

# Is maintenance training an important profit source for airlines?

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APATS Singapore | August 28-29, 2018

The logo for Management & Excellence is centered at the bottom of the slide. It consists of a dark blue rectangular box with a white border. Inside the box, the words "MANAGEMENT" and "EXCELLENCE" are written in white, uppercase letters, separated by a vertical line. The letters "M" and "E" are positioned at the top and bottom of this vertical line, respectively.

MANAGEMENT & EXCELLENCE

# Why is maintenance training valuable?

- MT is cheap (costing \$50 an hour\*) while airplanes are expensive (e.g. \$2,550/block hr for 757-200\*\*)
- Even small impacts on reliability due to training easily generate high ROI

\* Pratt & Whitney CTC, Line & Base course for NB, 2018

\*\* ICAO, 2017

# Quick ROI of a Line & Base Training for A320 Engines



## Operating Efficiency

Total L&B Course Cost:  
\$6,700 (incl. \$3,200 tuition)  
6 Hours Reduced  
Downtime: \$22,200  
**= Simple ROI +231%**



## Events

Total L&B Course Cost:  
\$6,700 (incl. \$3,200 tuition)  
One D&C Prevented:  
\$18,500  
**= Simple ROI +176%**



## Unscheduled Engine Removals

Total L&B Course Cost:  
\$6,700 (incl. \$3,200 tuition)  
One UER Prevented:  
\$1,068,000  
**= Simple ROI +15,840%**

*\* Within 1 year of L&B training for NB:adjusted by M&E Training Effectiveness Indicator*

# Maintenance training could save airlines \$1 16 billion by 2036

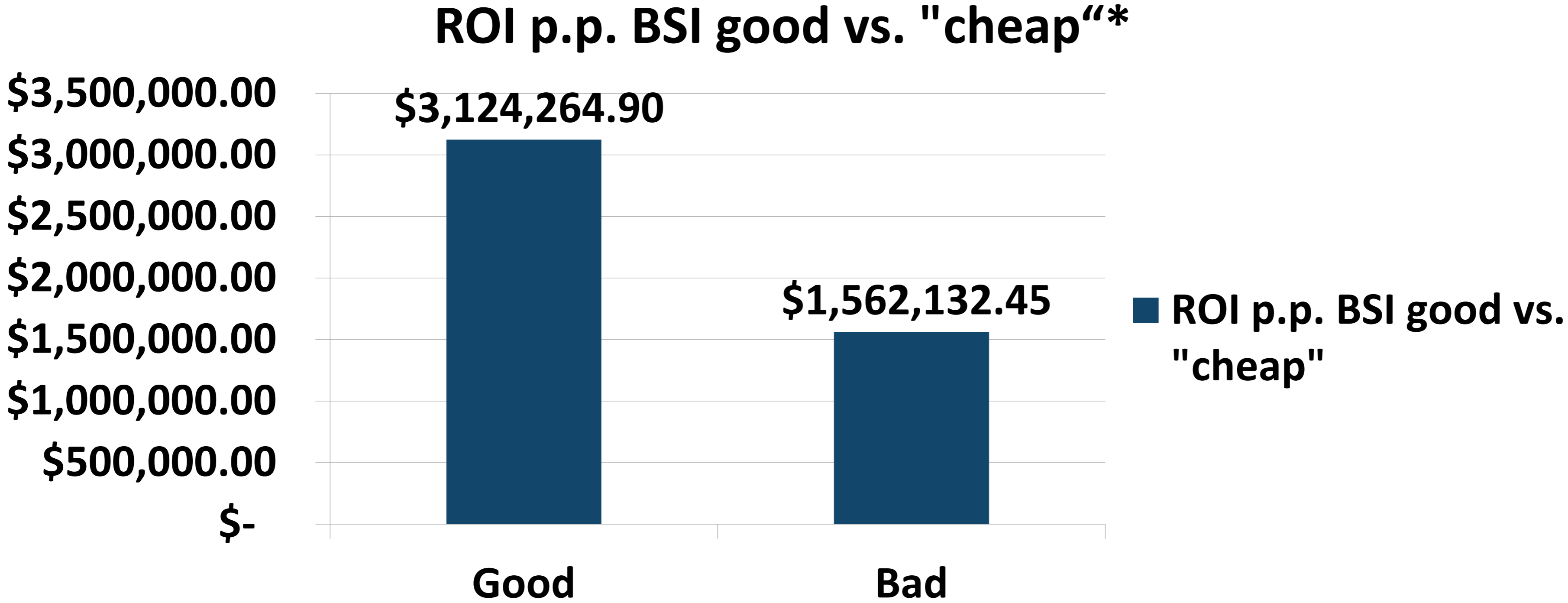
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- 648,000 new airline technicians by 2036\*
- Avoided events (D&C's, ATB, ABTO)\*\*
- Avoided unscheduled maintenance (UER)\*\*

