



HOMO SAPIENS, BULLIES AND CRM

**12th Pacific Australasian Crew Resource
Management Developers and
Facilitators Forum**

GOLD COAST

02-05 September 2019

Lex Rock Heemstra

PURPOSE OF CRM

- To influence the thought pattern of crews to ensure that human error is reduced to an absolute minimum, and if error is made, it is managed in such a way, that the outcome is inconsequential or negligible,
- To make the most effective and efficient decisions under the worst possible conditions,
- To identify those resources which are valid and useful at the time of an abnormal, or normal event, to ensure a safe and efficient outcome, and
- To ensure that the human factors in the above processes are clearly understood.





D'OÙ VENONS NOUS QUE SOMMES NOUS OÙ ALLONS NOUS

- Where do we come from?
- What are we? (*Why are we here?*)
- Where are we going?

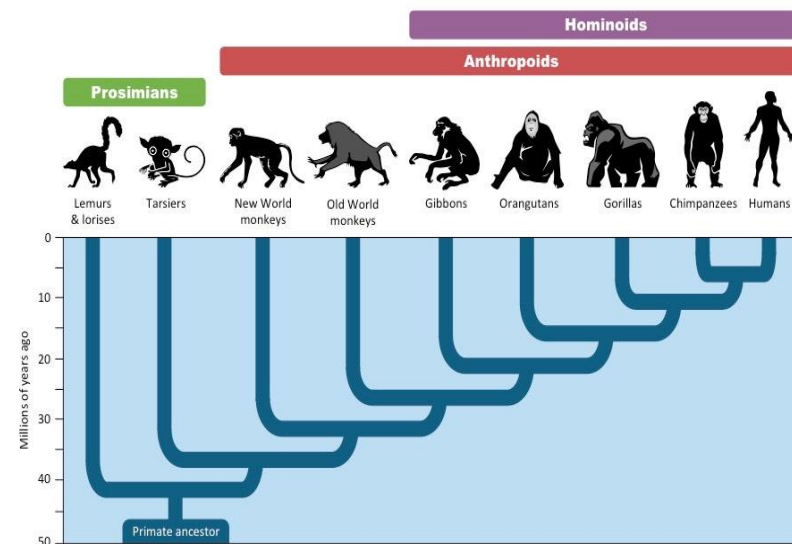
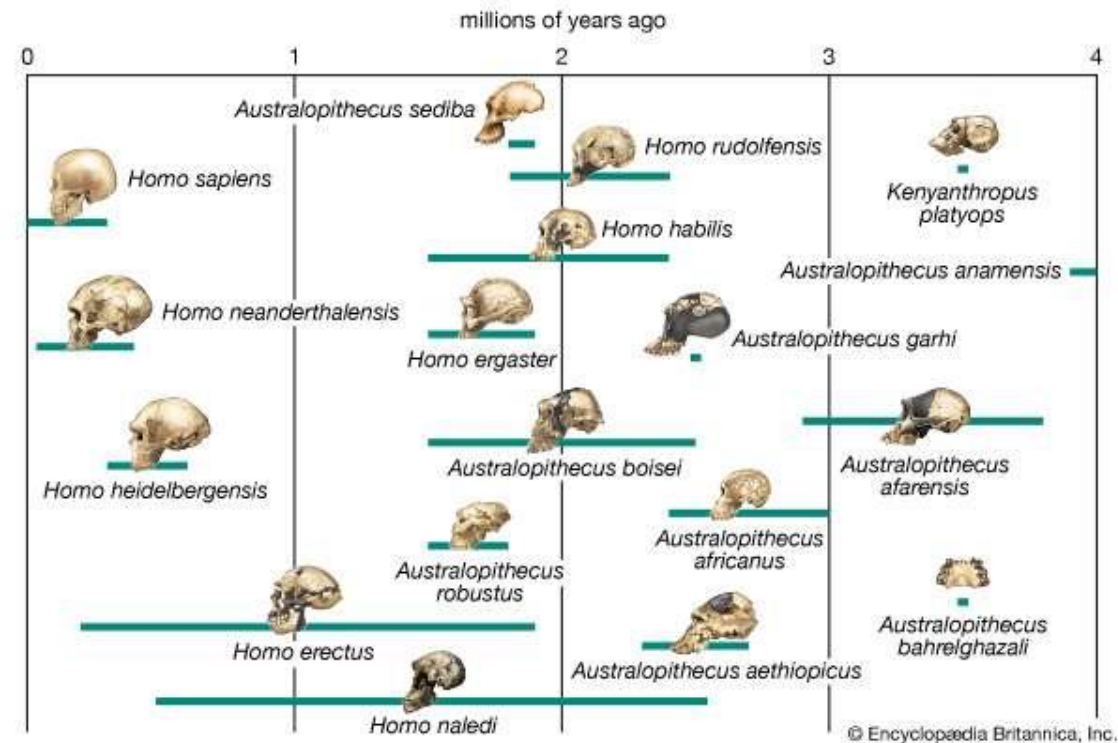
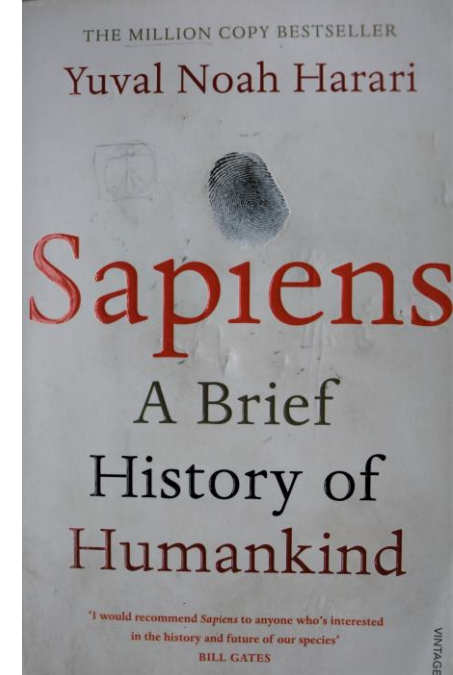
Paul Gauguin – French Artist

(1848-1903)



HOMO SAPIENS

- Homo Sapiens (the wise one) are between 300 000 to 400 000 years old.
- Modern Homo Sapiens approx. 50 000BC
- The only human species for the last 10 000 years

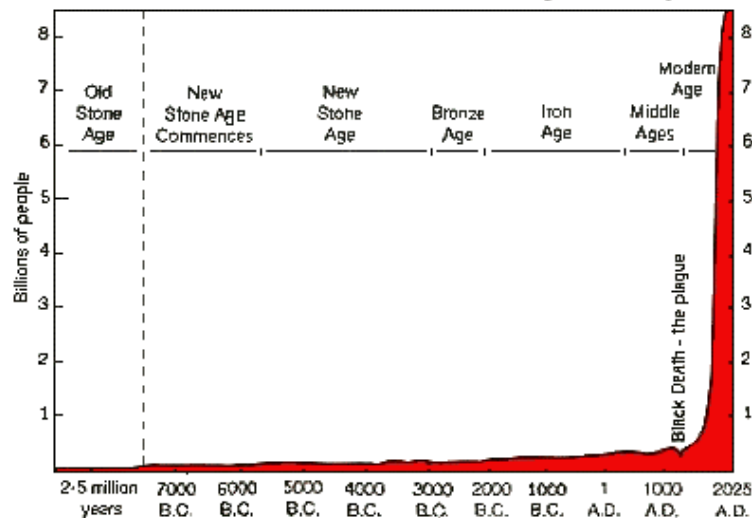


BREAKING DOWN OUR HOME



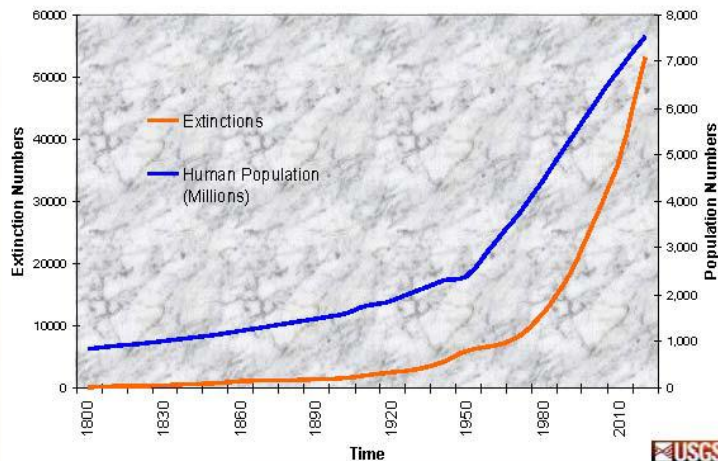
HOMO SAPIENS & FREE ROAMING ANIMALS

World Population Growth Through History



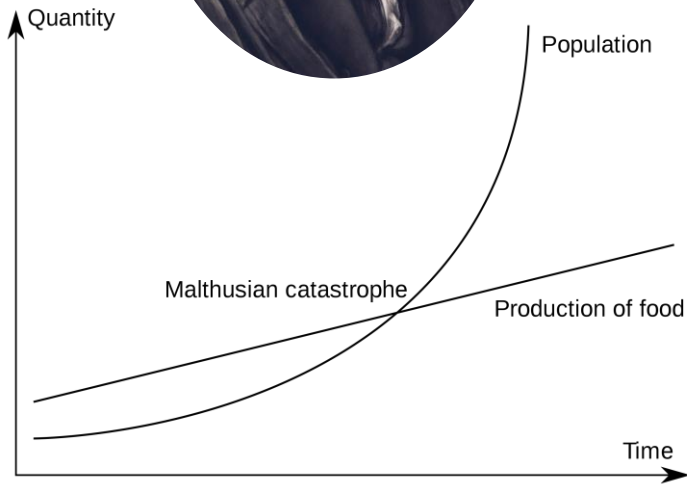
- Estimated Homo Sapiens reached 1 billion in 1804 and will reach 10 billion by 2025
- World population has more than doubled in the last 50 years.
 - 1969 – 3,616 billion
 - 2019 – 7,795 billion
- Managed to overcome war, famine and plagues
- Today, Homo Sapiens and their pets equal 98% of the bio mass
- 60% of free-living animals extinct in the last 50 years (Sir David Attenborough)
- We produce food for 10,3 billion on a daily basis
- No more agricultural famines – only political famines.

