IHST Global Safety Survey Results

This paper reports the results and conclusions that may be drawn from the International Helicopter Safety Team's (IHST) second, global safety survey. Repeating the process done in 2015, the IHST has, throughout 2016, promoted a survey to judge awareness and use of its products. In addition to promoting the IHST's work, the survey is intended to measure how broadly the IHST's key recommendations are being implemented. Over time, the IHST hopes to correlate the survey results with accident data to see if these recommendations and their supporting products are on target toward the IHST's vision of zero accidents.

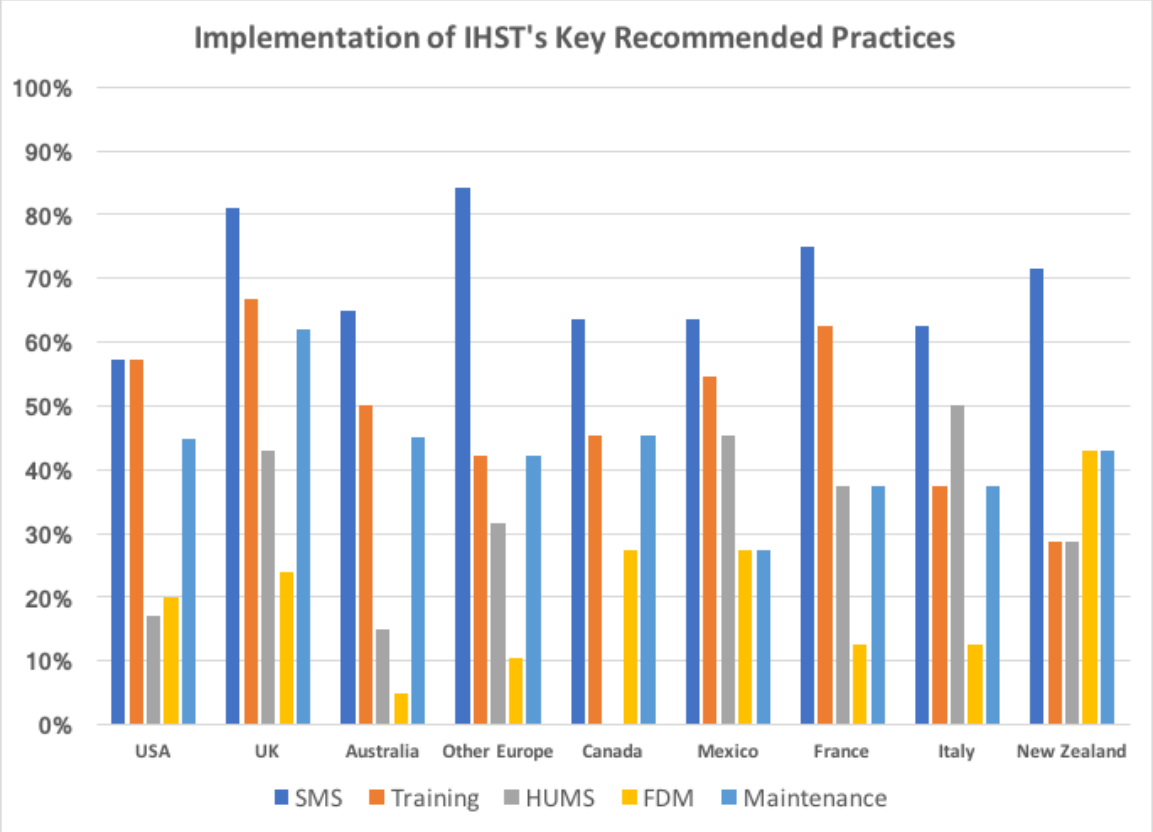
Whereas there were 351 responses to the survey from 53 different countries in 2015, the 2016 survey had 340 responses from 44 different countries. Further, only 25 of those who participated in the 2015 survey updated their inputs for 2016. Hence, the two survey reports do not, as was hoped, show a growing base of annual status reports from helicopter industry stakeholders on their implementation of the key best practices recommended by the IHST. Nevertheless, as will be shown, there are some important conclusions that can be drawn from this year's survey, which reinforce the results of the 2015 survey.

The IHST's regional teams have analyzed over 1,000 helicopter accidents and concluded that the following four areas offer the best opportunities to prevent helicopter accidents:

1. Safety Management Systems (SMS)
2. Structured programs for initial and recurrent training
3. Mission-specific systems and equipment, including:
    a. Health & usage monitoring systems (HUMS)
    b. Flight data monitoring (FDM) programs
    c. Night vision goggles
    d. Wire strike protection
4. Structured programs to fully comply with manufacturers' recommended maintenance practices

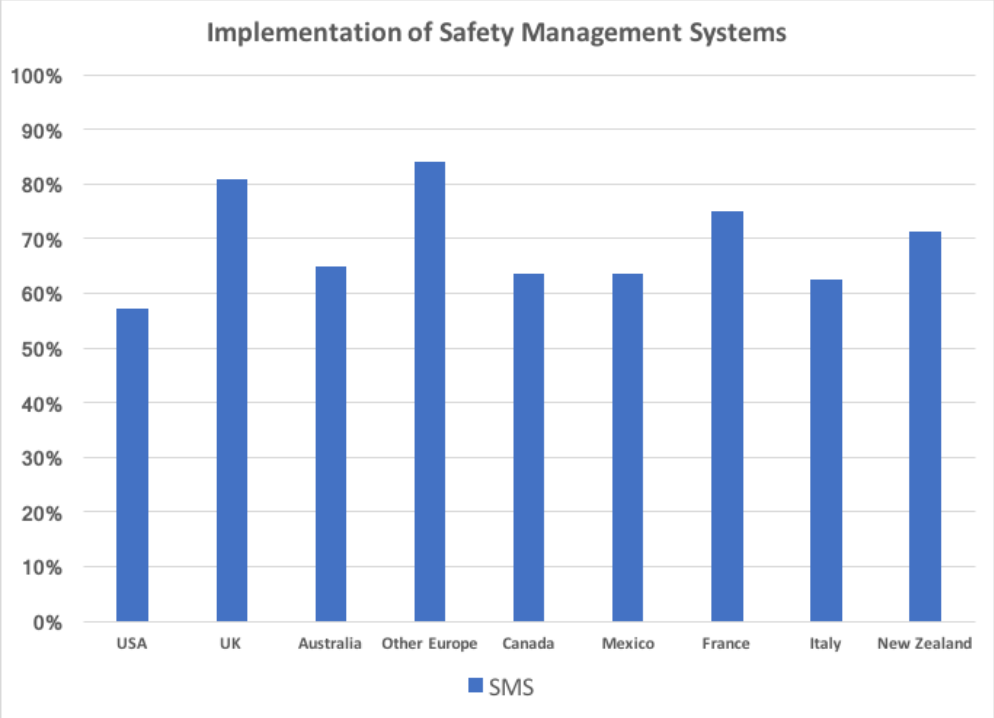
The IHST and many other industry stakeholder groups are actively promoting implementation of these practices. The IHST's global safety survey is intended to assess the progress toward full implementation of these practices within each industry sector in every region. While some of the recommended systems and equipment have mission specific application, the other recommendations for SMS, training and maintenance practices are universally applicable.

The figure below shows the survey results from the countries with the most responses. A complete list of the "Country of Operation" given by survey participants is at Appendix 1. In both surveys conducted so far, the responses by country generally fall in line with the number of helicopters in those countries.

