td><strong>Deliver the Asset Management strategy</strong></td>
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Enhancing Customer Experience in a Cost-Restricted World

Investment Optimization
Enhancing Customer Experience in a Cost-Restricted World
Enhancing Customer Experience in a Cost-Restricted World

Major capital program delivery
Lessons Learned

- Cross-functional working
- Embed totex thinking in the big, priority events
- Capability development in asset and program management
- Benefits now AND later
- Make best use of what-ever data is available
- Tell stories