Species Extinction and Human Population

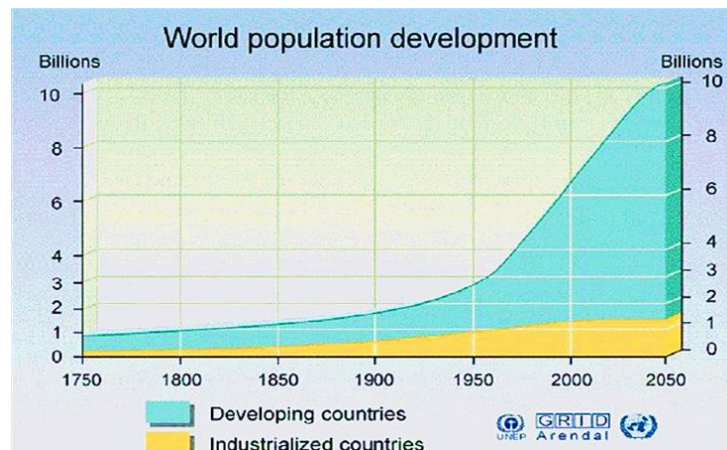




MALTHUSIAN PRINCIPLE

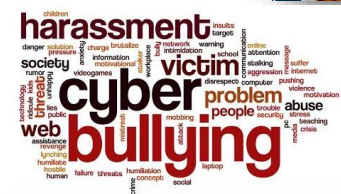
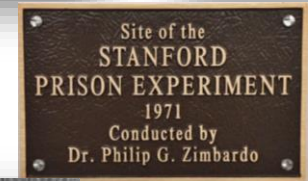
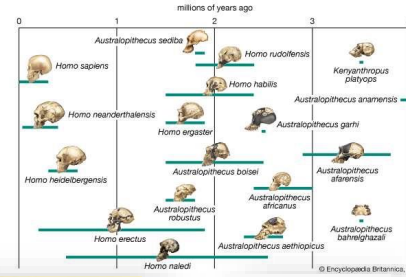


- Thomas Robert **Malthus**, an English cleric, and scholar, published this **theory** in his 1798 writings, *An Essay on the Principle of Population*.
- In short, the provision of additional food to people, did not result in them raising their standard of living, but did increase the population growth, which ultimately resulted in a food shortage again.
- At the time of his writing, it is estimated that the world population reached one billion for the first time in 1804.
- Charles Darwin on Malthus – unintended consequences of providing charity to the poor = increased population (*On the Origin of Species* – 1859)

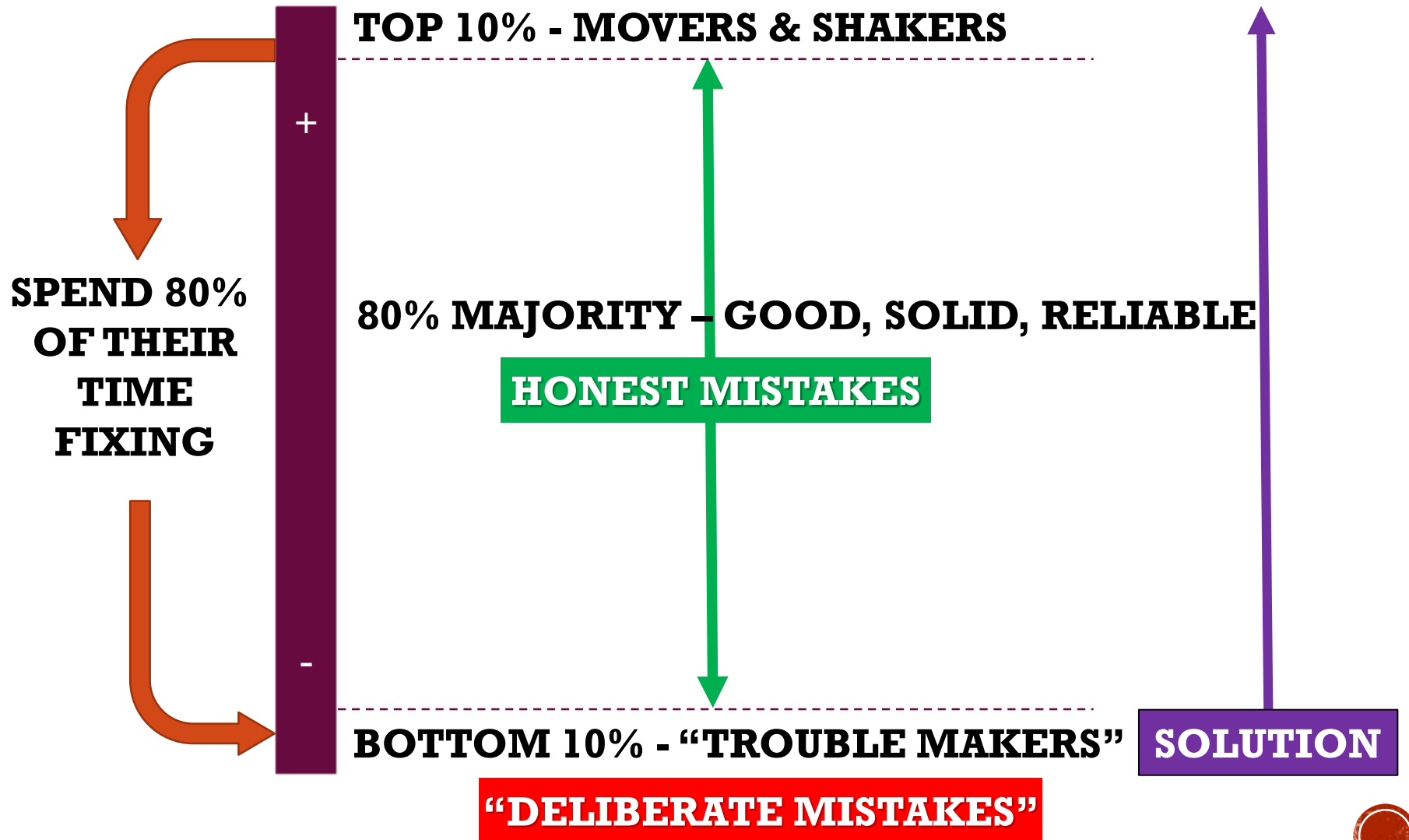


HOMO SAPIENS AS BULLIES

- For an act to be considered bullying it must meet certain criteria. This includes hostile intent, imbalance of power, repetition, distress, and provocation.
- Deprived, shifted or killed other Human species (Yuri Harari)
- Creation of beliefs, myths, legends, religions to understand their existence.
- Imposing beliefs on others – e.g. Tasmania 1824 - 1876
- Kapo's in the concentration camps
- Stanford Prison Experiment – left to own device
- Stanley Milligram – electrically shocking disobedience – 2/3 Max
- Children bullying at school (1 in 4 children) – who teaches them?
- Cyber Bullying on the increase
- Hollywood and Science Fiction: If aliens visit us – they will destroy us



SOURCE OF RULES



YURVAL HARARI — AFTERWORD TO SAPIENS - 2011

- Seventy thousand years ago, Homo sapiens was still an insignificant animal minding its own business in a corner of Africa. In the following millennia, it transformed itself into the master of the entire planet and the terror of the ecosystem. Today it stands on the verge of becoming a god, poised to acquire not only eternal youth, but also the divine abilities of creation and destruction.
- Unfortunately, the sapiens regime on earth has so far produced little that we can be proud of. We have mastered our surroundings, increased food production, built cities, established empires and created far flung trade networks. But did we increase the amount of suffering in the world? Time and again, massive increases in human power did not necessarily improve the well-being of individual Sapiens, and usually caused immense misery to other animals.
- In the last few decades we have at last made some real progress as far as the human condition is concerned, with the reduction of famine, plague and war. Yet the situation of other animals is deteriorating more rapidly than ever before, and the improvement in the lot of humanity is too recent and fragile to be certain of.
- Moreover, despite the astonishing things that humans are capable of doing, we remain unsure of our goals and we seem to be as discontented as ever. We have advanced from canoes to galleys to steamships to space shuttles – but nobody knows where we are going.
- We are more powerful than before, but have very little idea what to do with all that power. Worse still, humans seem to be more irresponsible than ever. Self-made gods with only the laws of physics to keep us company, we are accountable to no one. We are consequently wreaking havoc on our fellow animals and on the surrounding ecosystem, seeking little more than our own comfort and amusement, yet never finding satisfaction.
- Is there anything more dangerous than dissatisfied and irresponsible gods who don't know what they want?



1969



84 Airline Hijackings
63 to Cuba



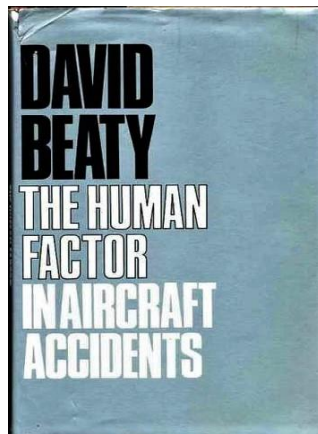
Rocky Marciano
Dies in a C172 – 20 August



15-18 August



Last flight of Valkyrie XB-70
– 04 February



B747 - 09 February



Concorde - 02 March
First Supersonic – 01 October



Tupolev Tu 144 (31 Dec 68)
– 1st Supersonic
Flight - 05 June



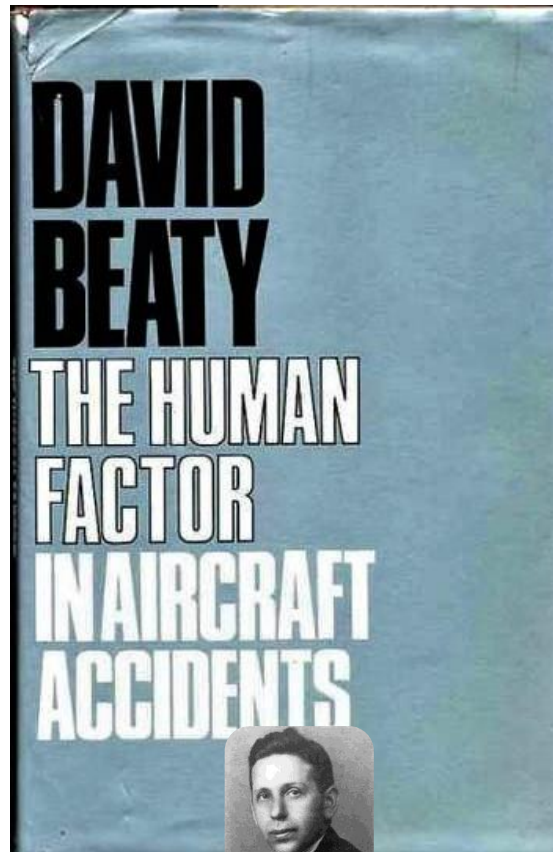
Apollo 11 - 20 July



DAVID BEATY — HUMAN FACTOR IN AIRCRAFT ACCIDENTS - 1969

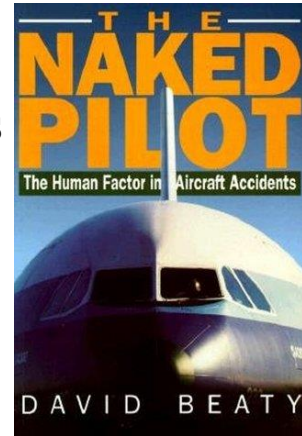


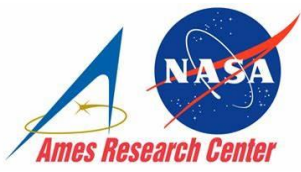
- Pilot Personality
- Pilot Life Style
- Pilot Selection
- Decision Making
- Human Factor traps in instrumentation
- Communication
- Checklists
- Captains Role
- Training Loopholes
- Visual Perceptions
- Selective Attention
- Attention Spans
- Disorientation



Abraham Wadd

- Psychological & Physiological Limitations
- Deception
- Sensory Illusions
- Expectation Set
- Fatigue
 - Mental
 - Physical
- Time Pressure
- Taking Shortcuts
- Conditioned Behaviour
- Stress & Mental Efficiency
- Desire to please
- Conformity
- Left hand vs Right Hand





BIRTH OF CRM



- Resource Management on the Flight Deck Workshop – San Francisco, California 26-28 June 1979



- John K. Lauber, Robert L Helmreich, Mike Garvey, Lee Bolman, Capt William Traub, Charles E. Billings, Pat Ruffel Smith, et al



- Advocacy & enquiry, social skills, communication skills, use of procedures, provision of tools to recognise discord, use of resources, LOFT – training, evaluation and/or selection? one approach does not fit all, all medicines have side effects, check the crew - not the pilot,



- Aimed at the bottom 15 – 20 %. There may be pilots who are not flexible enough to accept CRM