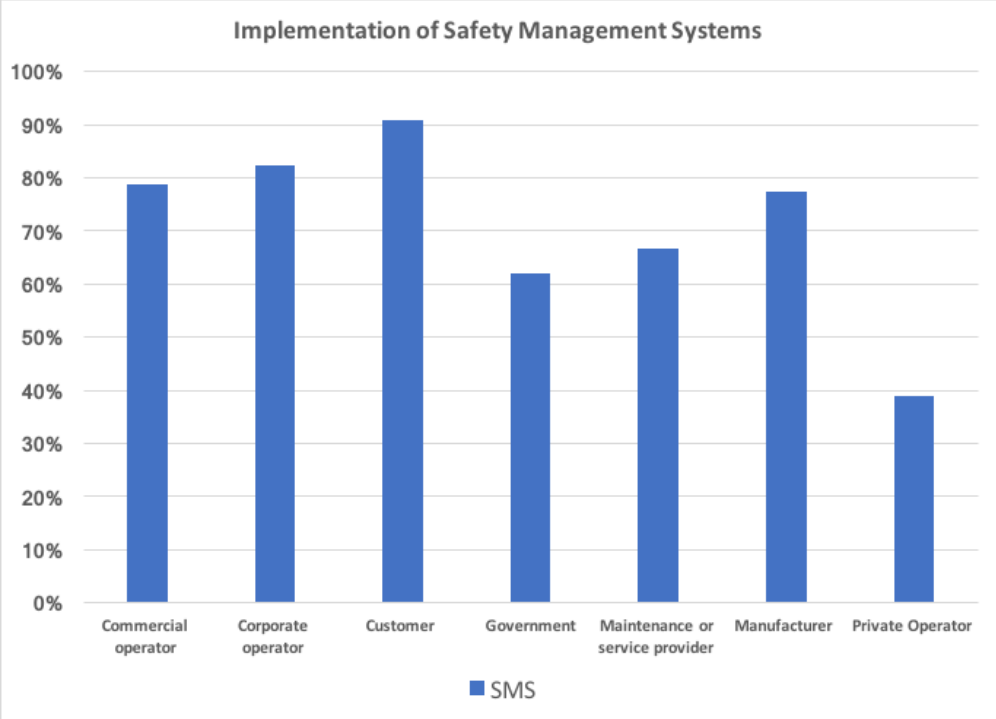


We must admit that after two years the total number of survey participants is still a small sample for the more than 35,000 civil helicopters in the world. We do not propose that these results are a representative sample. These results may in fact represent the best operators in the civil helicopter industry who were willing to state their positions with regard to the IHST's work. Nevertheless, these results do give indications of which of the IHST's top safety recommendations are gaining the broadest acceptance. As stated last year, we must acknowledge that the IHST's top safety recommendations may be getting implemented for reasons other than the IHST itself.

For example, SMS implementation, which has the highest overall implementation rate of all the IHST's top recommendations, is generally highest in countries where SMS has been mandated the longest; e.g., the UK and other European countries governed by EASA. The chart below shows that this trend, established in 2015, was sustained in 2016. So, the first conclusion to be proposed in this report is that regulatory support is very effective. While voluntary adoption of best practices can proceed more quickly, changing an industry culture to embrace best practices can take a long time unless there is strong regulatory support.



When we sort the results by stakeholder group or organization type, we see again this year that operations driven by customer requirements had the highest level of SMS implementation.



We see related results in the chart below, where we sort the results by the uses to which the respondents put their helicopters, and find the offshore oil & gas industry leading the way with SMS implementation. The oil & gas industry practices are driven by customer requirements because that industry's operations vitally depend on the confidence of offshore workers in their means of getting to work. The International Association of Oil & Gas Producers (IOGP) have documented their recommended practices, which are de facto industry standards, in their Aircraft Management Guidelines, which are available for free download at http://www.iogp.org/Reports/Type/390/ID/475. The IHST SMS toolkits, available for free download at http://www.ihst.org/Default.aspx?tabid=3053&language=en-US, offer guidance for all types of helicopter operations.

