

How valuable is maintenance training?

It all boils down to ROI

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The logo for Management & Excellence is centered in a dark blue rectangular box with a white border. The text "MANAGEMENT & EXCELLENCE" is written in white, with the ampersand "&" and the letters "M" and "E" stacked vertically in the center.

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 \$71.1 billion by 2036

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

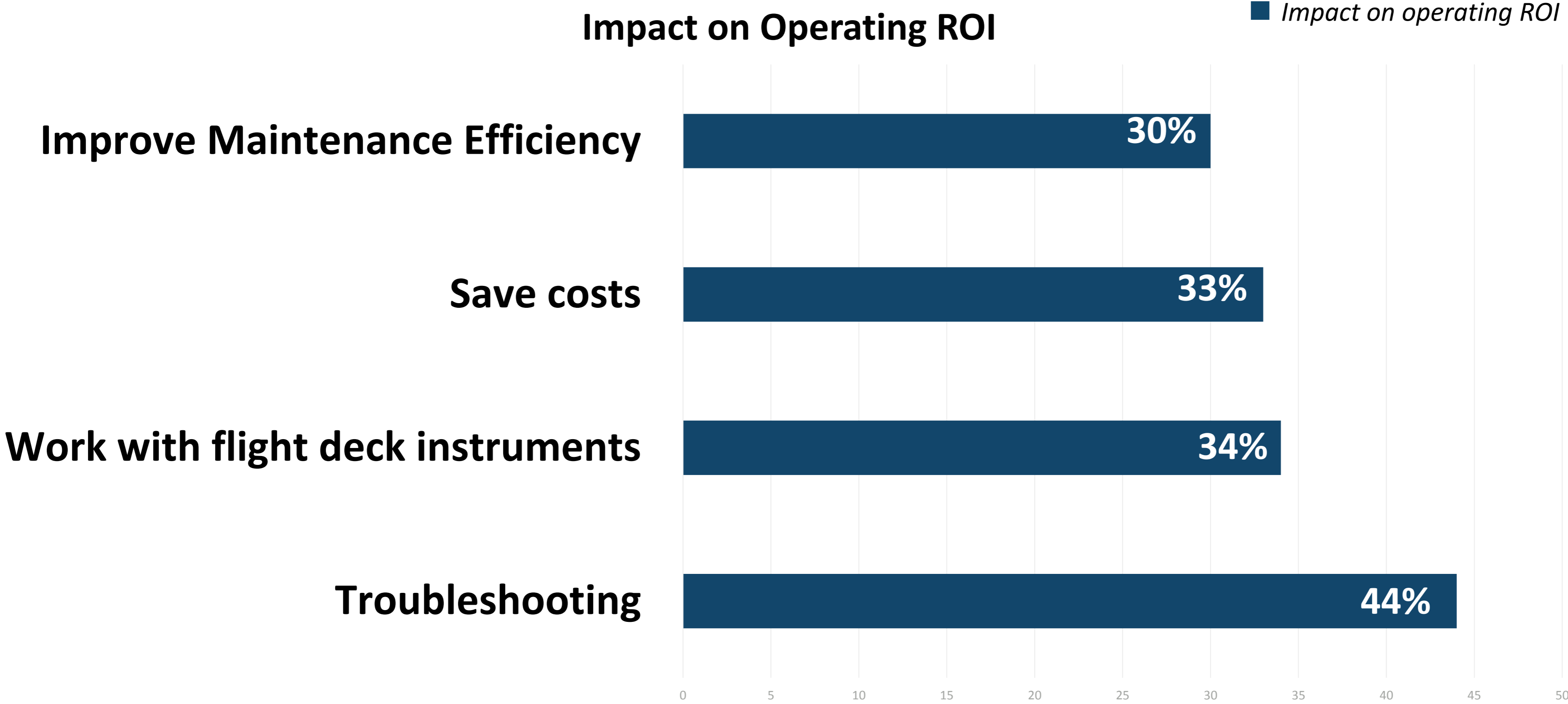
** Boeing, 2017*

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

Types of Training Costs

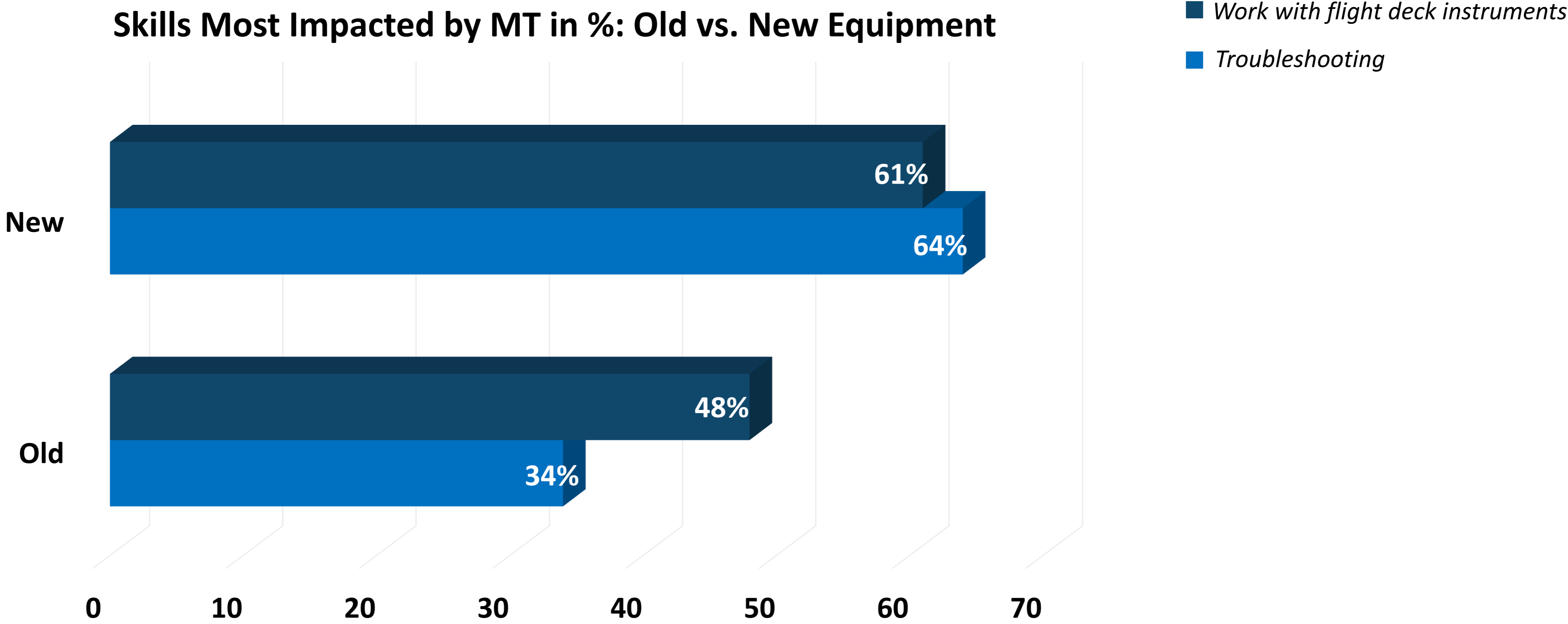
Training Cost Type	Type of Cost	Typical % of Total Training Cost
Impact on Fleet Reliability, AOG Times	Indirect	70% - 80%
Course Fee	Direct	10-15%
Travel Oups	Direct	5-10%
Impact on Fleet Reliability, Internal Processes of Team	Indirect	5%