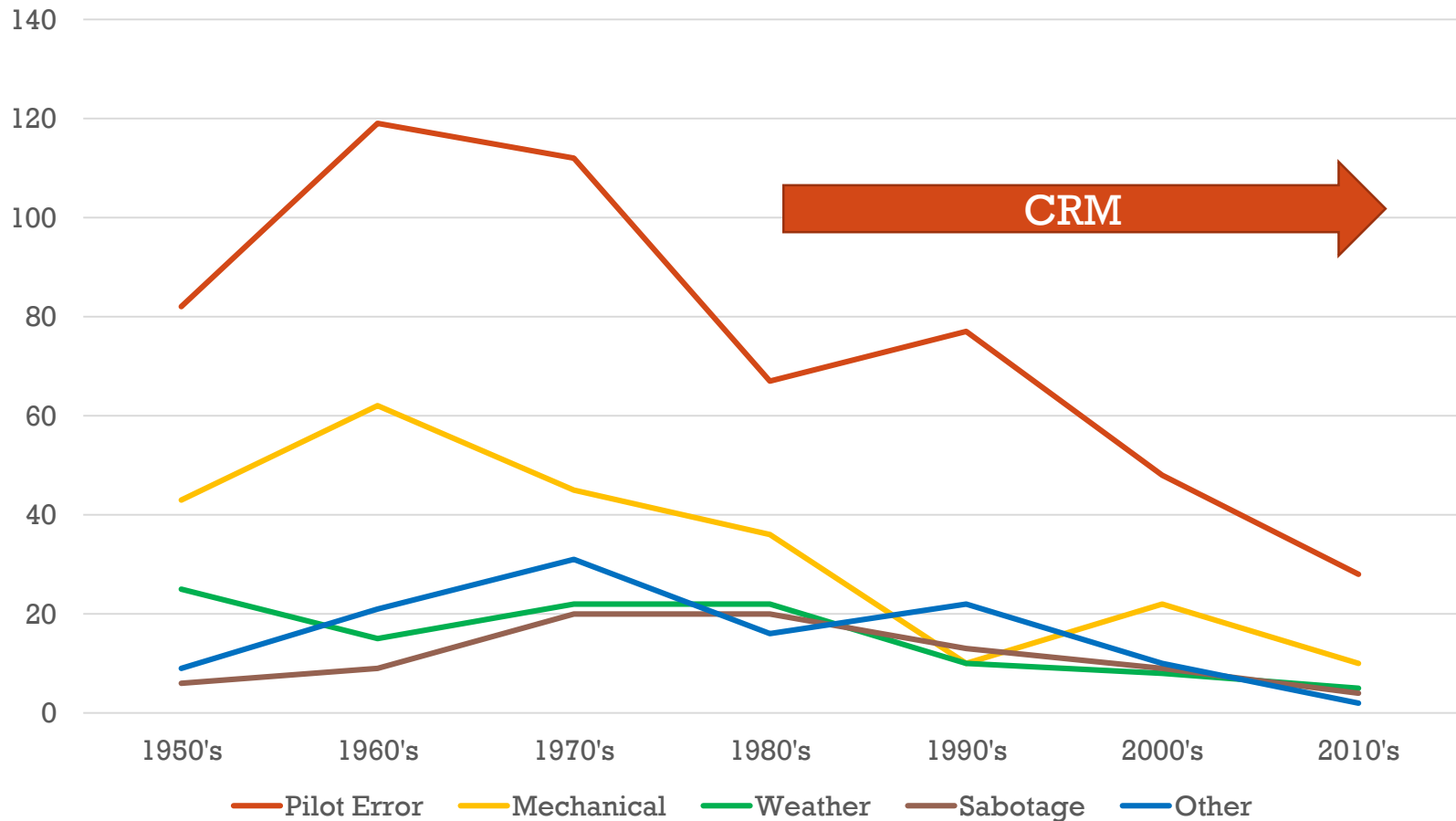
- You can't change personality – but you can change behaviour

- Command skills or social skills?



ACTUAL AIRLINE ACCIDENTS 1950'S TO 2010'S

AIRCRAFT WITH 19 OR MORE PAX - MILITARY, HELICOPTERS & PRIVATE AIRCRAFT EXCLUDED.
SOURCE: PLANECRASHINFO.COM AUG 2019

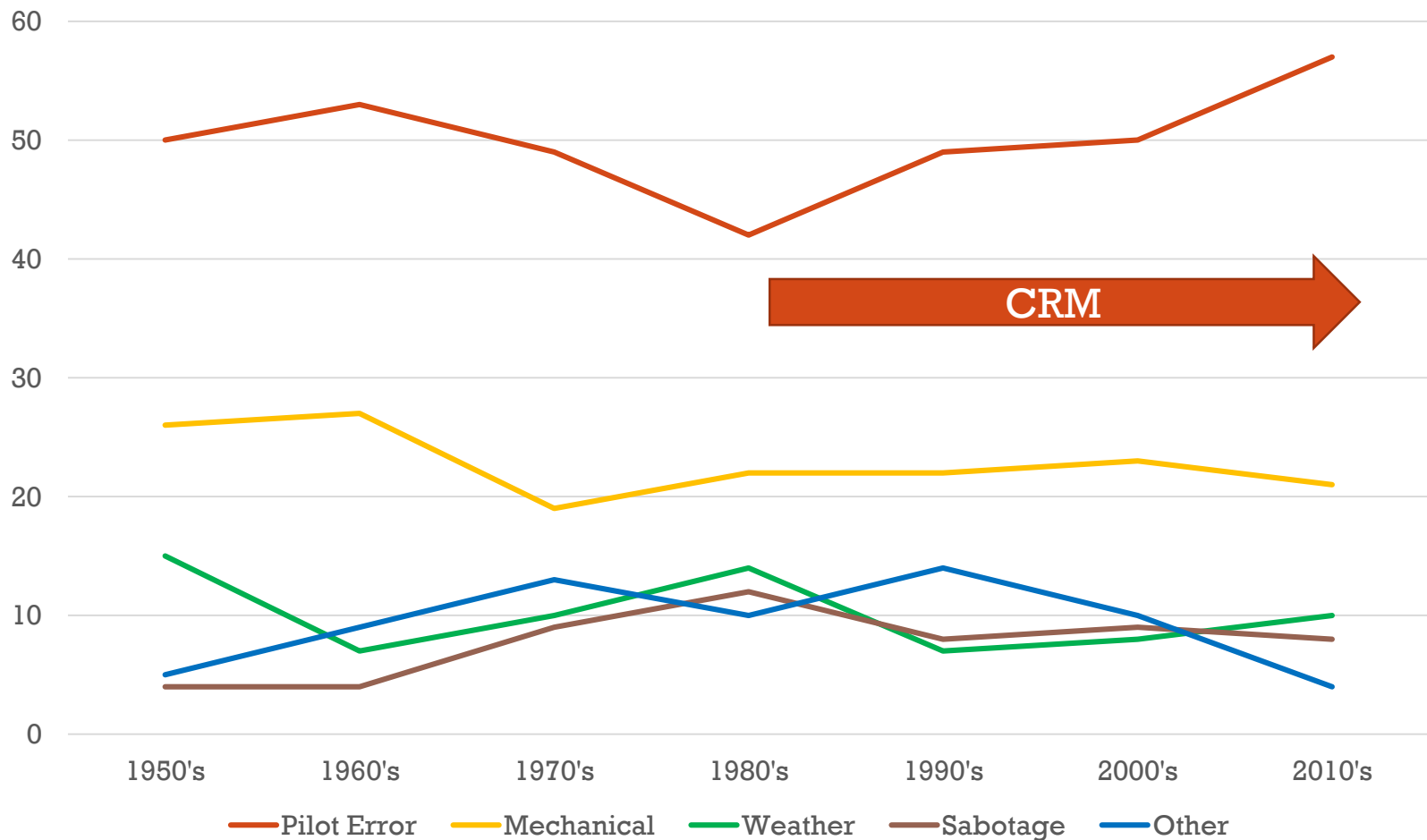


Pilot Error = Improper procedure, VFR into IFR, CFIT, Descended below minima, Spatial disorientation, premature descent, excessive landing speed, missed runway, fuel starvation, navigation error, wrong runway take off/landing & mid air collision caused by primary pilot



CAUSES OF AIRCRAFT ACCIDENTS 1950'S TO 2010'S - PERCENTAGE

SOURCE: PLANE CRASH INFO AUG 2019

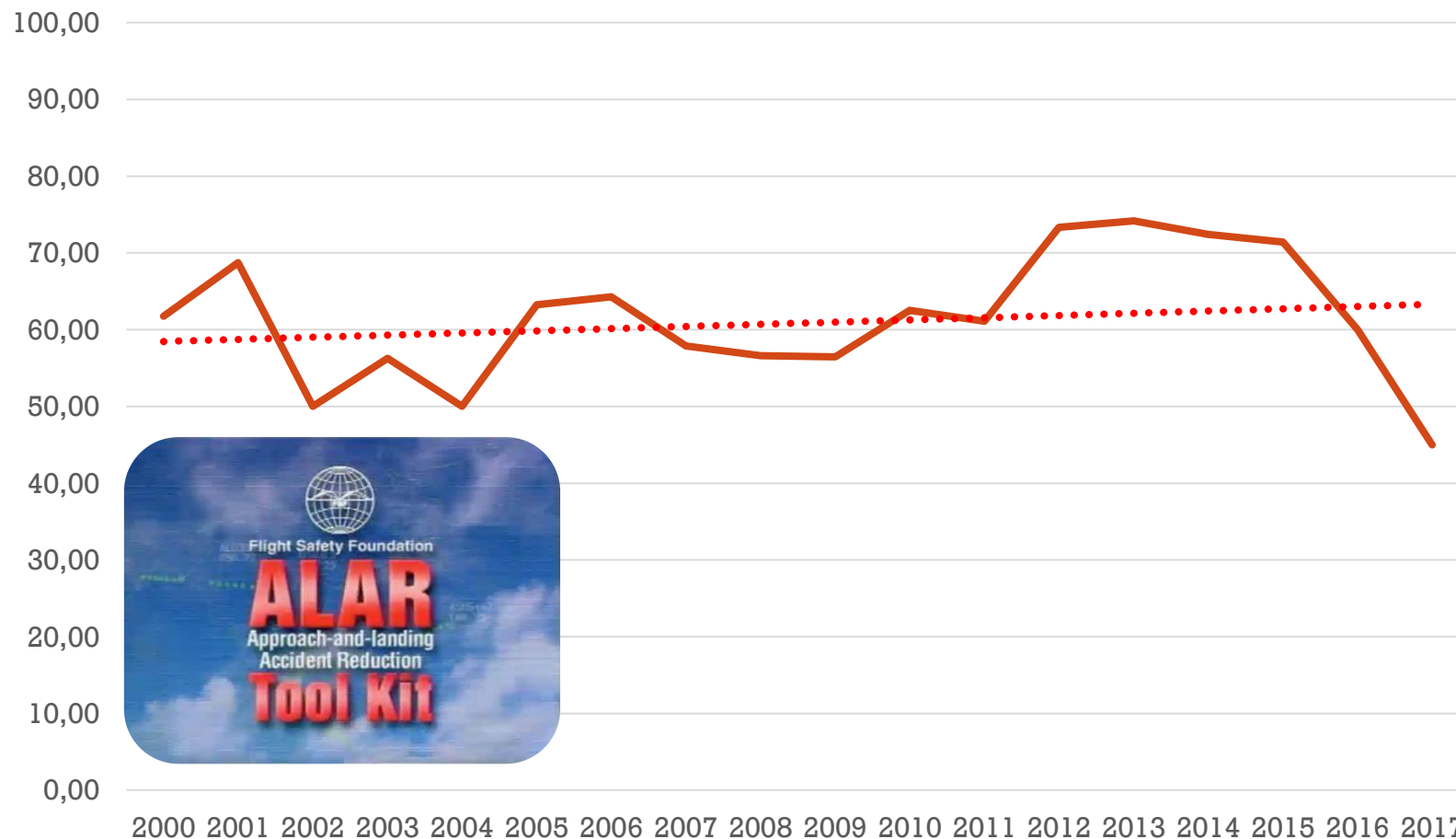


Other: ATC error, Ground crew error, overloaded, improperly loaded cargo, bird strike, fuel contamination, pilot incapacitation, Obstruction on runway, midair collision caused by other aircraft, fire/smoke in flight (cabin, cockpit, cargo hold), maintenance error