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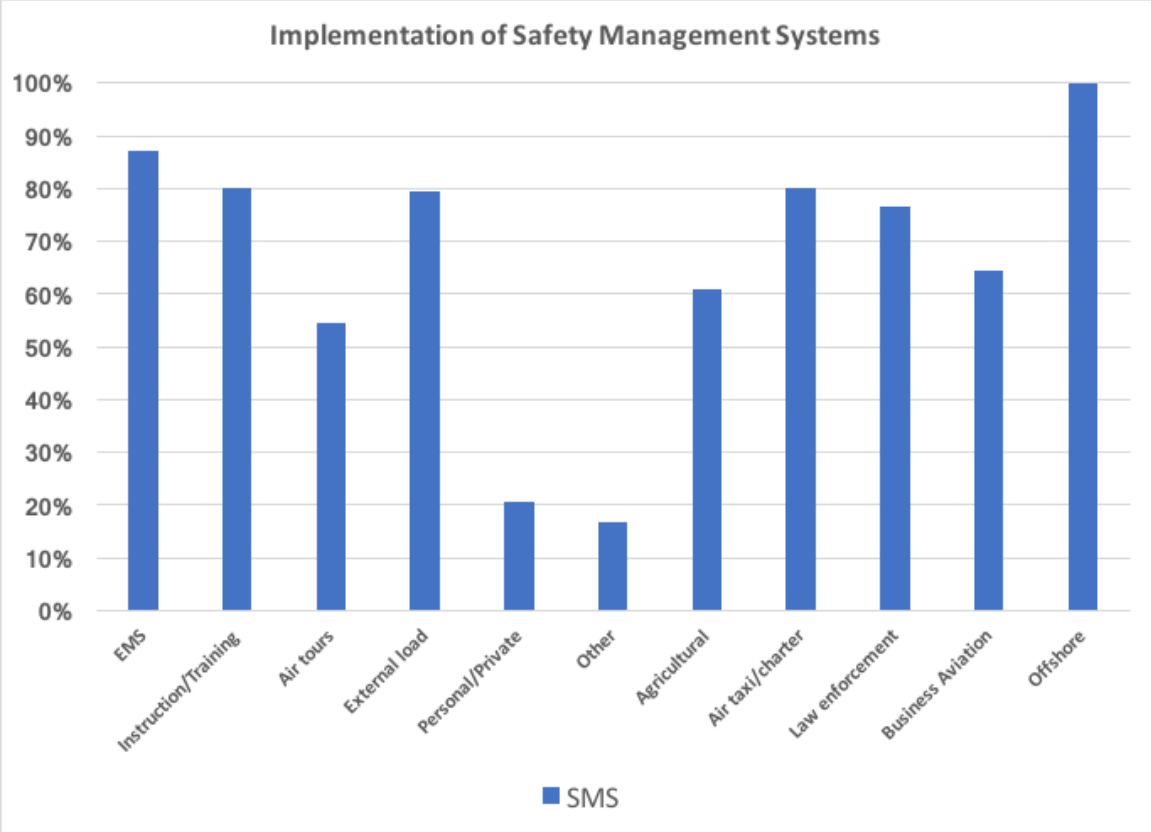
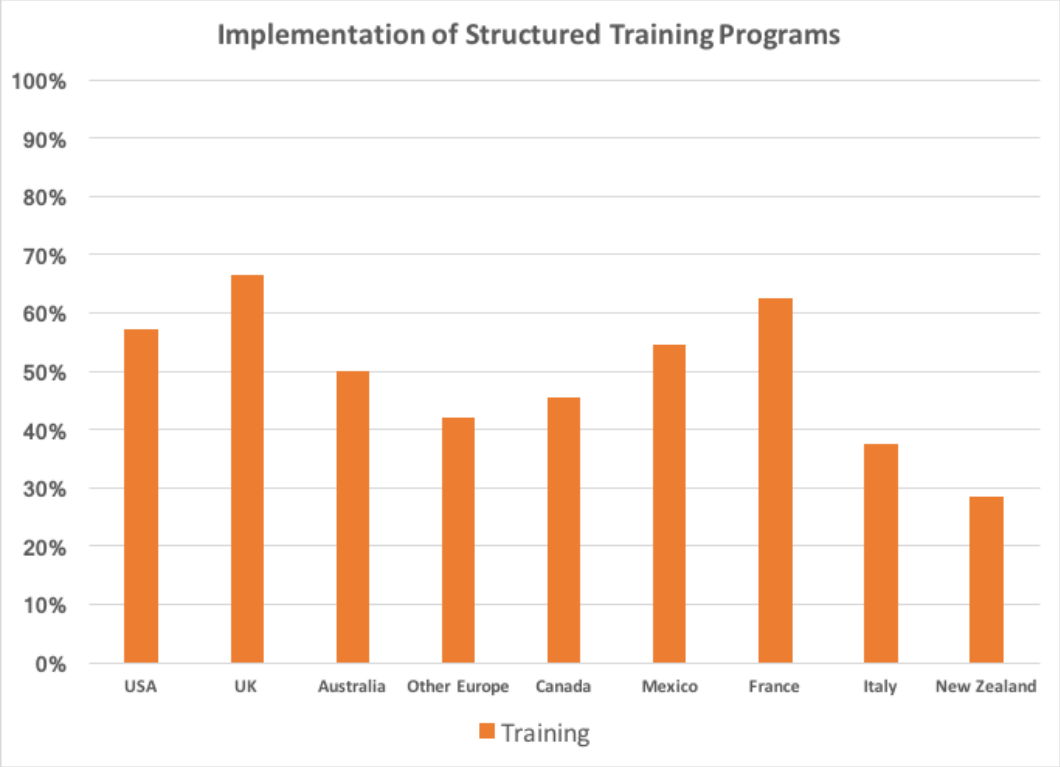
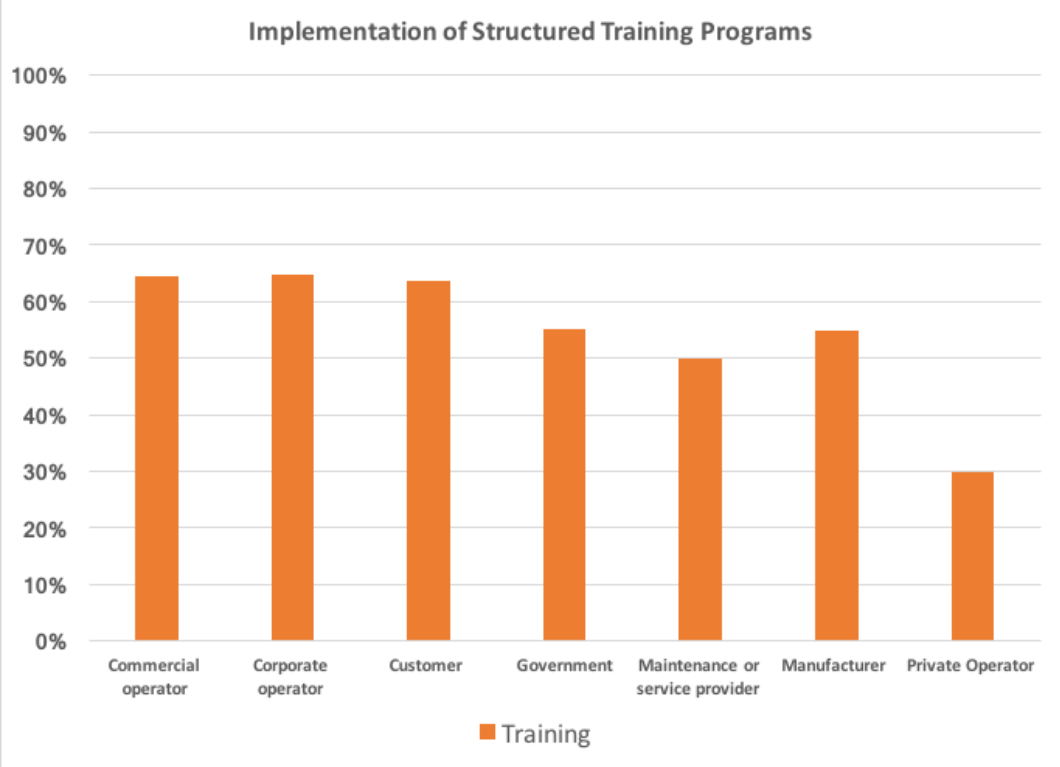
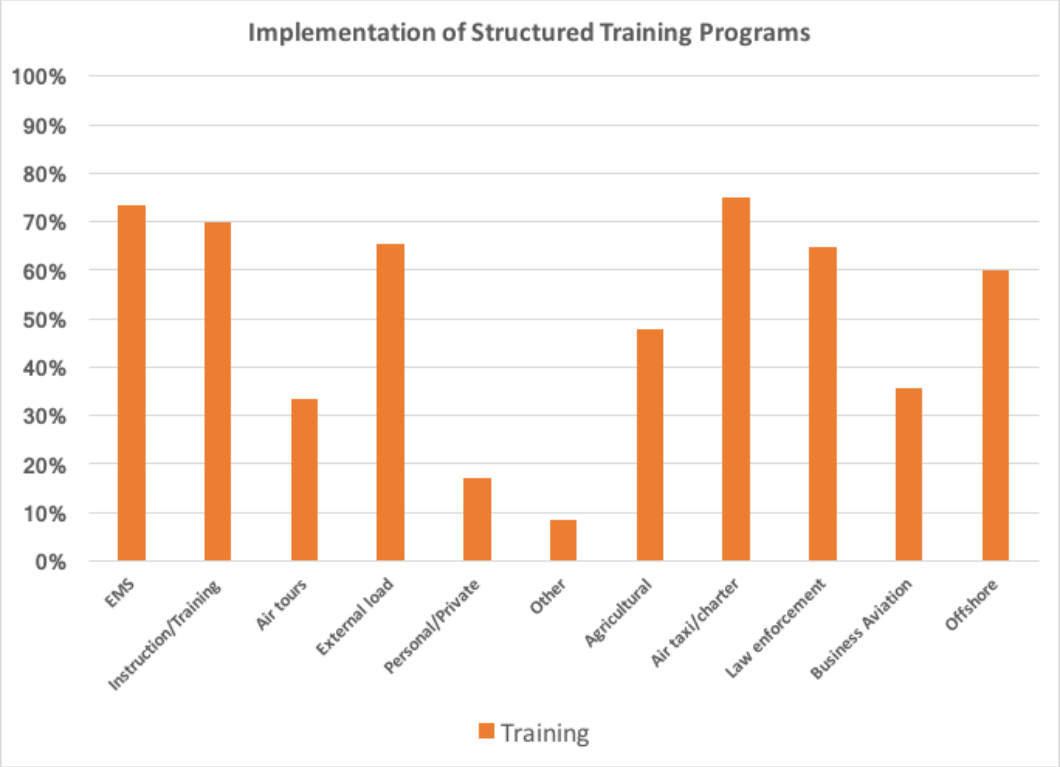


As stated in last year's report, structured programs for initial and recurrent training, often competence based, are more prevalent amongst the global operators supporting the oil & gas industry. The aforementioned IOGP Aircraft Management Guidelines include a description of competency based training programs. The IHST's free training toolkit, based on lessons learned from accident analyses, (http://www.ihst.org/portals/54/2009_Training_Toolkit_Final.pdf) offers guidance for all helicopter operators to develop and maintain effective training programs.