Skills most impacted by MT



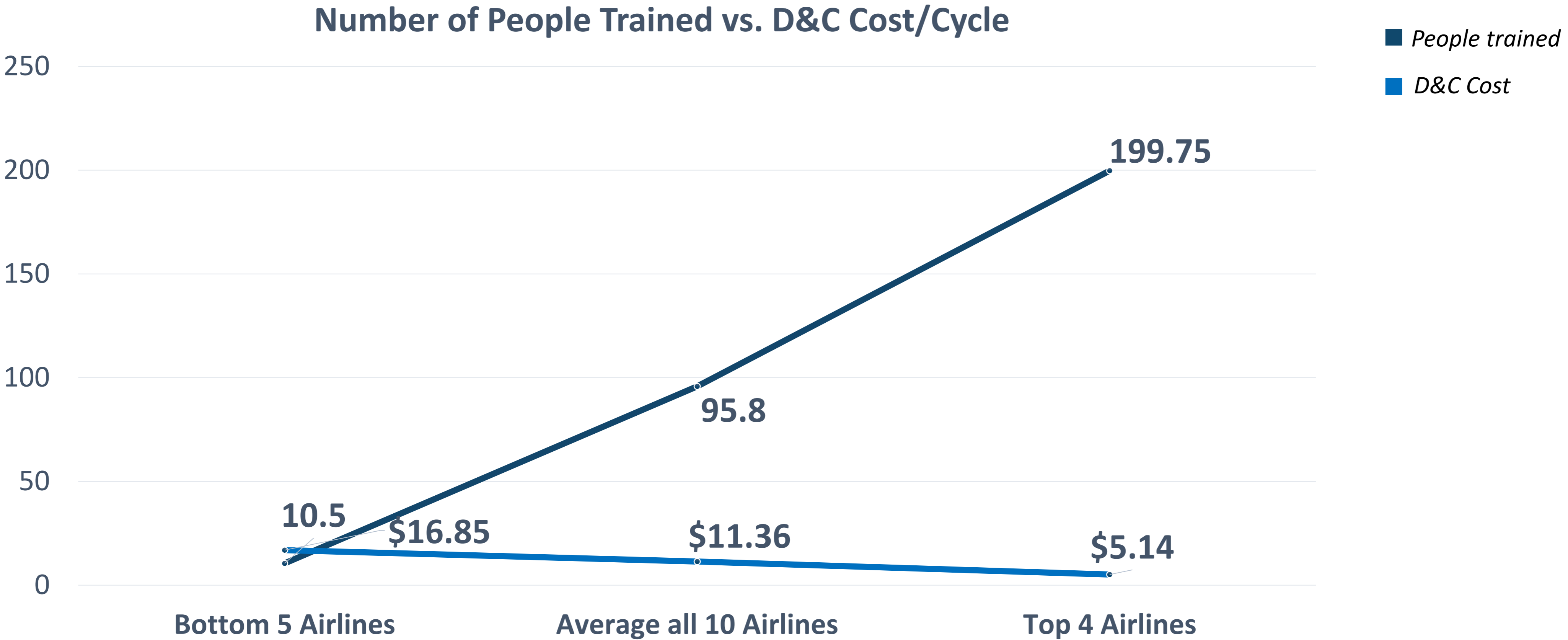
Source: Pratt & Whitney Customer Training Center and Management & Excellence, 2017

Impact of MT on New vs. Old Equipment



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

Training More Mechanics = Fewer Events

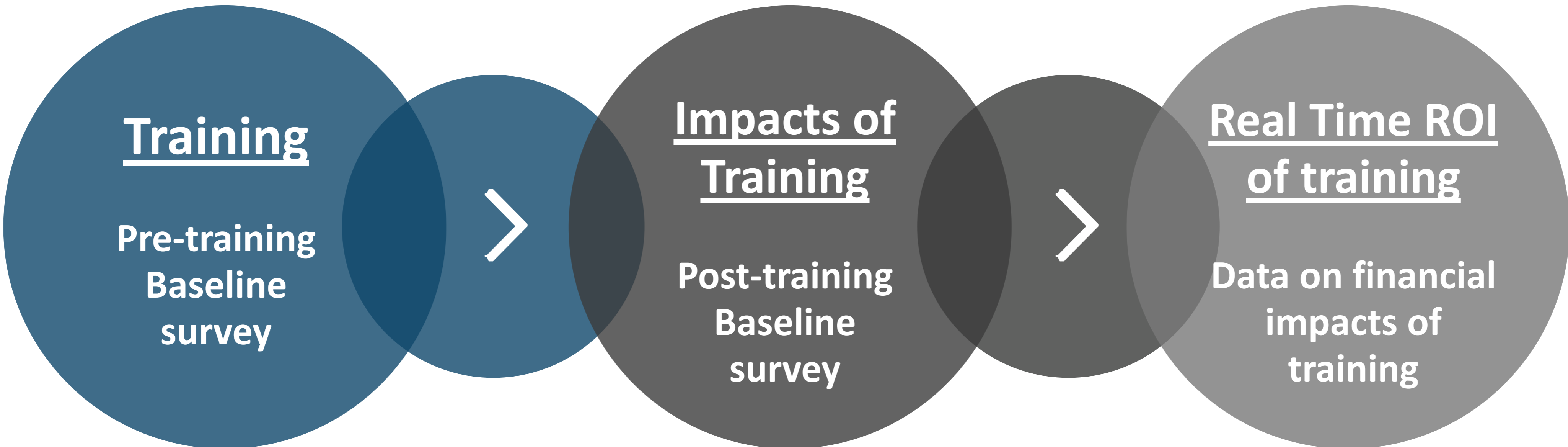


Source: Pratt & Whitney Customer Training Center and Management & Excellence, 10 airlines 2008-2017