PERCENTAGE OF ALAR ACCIDENTS VS ALL ACCIDENTS ANNUALLY 2000-2017

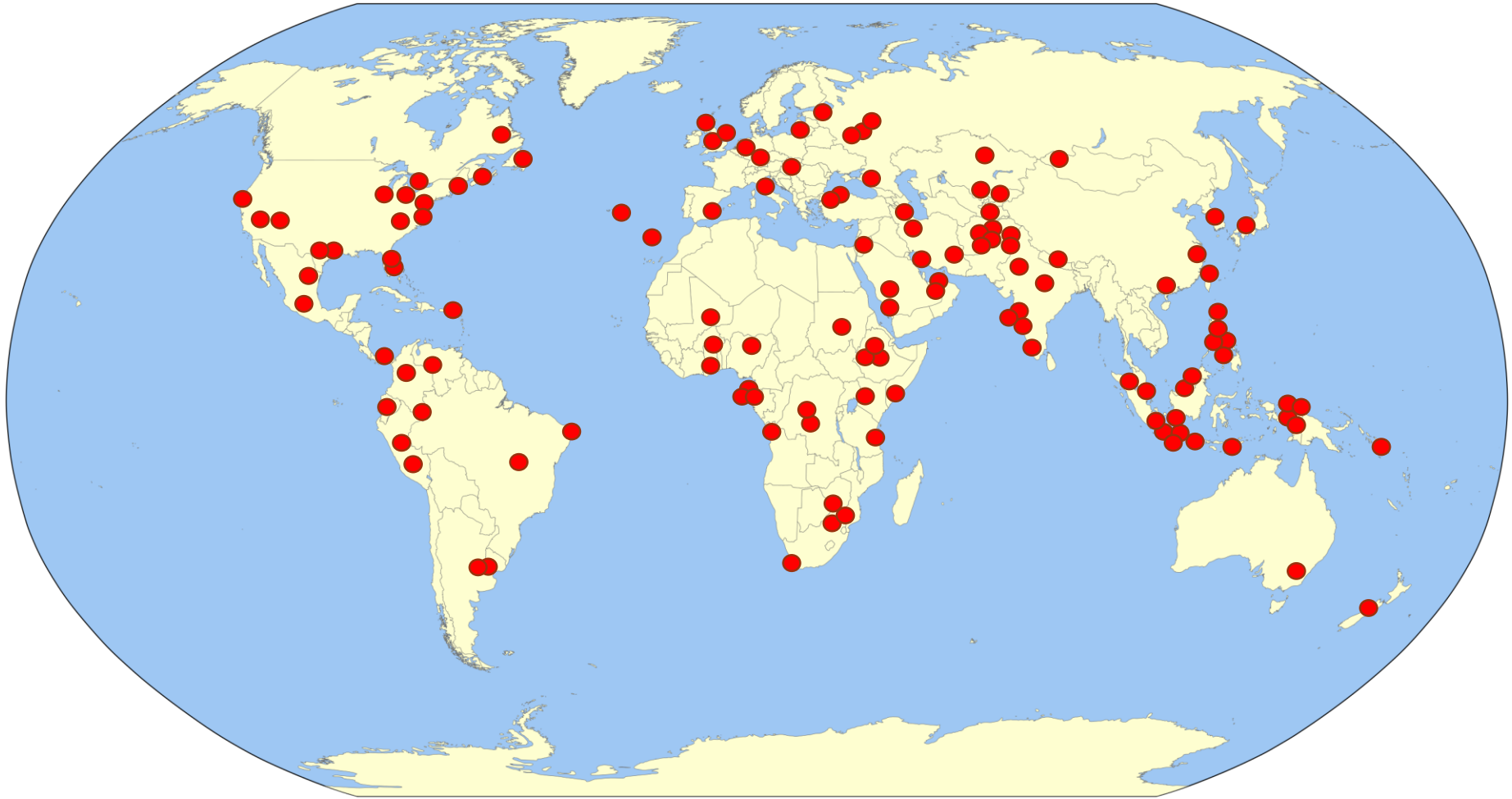
ONLY INCLUDES APPROACH AND LANDING — INITIAL APPROACH AND GO AROUNDS EXCLUDED



Source: Boeing Statsum 2000 to 2017



AIRLINE ACCIDENTS LOCATION 2013-2017



Source: Boeing Statsum 2013 - 2017



CRM SURVEY – JUNE 2019

- 98 Respondents
- 33 Countries
- 72 Operators



Flight Crew – 71%
Cabin Crew – 6%
ATC – 5%
Managers – 12%
Other – 6%

N = 55 x International, 9 x Regional, 4 x Domestic and 30 x other



RATIONALE BEHIND SURVEY

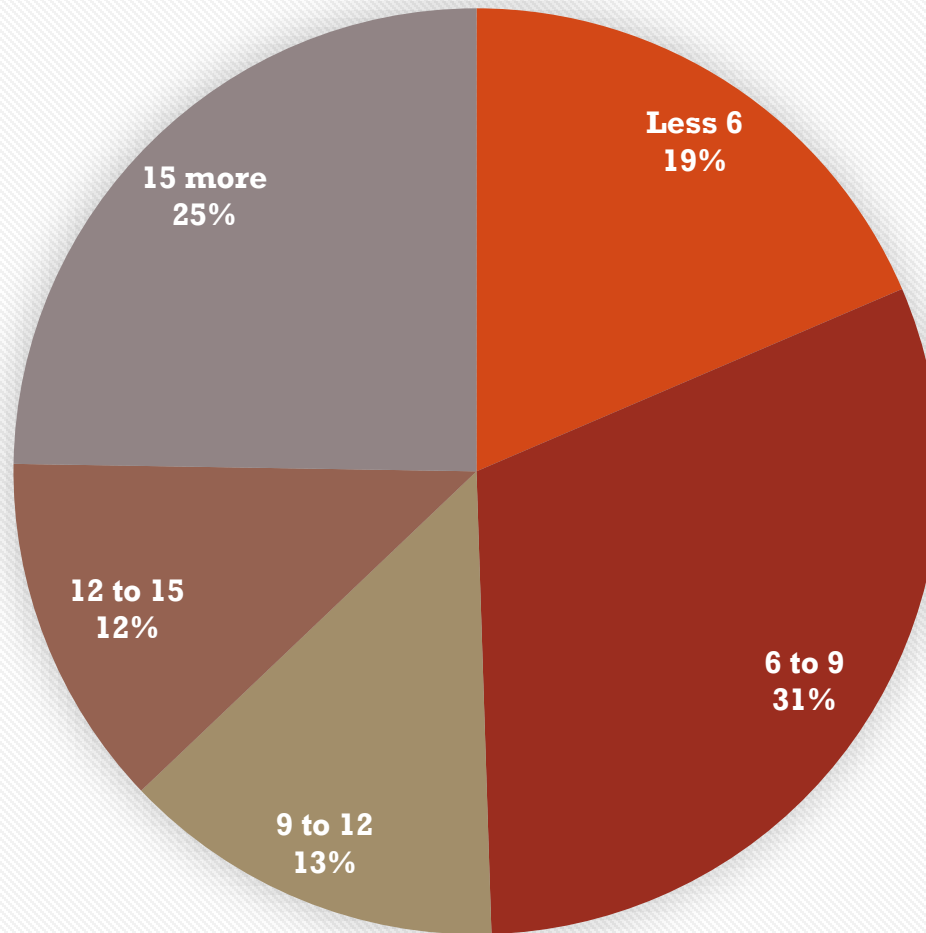


ICAO



- Due to standardised and highly regulated technical training, airline pilots are easily transferable from one airline to another with minimal conversion training.
- Dangerous Goods, SEP, Fire Fighting and First Aid training seem to be fairly standardised as well.
- All training regarding pilots and cabin crew should therefore be universal, and the skills and knowledge transferable.
- However, when pilots arrived for their initial CRM training, there was severe disparity amongst their overall CRM training in their respective countries and airlines.