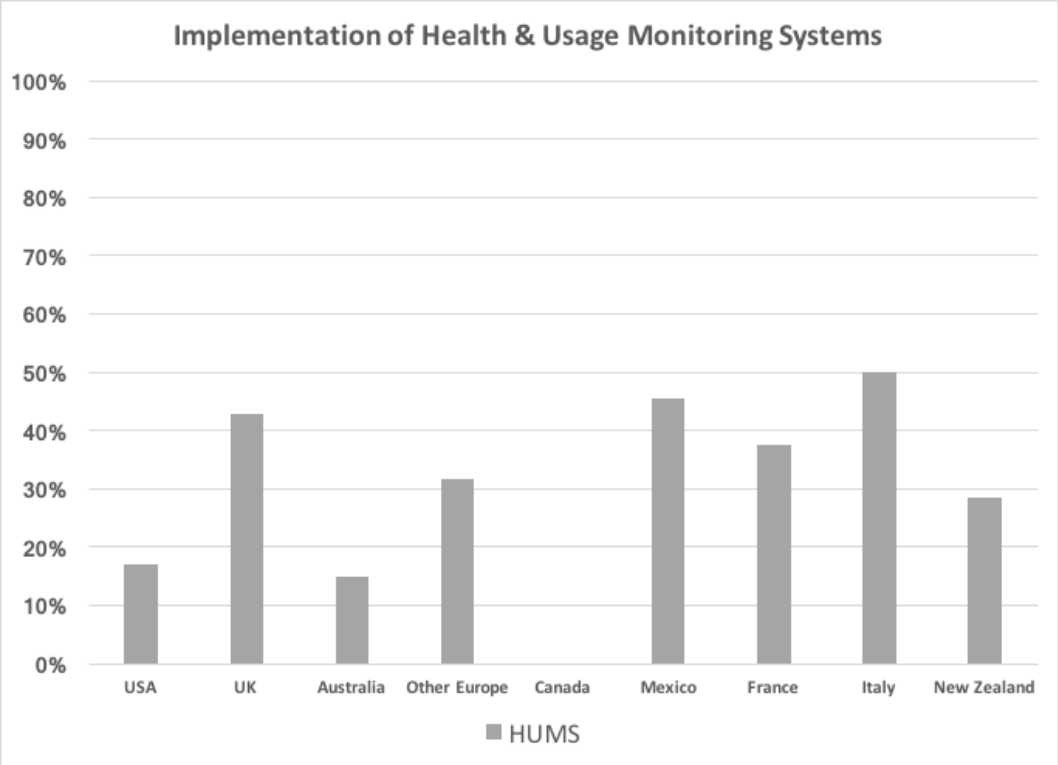


The charts below show the survey results for training by type of operation and then by use.