*\* Boeing, 2017*

*\*\* Within 1 year of L&B training for NB: 2 events and 1 UER adjusted by M&E Training Effectiveness Indicator of SMART ROI™*

# Is cheap training inexpensive?

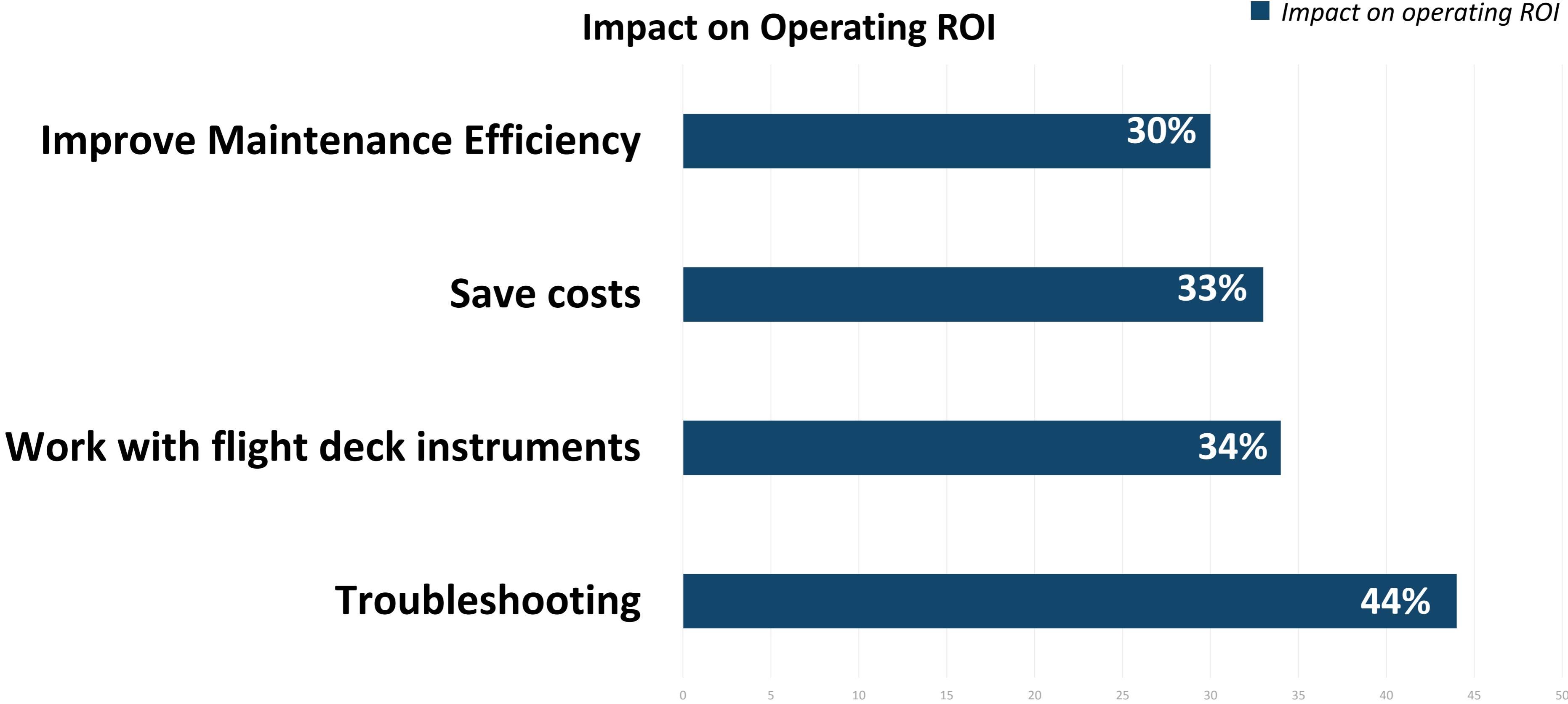


\* ROI per person (sample 10 maintenance engineers) 7 months after completing BSI course using M&E Training Effectiveness Indicator. Includes prevented events and unscheduled maintenance, process efficiencies. Considers direct costs (course costs, transport) and indirect costs (missed maintenance opportunities from being off the job). Bad programs: 50% of all values using data comparing online vs classroom teaching, salary data of graduates from top colleges vs. Less respected institutions. Even so, the 50% discount is for illustrative purposes. Actual data only exists on top courses for NB aircraft at an OEM.