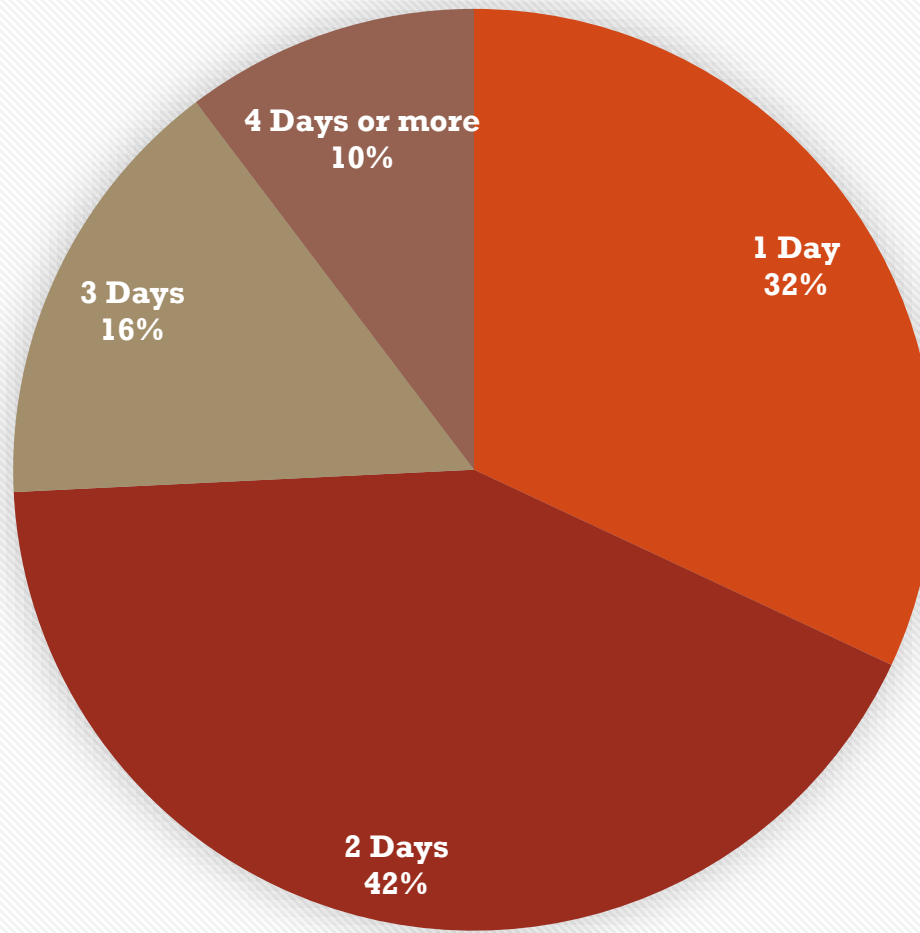
INITIAL CRM — HOURS ALLOCATED



■ Less 6 ■ 6 to 9 ■ 9 to 12 ■ 12 to 15 ■ 15 more



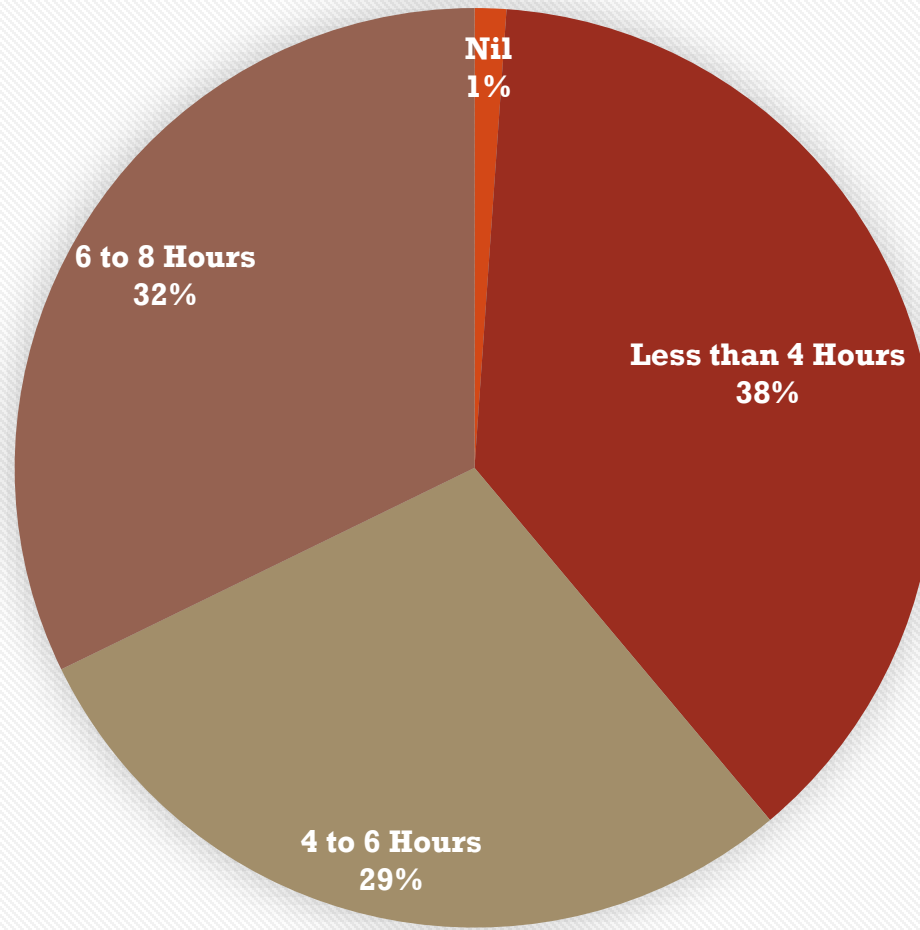
INITIAL CRM — DAYS ALLOCATED



■ 1 Day ■ 2 Days ■ 3 Days ■ 4 Days or more



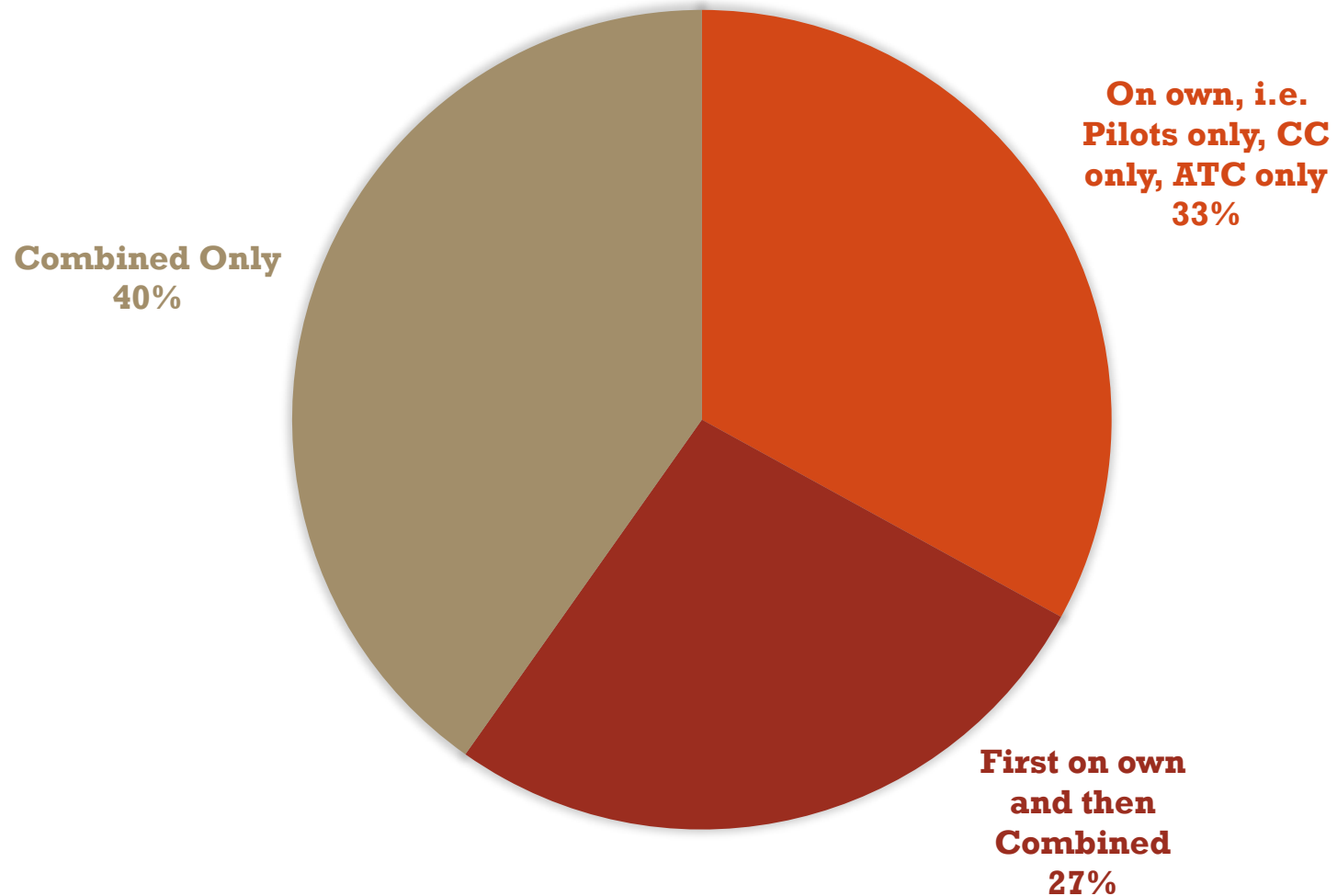
RECURRENT CRM – HOURS ALLOCATED



■ Nil ■ Less than 4 Hours ■ 4 to 6 Hours ■ 6 to 8 Hours



RECURRENT CRM DELIVERY



CRM GUIDANCE WORLDWIDE

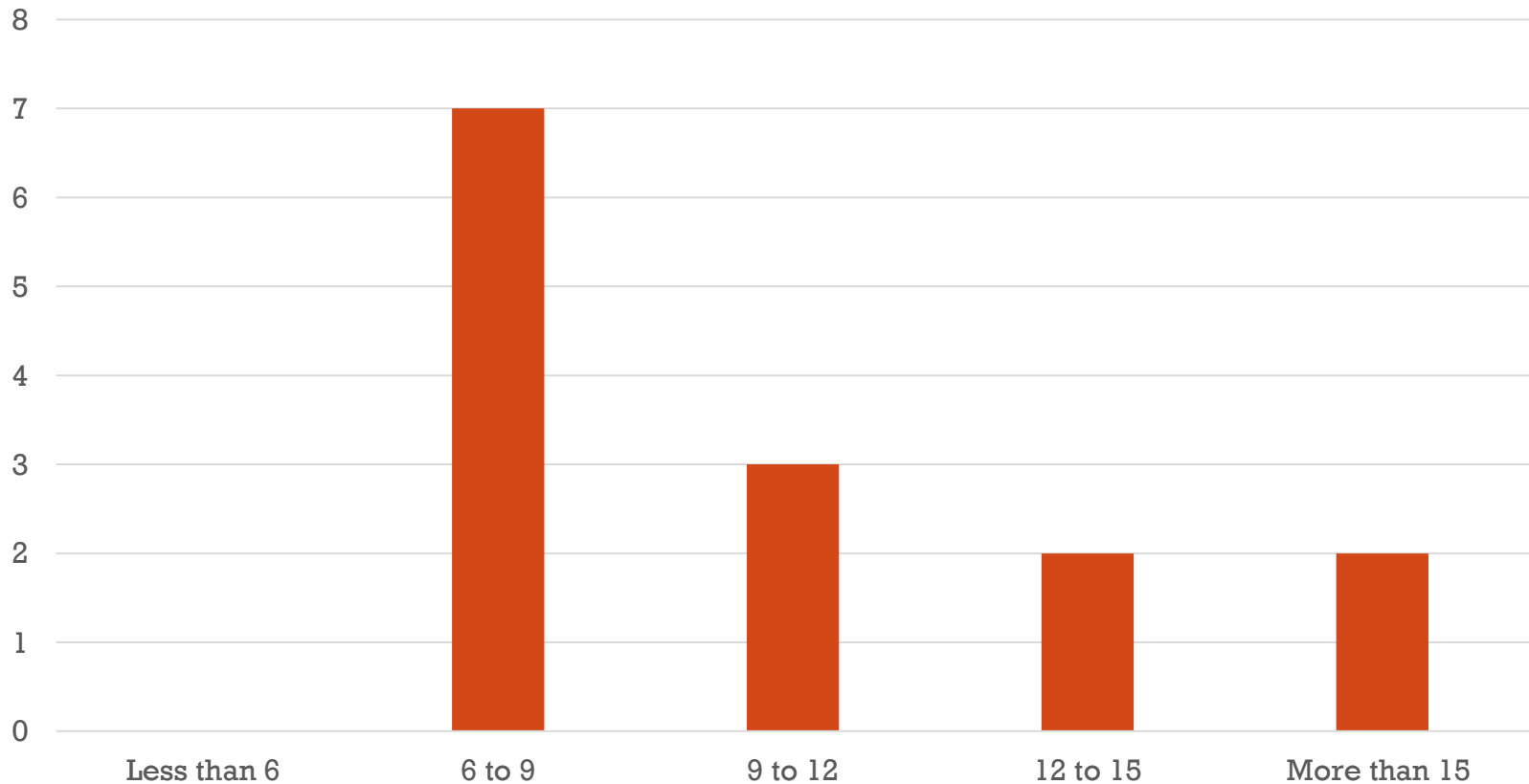
- FAA - AC 120-51E - Crew Resource Management Training – **2004**
 - No amount of days suggested
 - No hours per course suggested
- CASA – Australia – CAAP SMS-3(1) (**April 2011**) Approved on a case-to-case basis – “CRM is normally between one to three days”.
- CAA – New Zealand – AC 121-4 (**Dec 2013**) – Introductory HF/CRM “...normally conducted over 2 to 3 days”.
- UK CAA – CAP 737 - Crew Resource Management (CRM) Training – **November 2006** refer: GM3.oro.fc.115 (EASA)
- EASA - GM3 ORO.FC.115 (**March 2019**) Crew resource management (CRM) training – Multi Crew Minimum Training –18 hours with 12 hours classroom for Initial CRM.
 - **Previously - For multi-crew operations 3 days (24 hours), of which 2 days (16 hours) should be classroom training.**