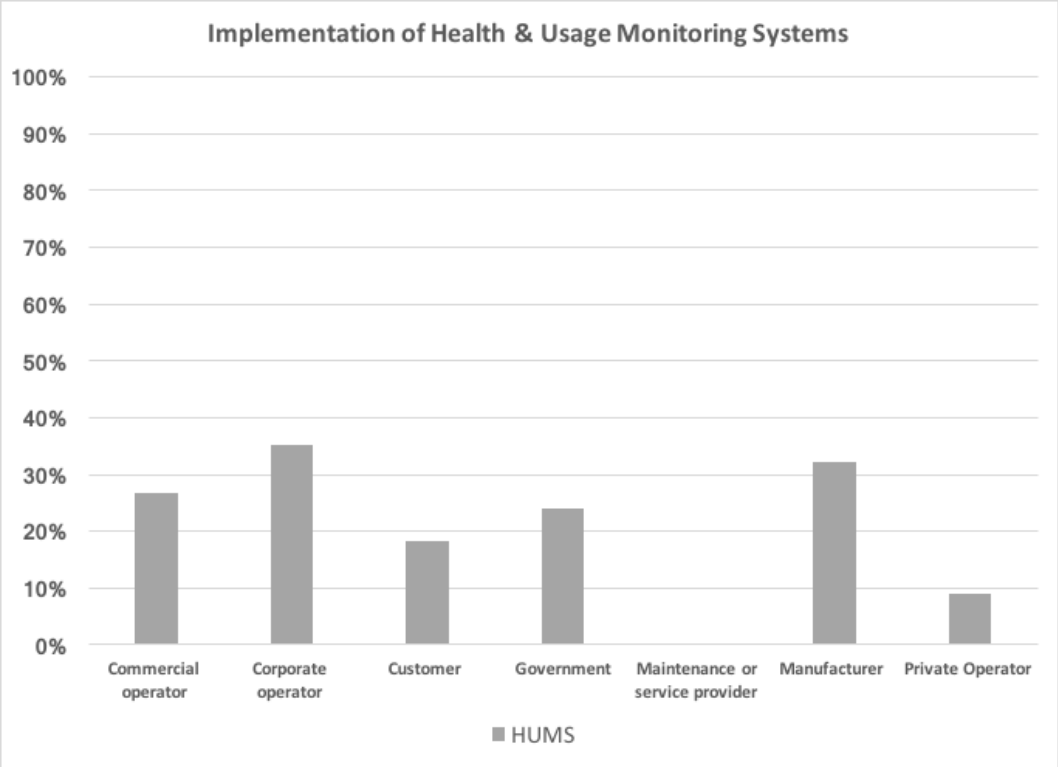




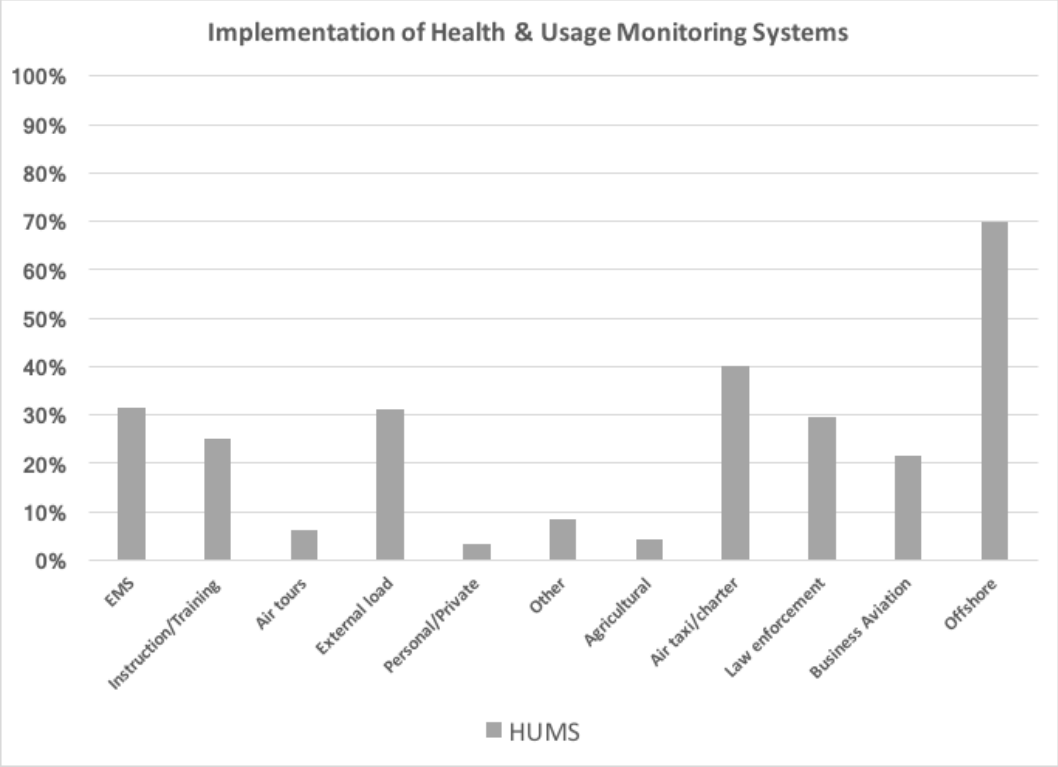
As seen in 2015, the use of health & usage monitoring systems (HUMS) is still relatively low everywhere.



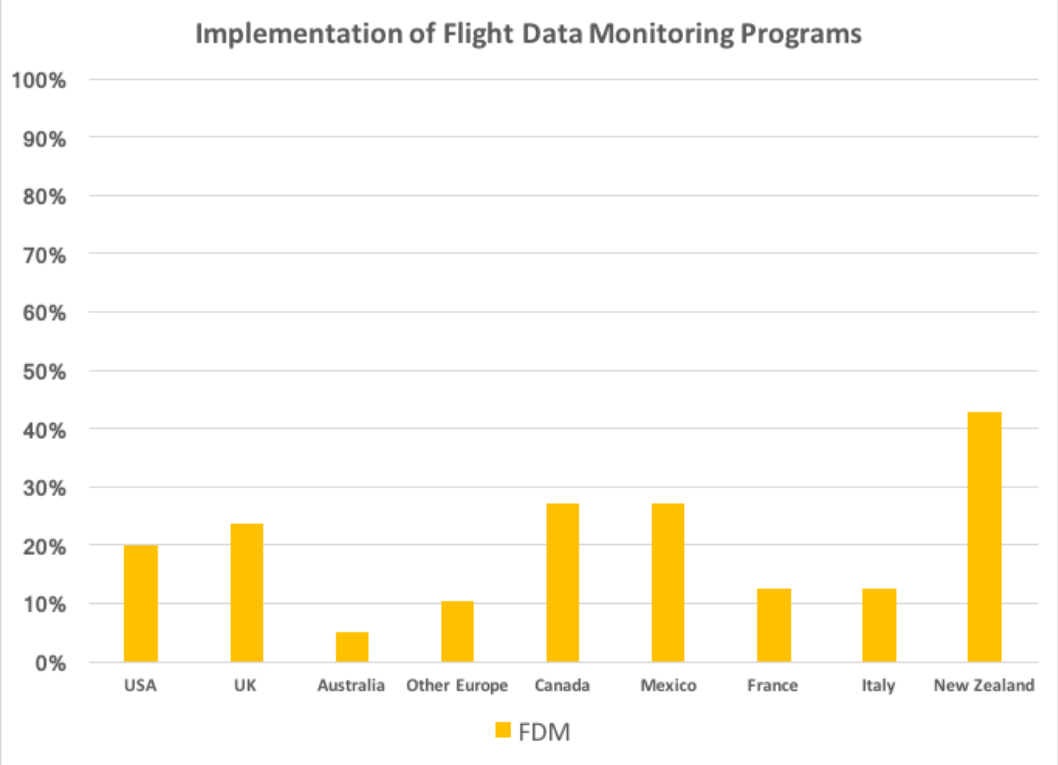
When we sort those results by stakeholder group (organization type) we find the interesting result that none of the six survey participants from the maintenance and service industry sector said they use HUMS. Three of the six survey participants were from Canada, the USA and Mexico – two were from Europe and one from Russia. Though six is hardly a statistically significant sampling of the many companies in the helicopter maintenance and service business, it is surprising to see that none of those who responded to this survey use HUMS. Experience in companies that do use HUMS as an integral part of their maintenance programs shows that these six survey respondents appear to be missing out on a well-established best practice for maintenance. To learn more about how to implement HUMS, see the IHST maintenance toolkit and the HUMS toolkit available for free download at http://www.ihst.org/Default.aspx?tabid=3050&language=en-US.



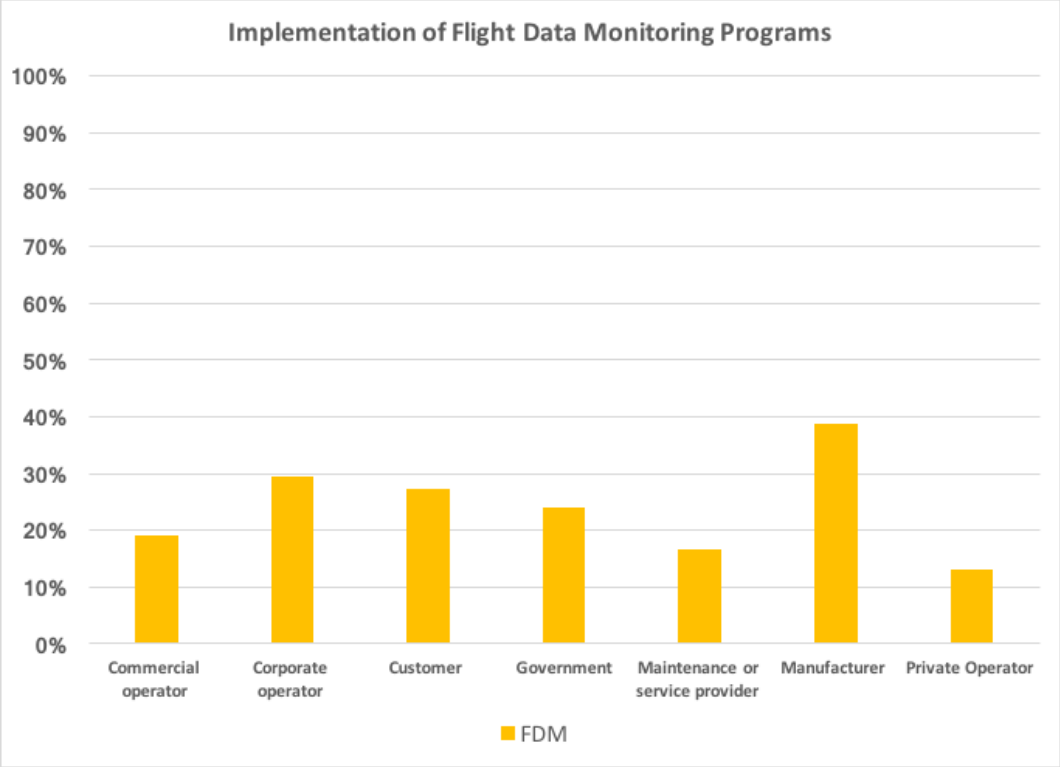
When we sort the results by helicopter use, we find the highest levels of HUMS implementation in offshore where the oil & gas industry sponsored HUMS development in the late 90s and many oil & gas companies have required it for more than 10 years.