# Types of Training Costs

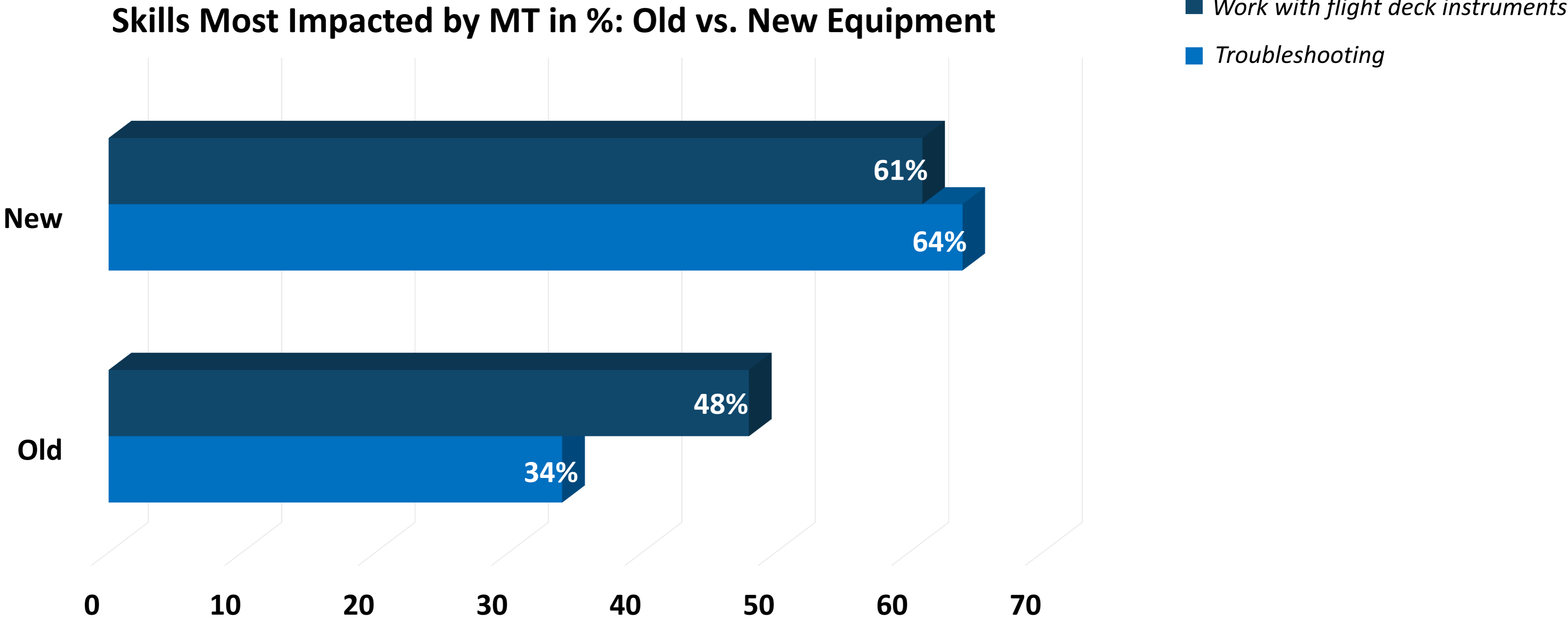
<b>Training Cost Type</b>	<b>Type of Cost</b>	<b>Typical % of Total Training Cost</b>
<b>Impact on Fleet Reliability, AOG Times</b>	<b>Indirect</b>	<b>70% - 80%</b>
<b>Course Fee</b>	<b>Direct</b>	<b>10-15%</b>
<b>Travel Oups</b>	<b>Direct</b>	<b>5-10%</b>
<b>Internal Processes of Team</b>	<b>Indirect</b>	<b>5%</b>

# Skills most impacted by MT



Source: Pratt & Whitney Customer Training Center and Management & Excellence, 2017