SAMPLE OF EUROPEAN OPERATORS

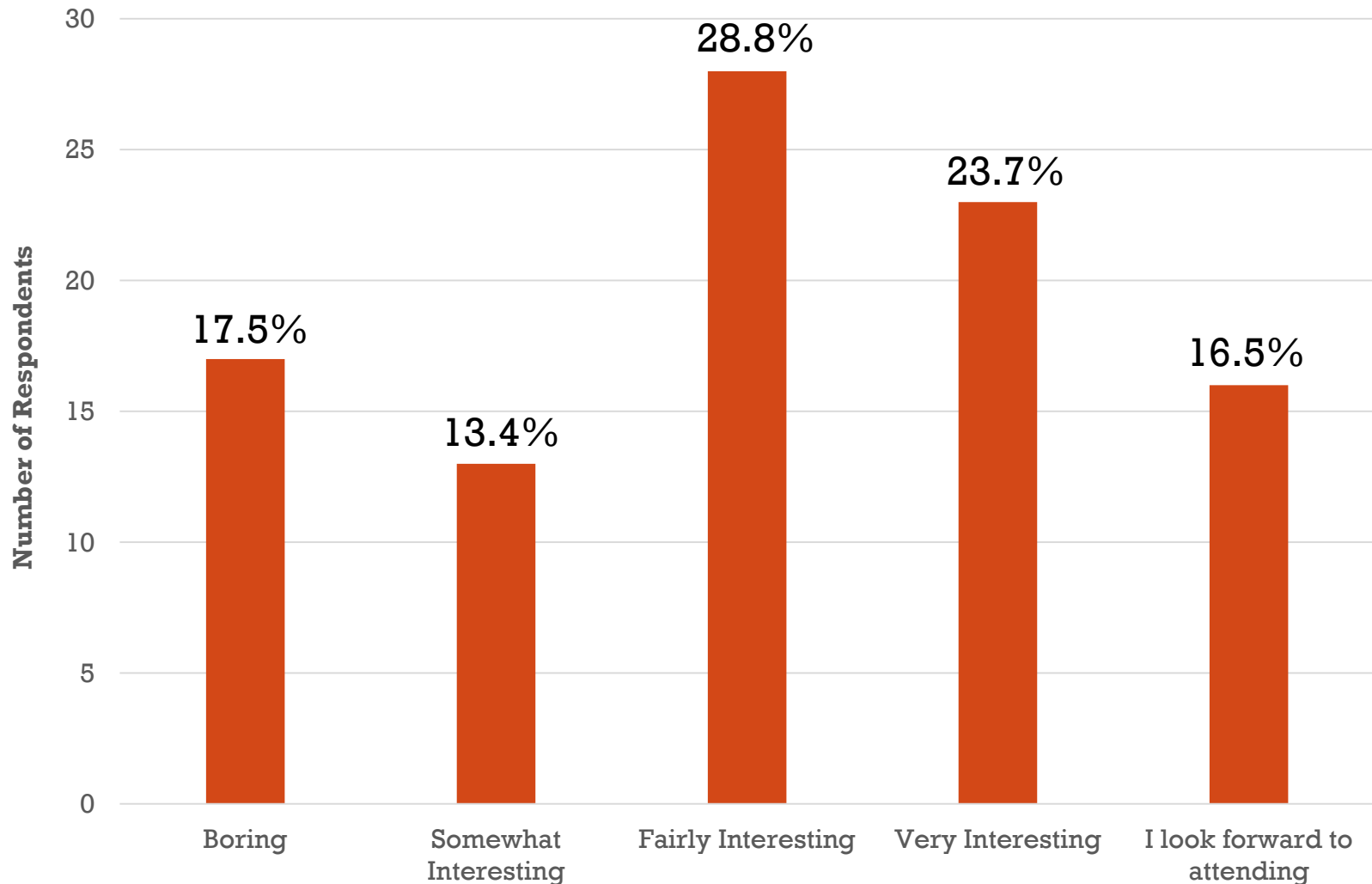
HOURS ALLOCATED TO INITIAL CRM

(14 X INTERNATIONAL CARRIERS FROM 9 COUNTRIES)



THE DELIVERY OF CRM COURSES ARE

N = 97 (33 COUNTRIES)

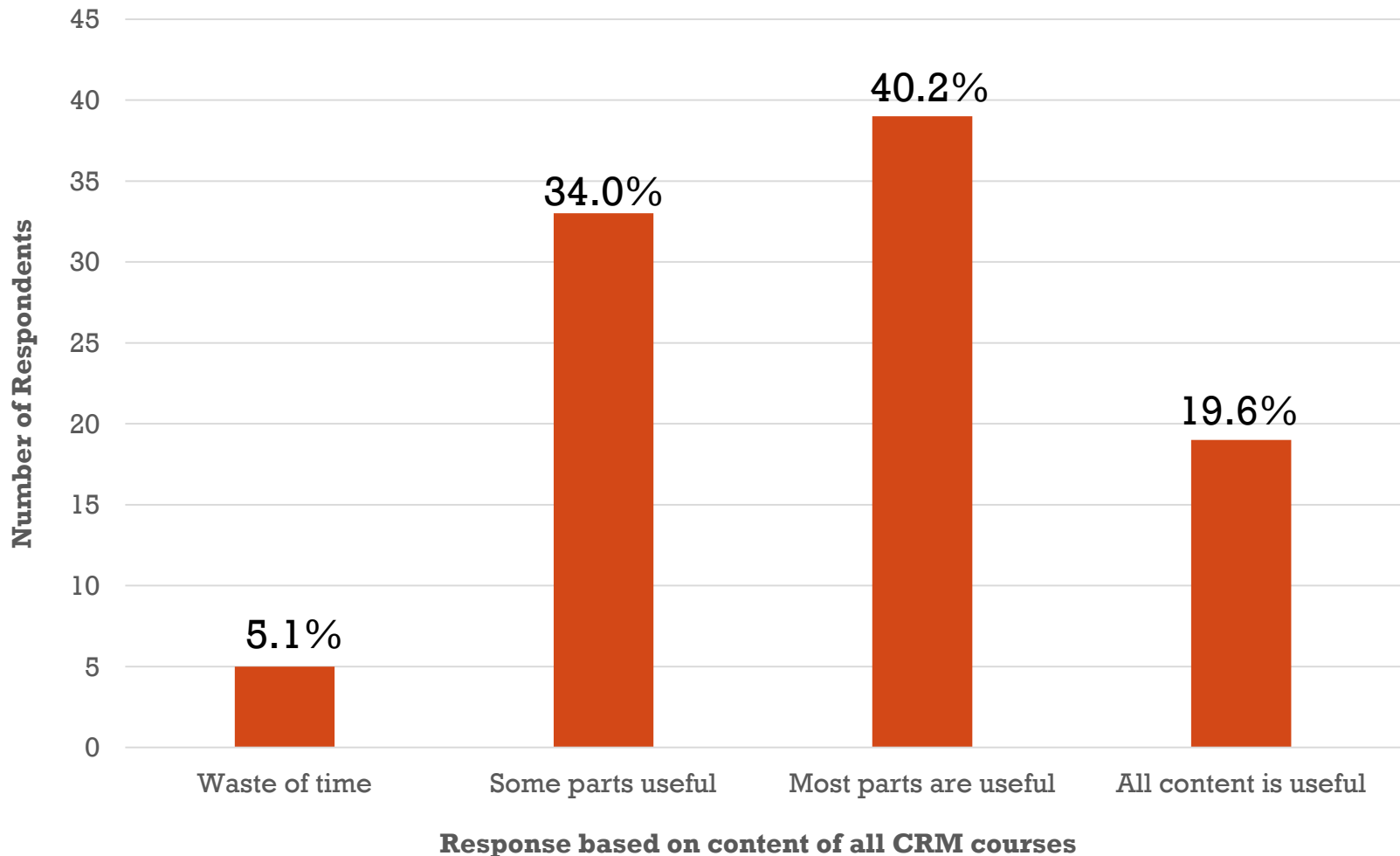


Response based on delivery of CRM (All)



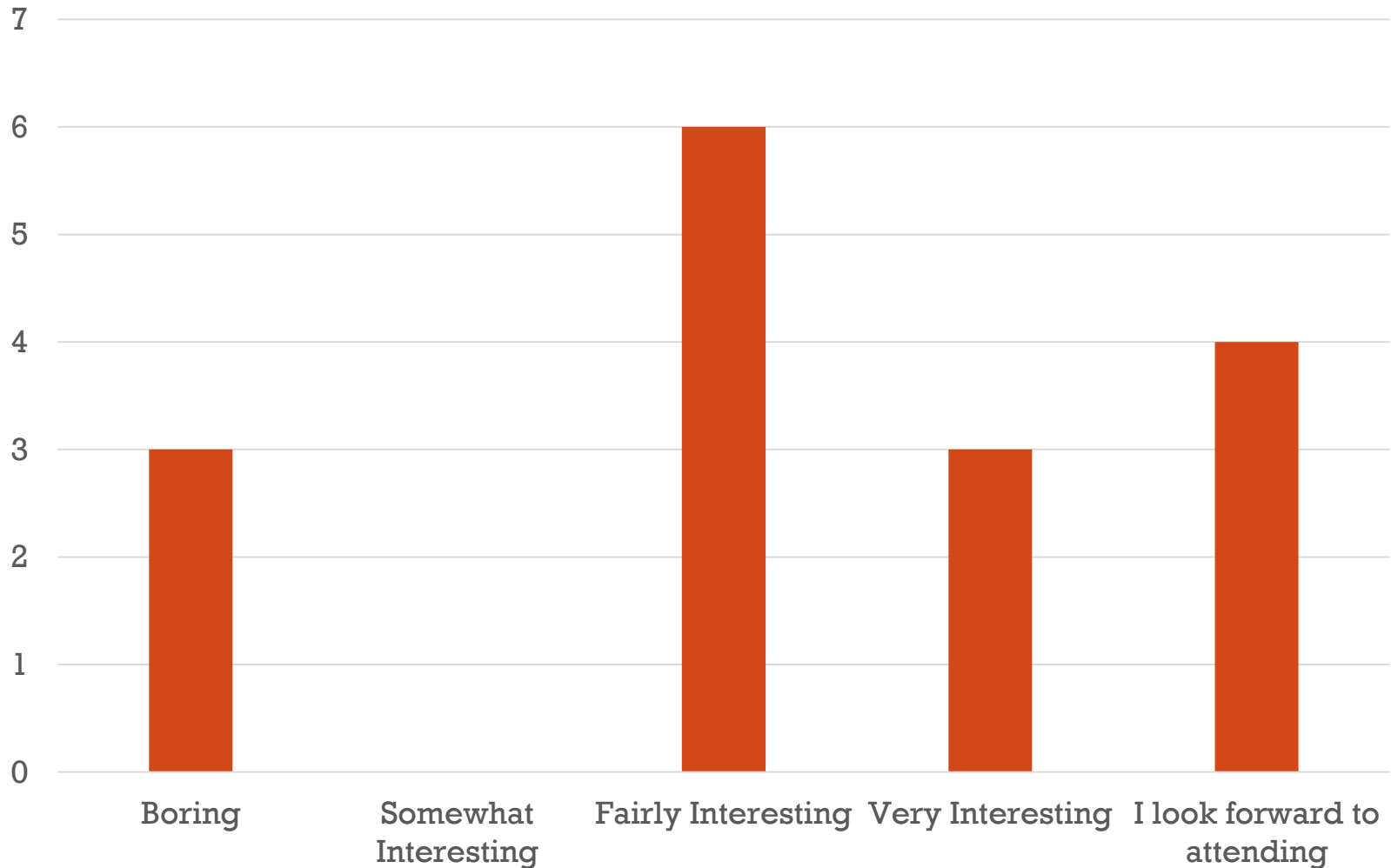
THE CONTENT OF CRM COURSES ARE

N = 97 (33 COUNTRIES)