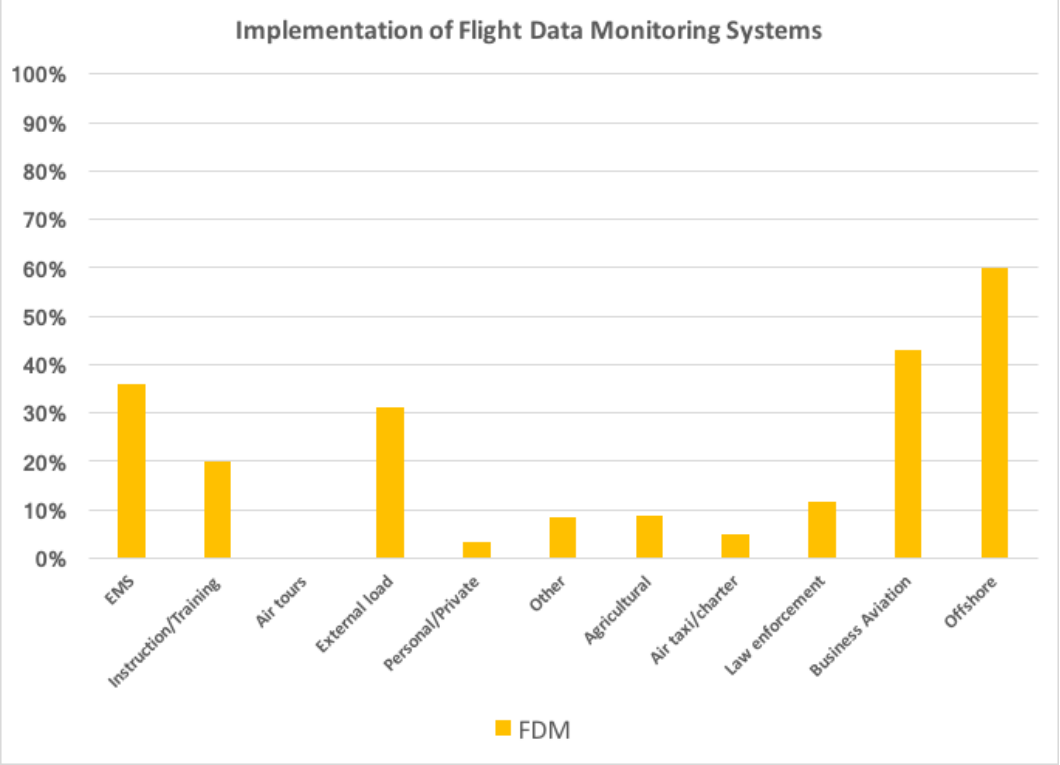


Turning to the use of flight data monitoring programs, we also find relatively low implementation.



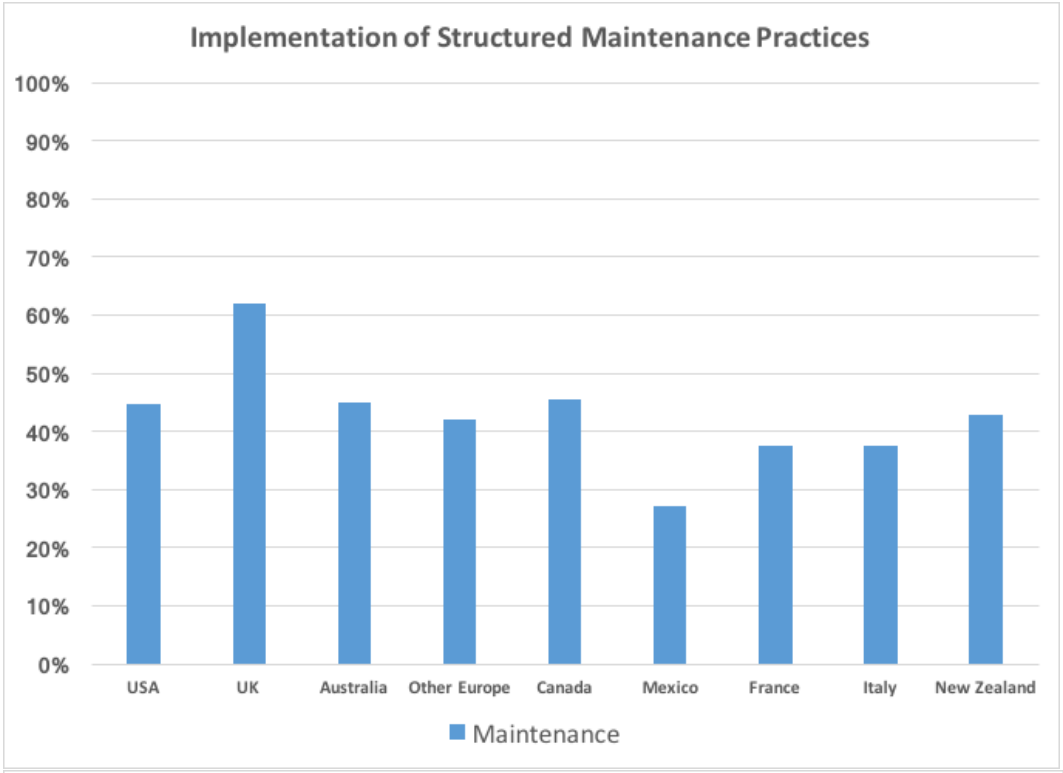
Perhaps many operators are unaware of the low-cost technologies available for FDM. A list of such resources is given in Appendix B of the IHST's FDM toolkit, available for free download at http://www.ihst.org/portals/54/2011HFDM.pdf.