# Impact of MT on New vs. Old Equipment

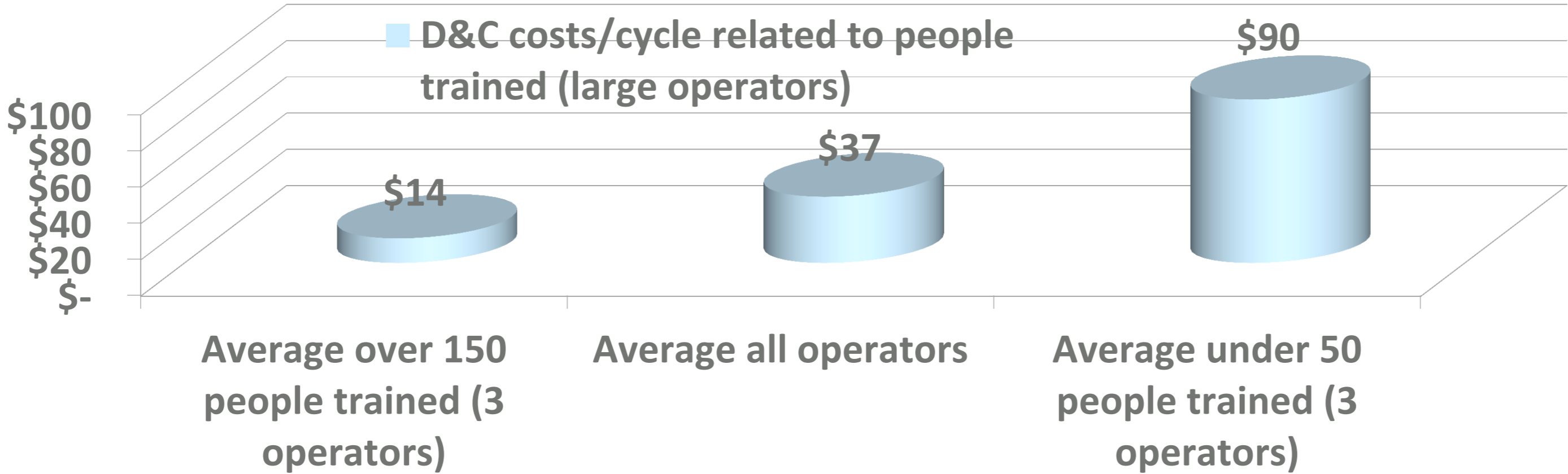


Source: Pratt & Whitney Customer Training Center and Management & Excellence, 2017



# Training More Mechanics = Fewer Events

Ops Disruptions/Cycle related to people trained (large operators)



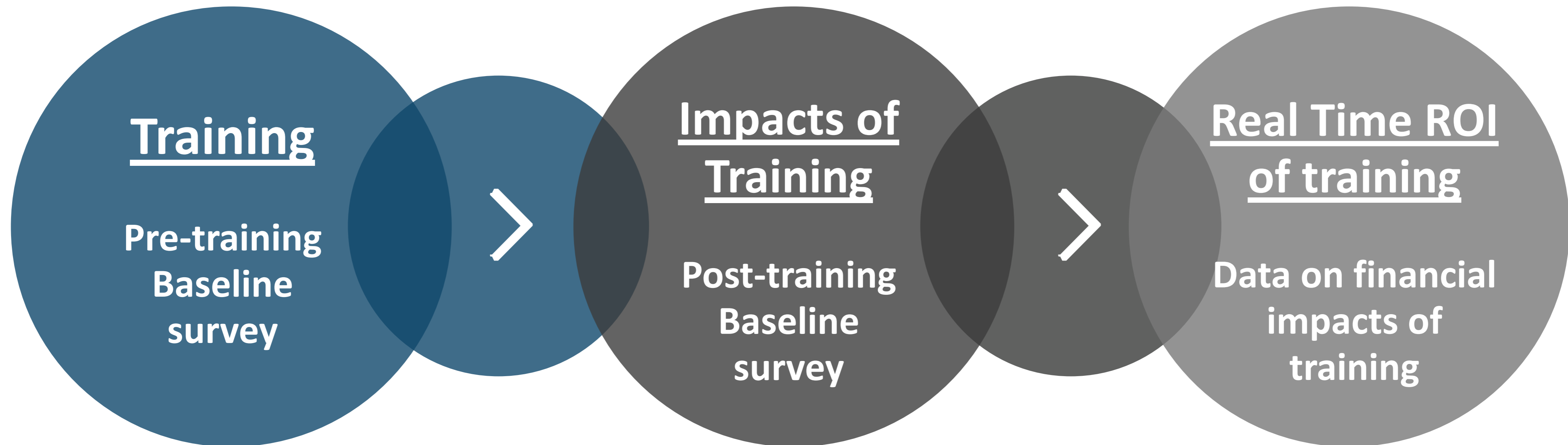
Source: Pratt & Whitney Customer Training Center and Management & Excellence, 10 airlines 2008-2017