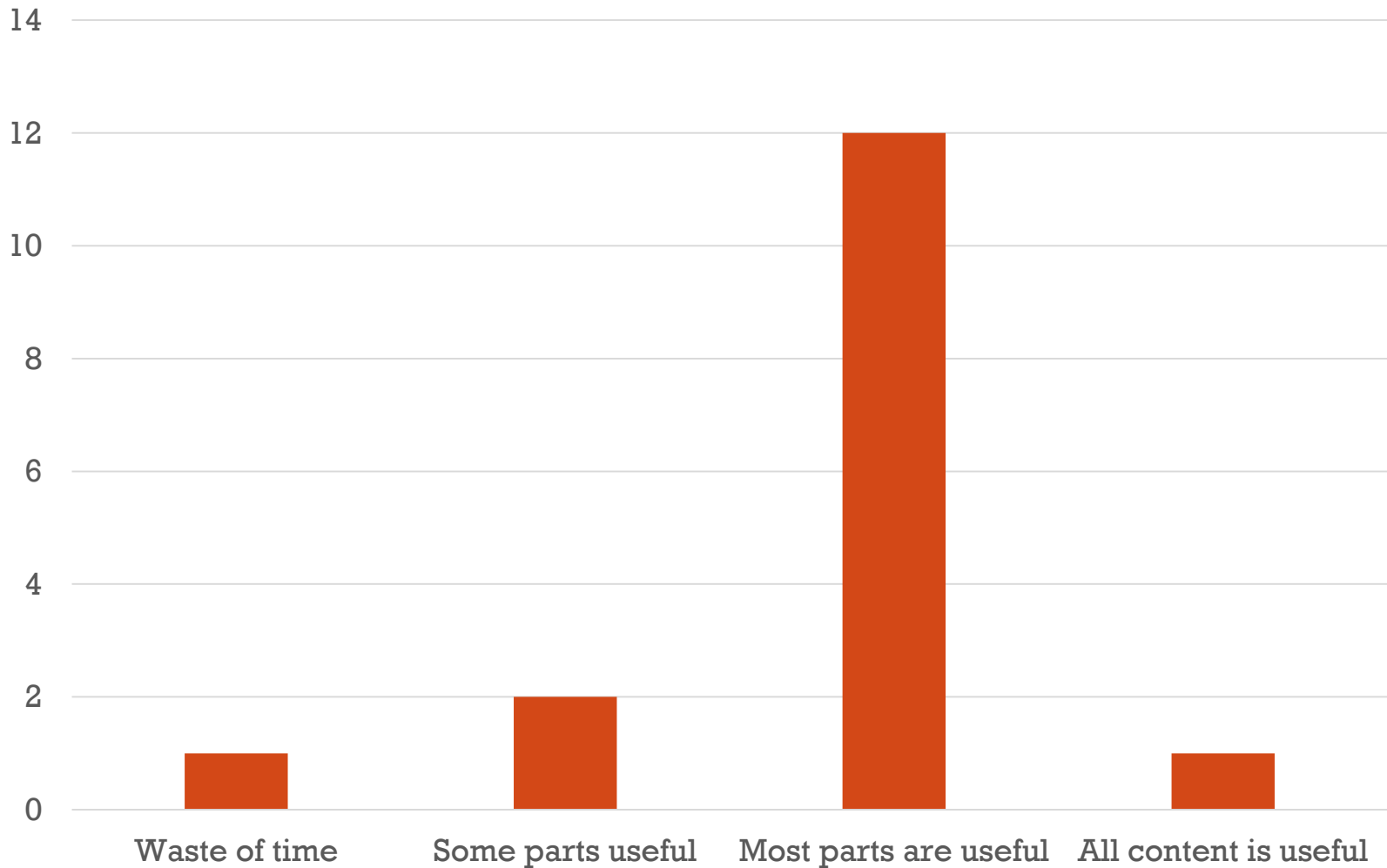
RESPONSE ON PRESENTATION BY HF SPECIALISTS & HF MANAGERS

N = 13 X HFS AND 3 X HFM



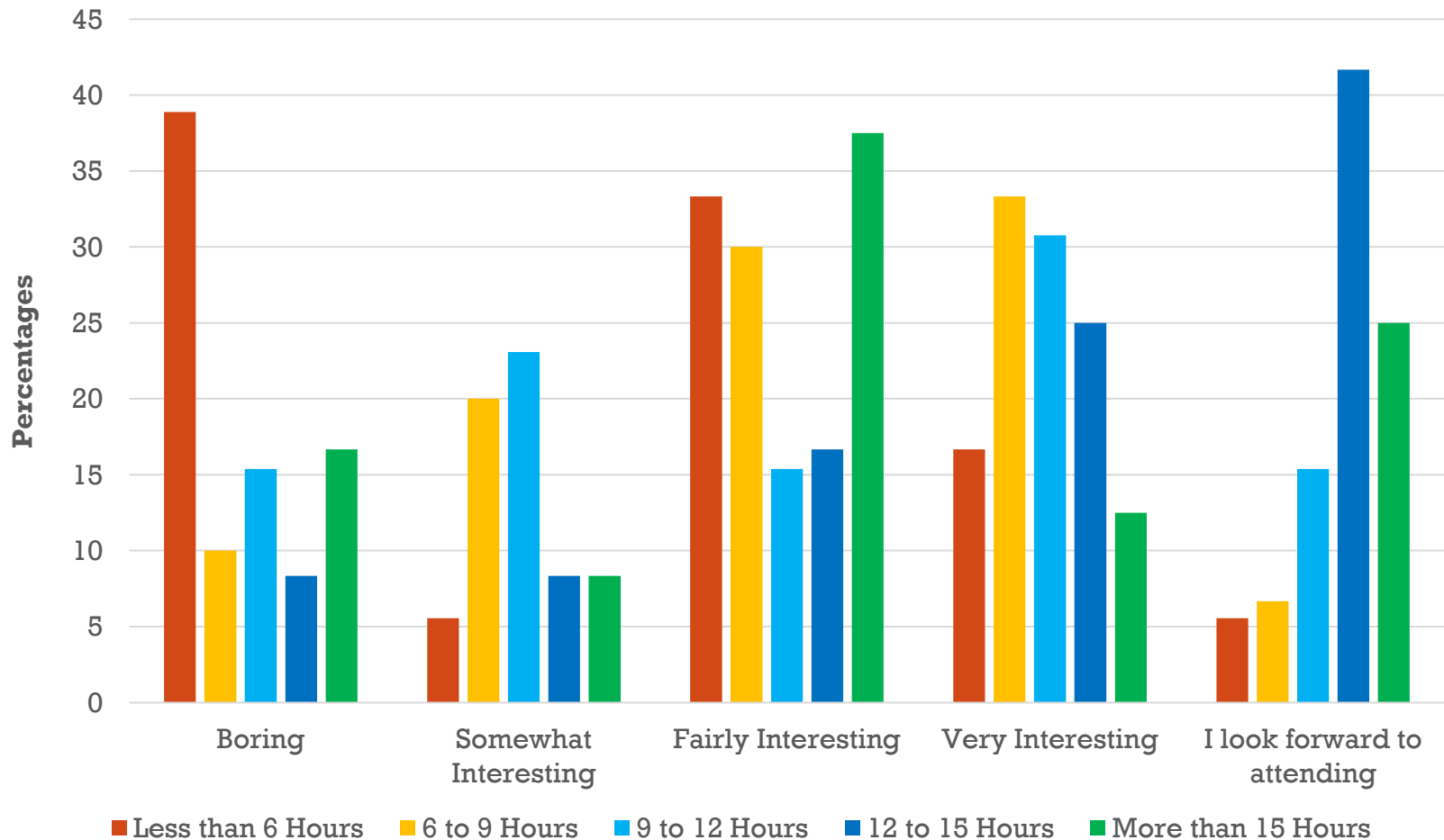
RESPONSE ON CONTENT BY HF SPECIALISTS AND HF MANAGERS

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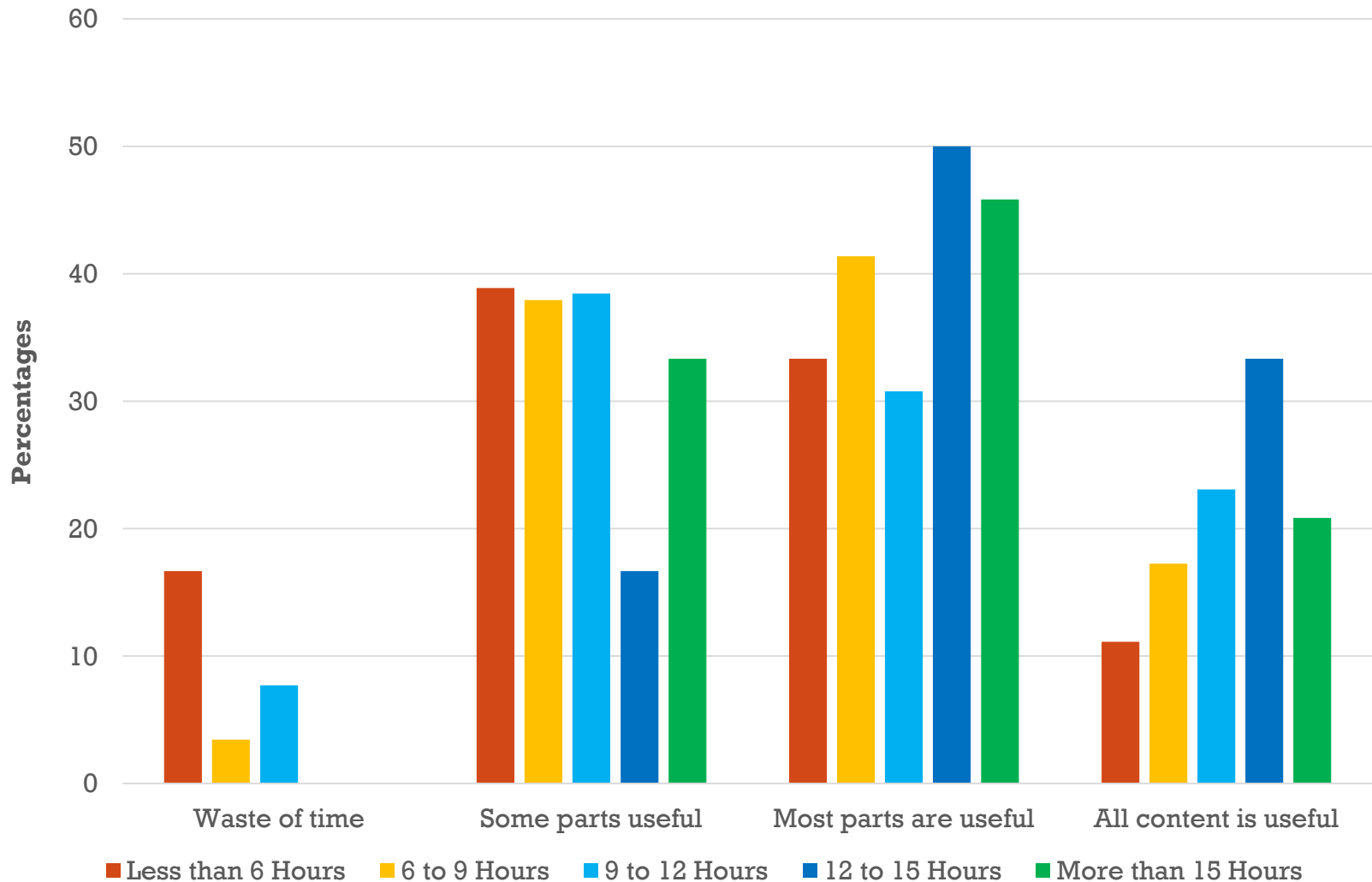