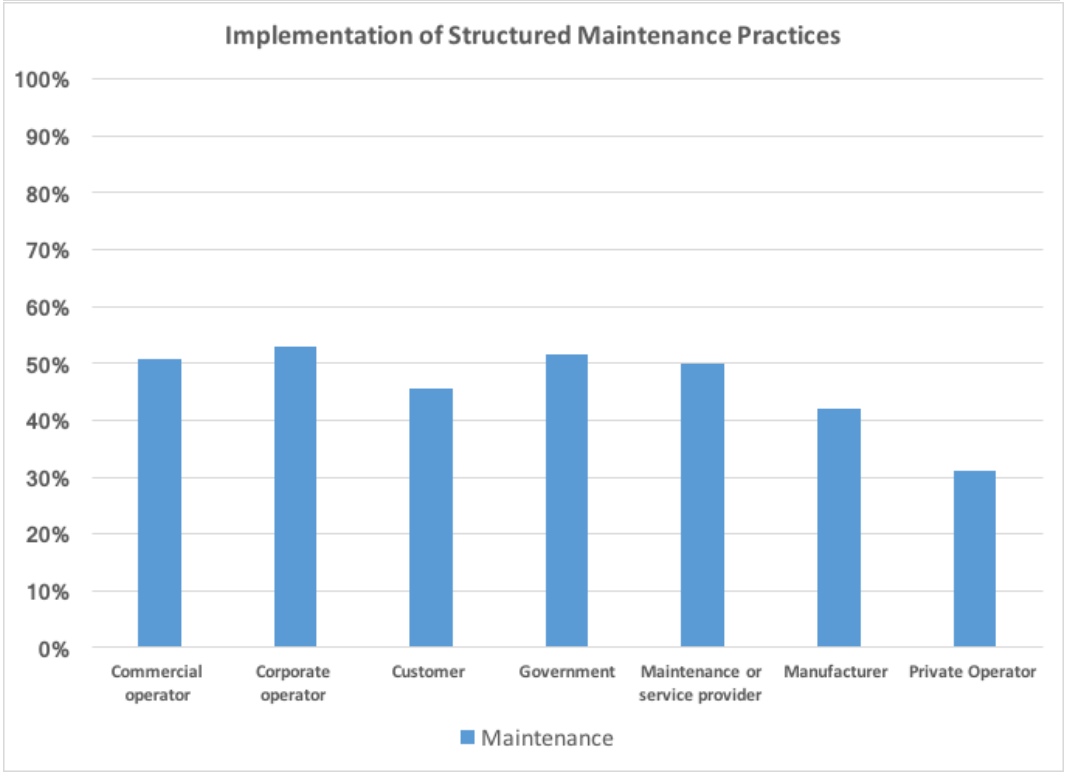




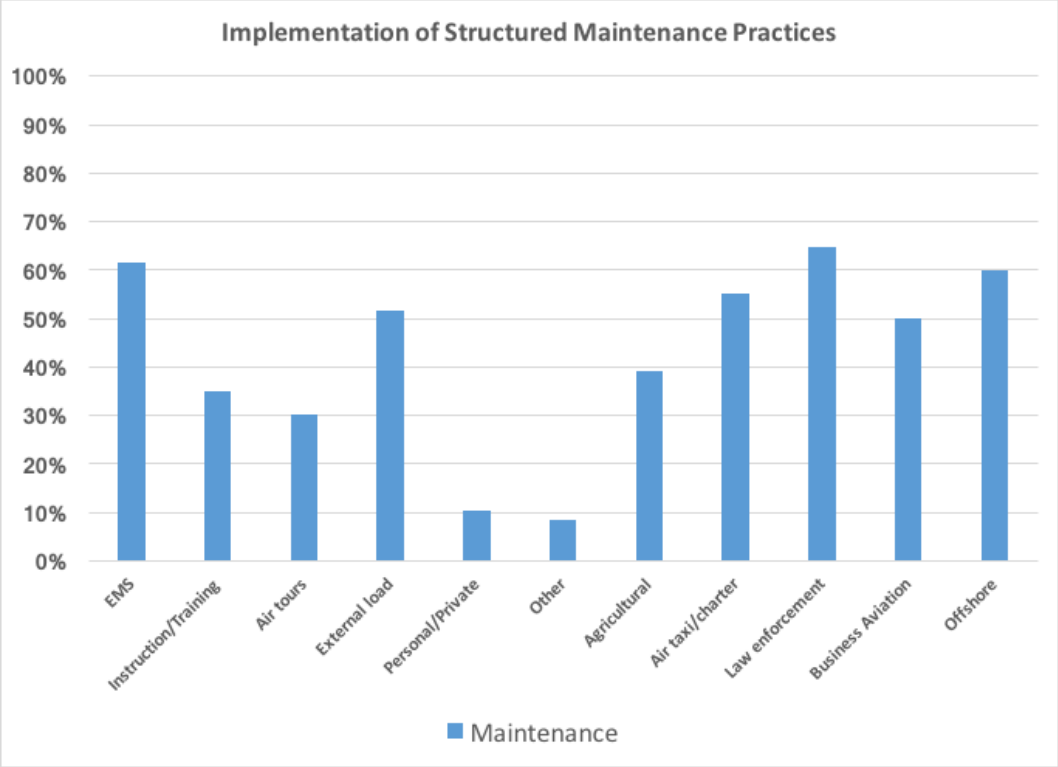
As seen in 2015, the offshore industry has the highest level of FDM implementation.

The use of structured programs to fully comply with manufacturers' recommended maintenance practices is more widespread than the use of HUMS or FDM, but not nearly universal as it should be.