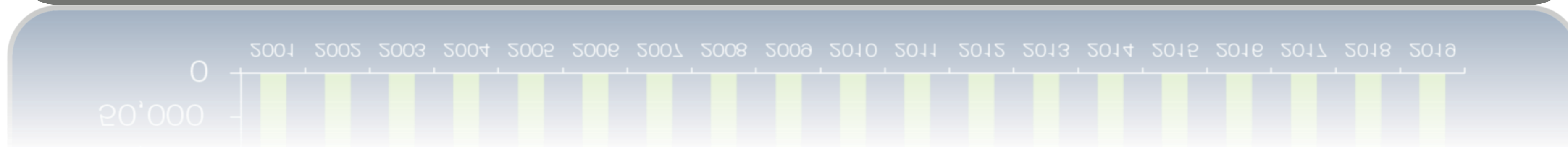
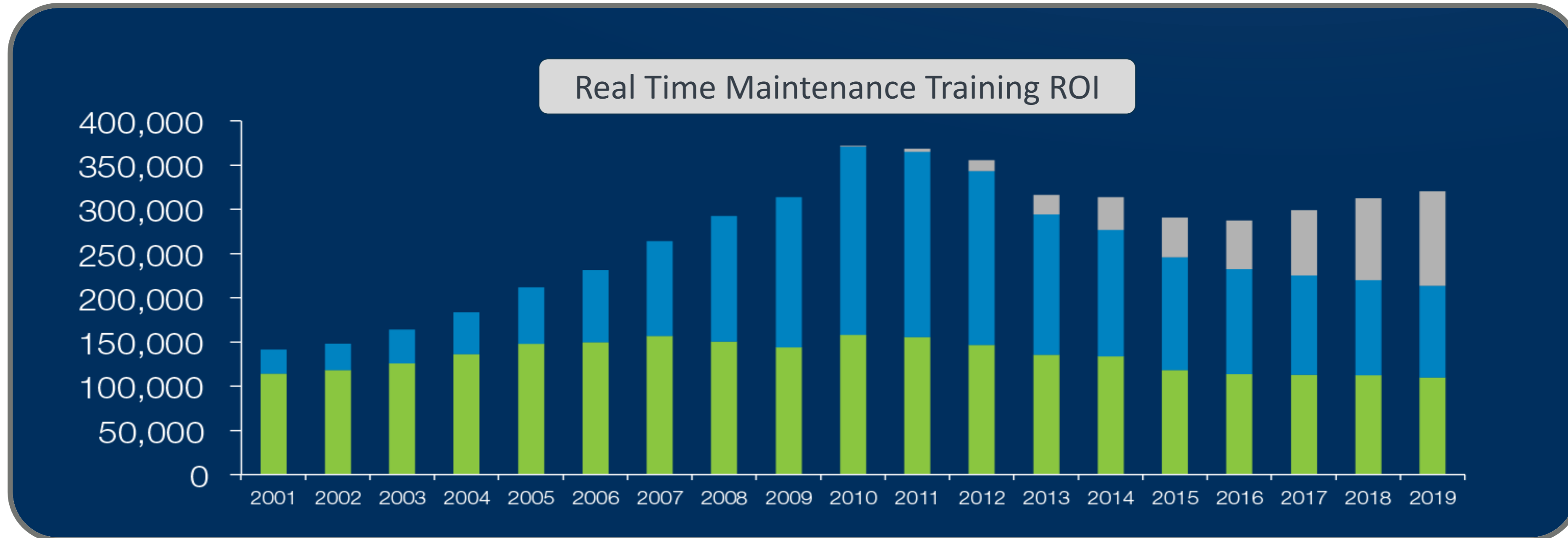
MT: Issues to Decide

- > 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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