# MT: Issues to Decide

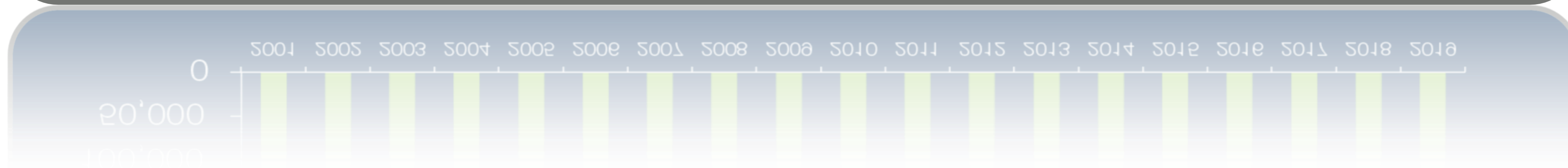
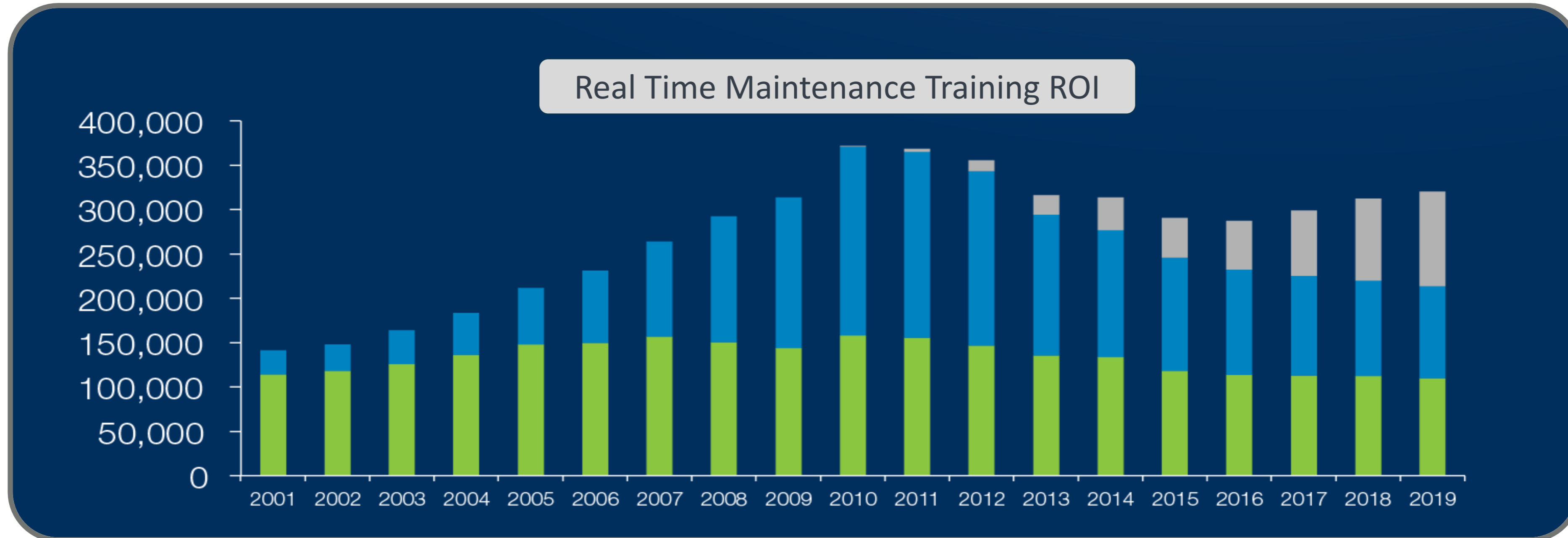
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- > **Which personnel to train when**
- > **In which areas**
- > **Curriculum, skills needed**
- > **Whom to train with: OEM, in-house, or contractor?**
- > **Build own training center?**
- > **Maintenance allocation plan**
- > **= Maintenance training and maintenance strategy**

# Calculating ROI: How it works



# Track Realities: Real Time ROI



# Thank You & Questions

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