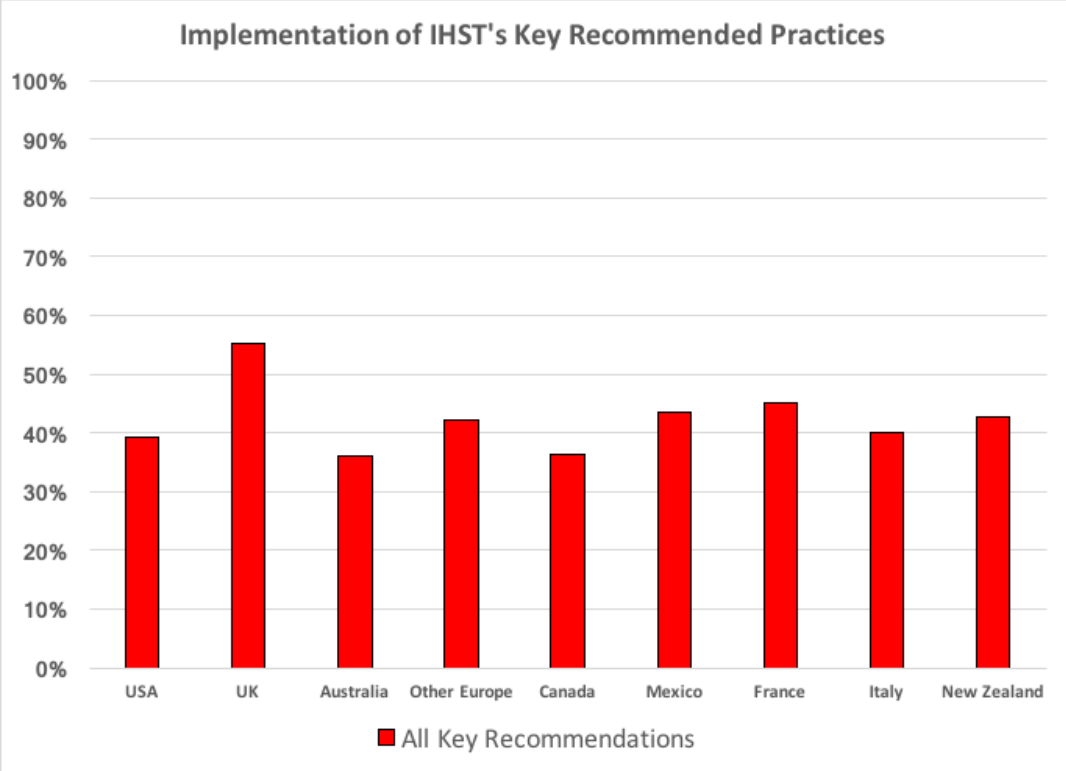


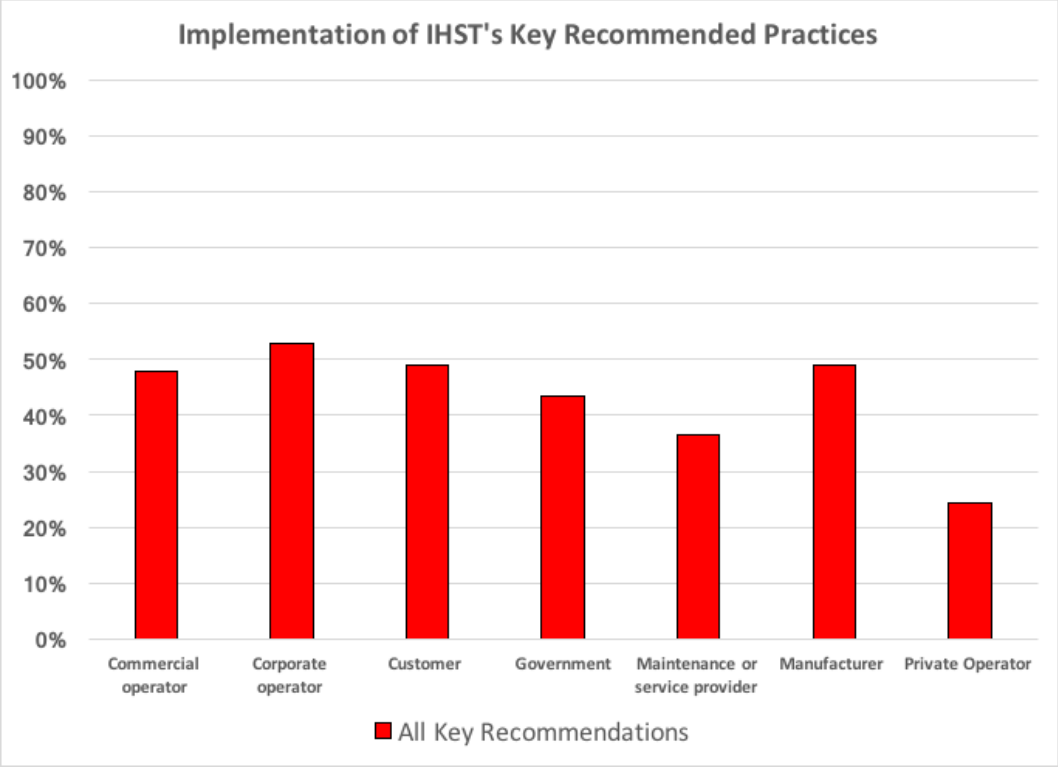


Here's the use of structured maintenance programs when sorting the responses by helicopter use. Those using helicopters for personal/private or "other" have the most to gain. The IHST's free maintenance toolkit shows how http://www.ihst.org/LinkClick.aspx?fileticket=uhdMiyXCSCE=&tabid=1507&language=en-US.



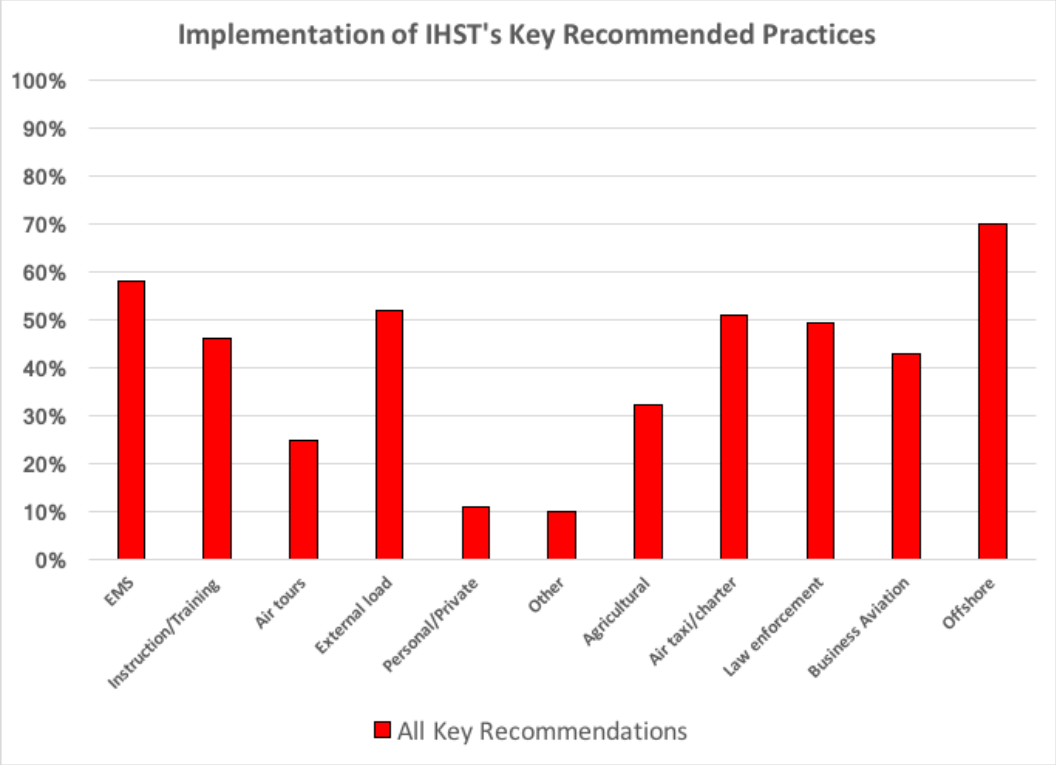
When we roll up results into a single, aggregate measure of the implementation of the IHST's key recommended practices, we see similar results as last year.





When we sort these results by type of operation, we see that offshore operations driven by oil & gas customer requirements had the highest level of implementation

of the IHST's key recommendations, while those using helicopters for personal/private or "other" purposes had the lowest.



As seen in last year's survey results, private operators using helicopters for personal use have the lowest level of implementation of the IHST's recommendations. This results correlates with the IHST's analysis showing that the personal/private operators have high accident rates. Hence, these operators have the most to gain from implementing the IHST's key recommendations.

Conversely, the results show that implementation is highest in the groups with the lowest accident rates, particularly the offshore helicopter operators. So, although correlation does not necessarily mean causation, it appears clear that the IHST's key recommendations are very effective in preventing helicopter accidents.

Another conclusion that may be drawn from this correlation is that customer awareness of and insistence on the use of best practices for safety can be as important as regulatory support. The challenge for those who share the IHST vision of zero accidents is to engage all those who use helicopters in reviewing the overwhelming evidence for these best practices:

1. Safety Management Systems (SMS)
2. Structured programs for initial and recurrent training
3. Mission-specific systems and equipment, including:
    a. Health & usage monitoring systems (HUMS)

    b. Flight data monitoring (FDM) programs
    c. Night vision goggles
    d. Wire strike protection
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The IHST Executive Committee has committed to redouble its efforts to get participation in a repeat of this survey in 2017. If you completed the survey in 2015, 2016 or both years, please do so again in 2017 so that we can build a growing base of annual status reports from helicopter industry stakeholders on their implementation of the key best practices recommended by the IHST.

Look for a relaunch of the IHST global safety survey around the time of Helicopter Association International's (HAI) Heli-Expo. Spread the word!

Appendix A
"Country of Operation" for Survey Participants

Country of Helicopter Operations		
Argentina	India	Qatar
Australia	Ireland	Romania
Austria	Italy	Russia
Belgium	Latvia	Saudi Arabia
Bhutan	Malaysia	Slovak Republic
Brazil	Mexico	Slovenia
Canada	Mexico + 24 LATAM countries	South Africa
Chile	Monaco	Spain
China	Nepal	Suriname
Denmark, Greenland	Netherlands	Switzerland
Europe	New Caledonia	Thailand
Finland	New Zealand	UK
France	Nicaragua	Uruaguay
Germany	Nigeria	USA
Guatemala	Norway	Zambia and Malawi