BUT THERE IS HOPE

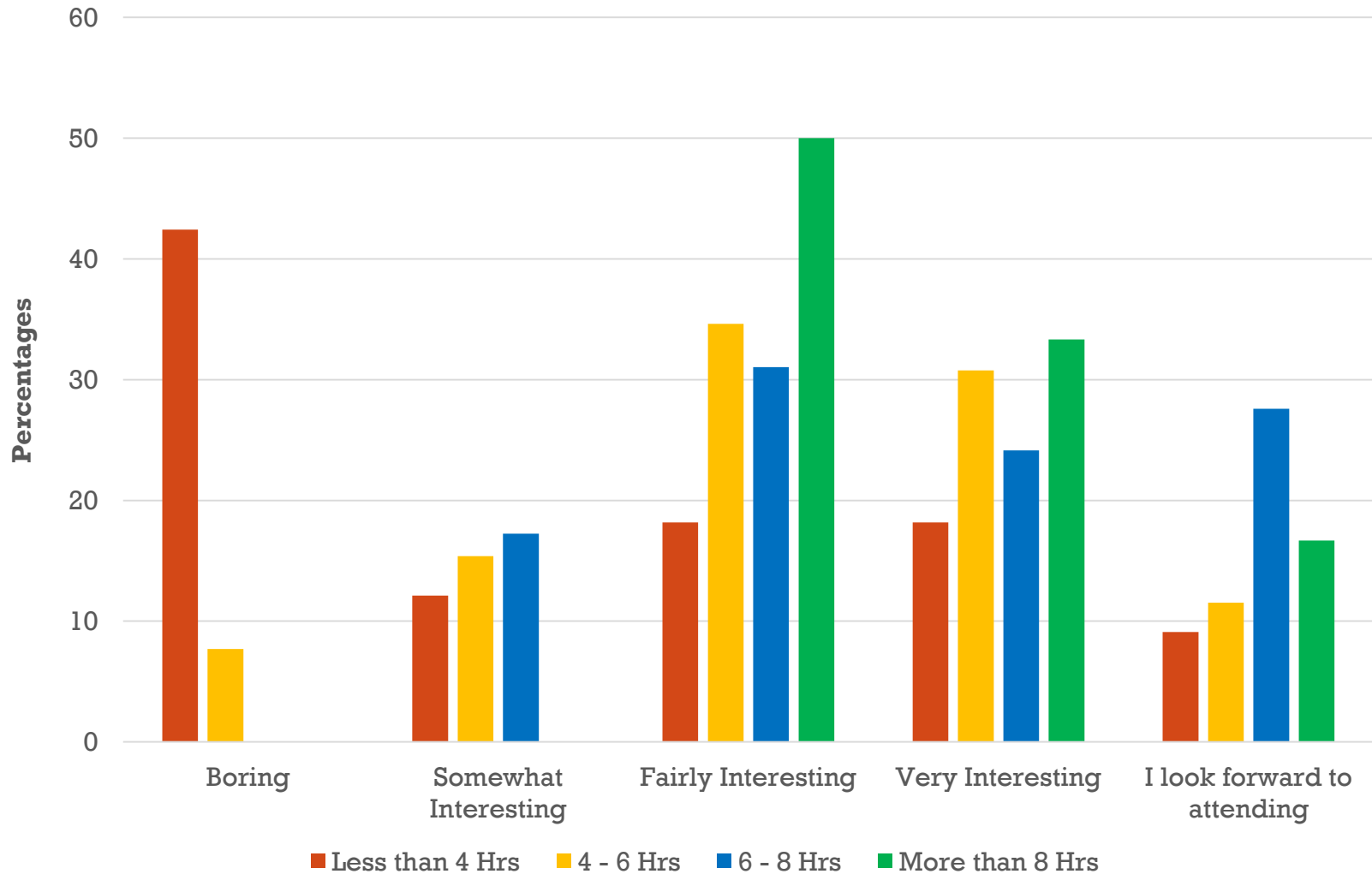
Rating on **Presentation** based on Hours allocated to Initial CRM



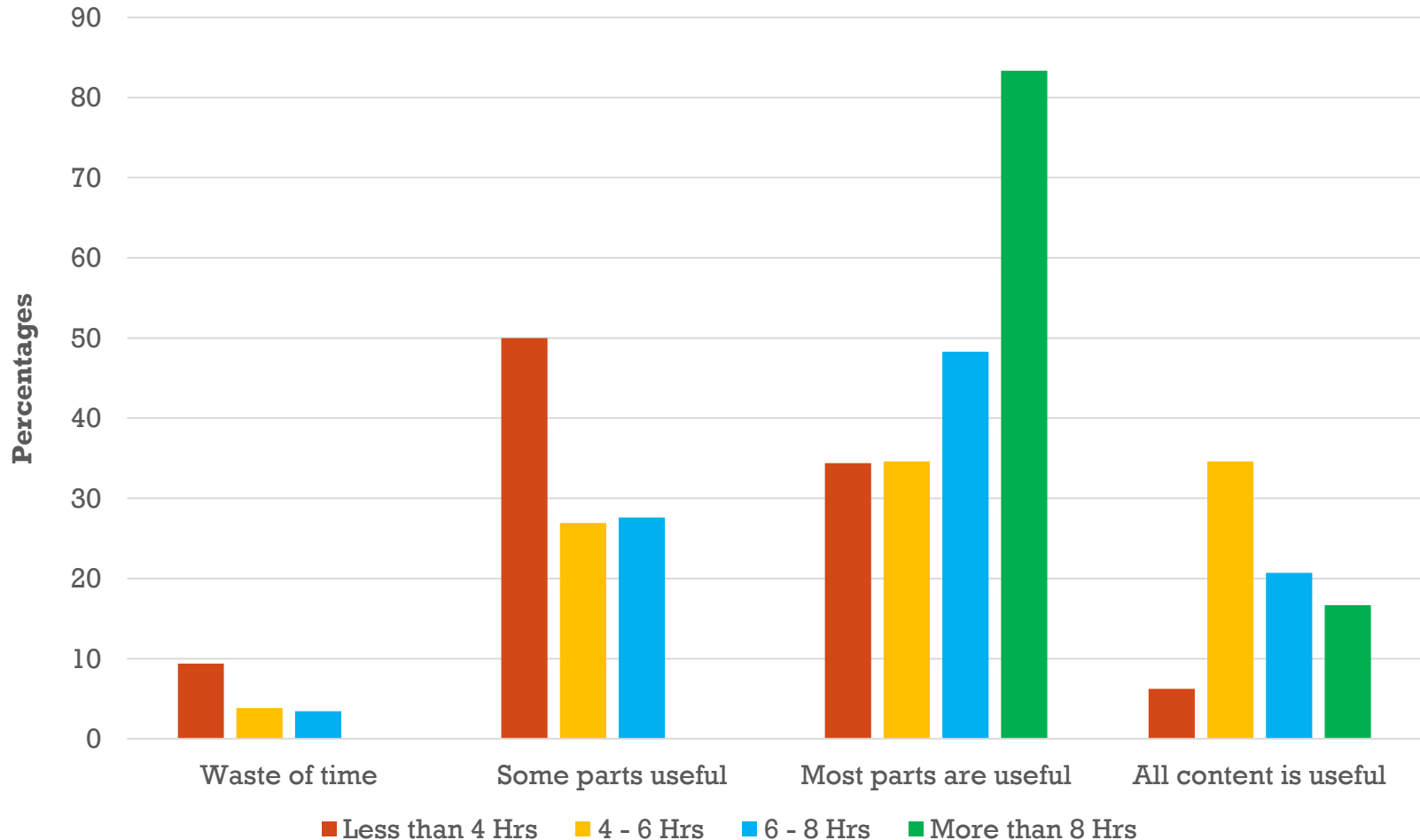
RATING ON CONTENT BASED ON HOURS OF INITIAL CRM



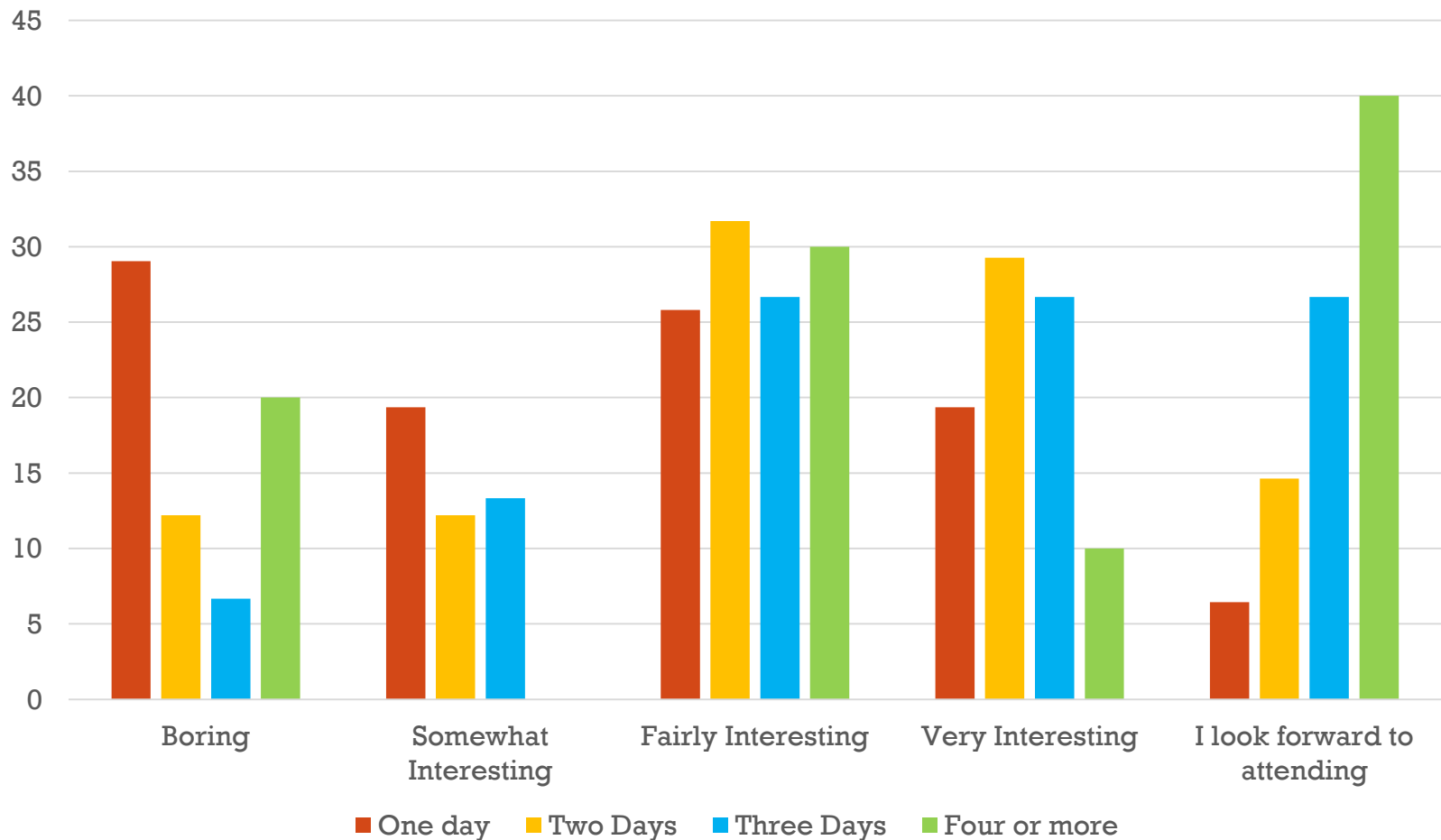
RESPONSE ON PRESENTATION BASED ON HOURS OF RECURRENT ANNUAL CRM



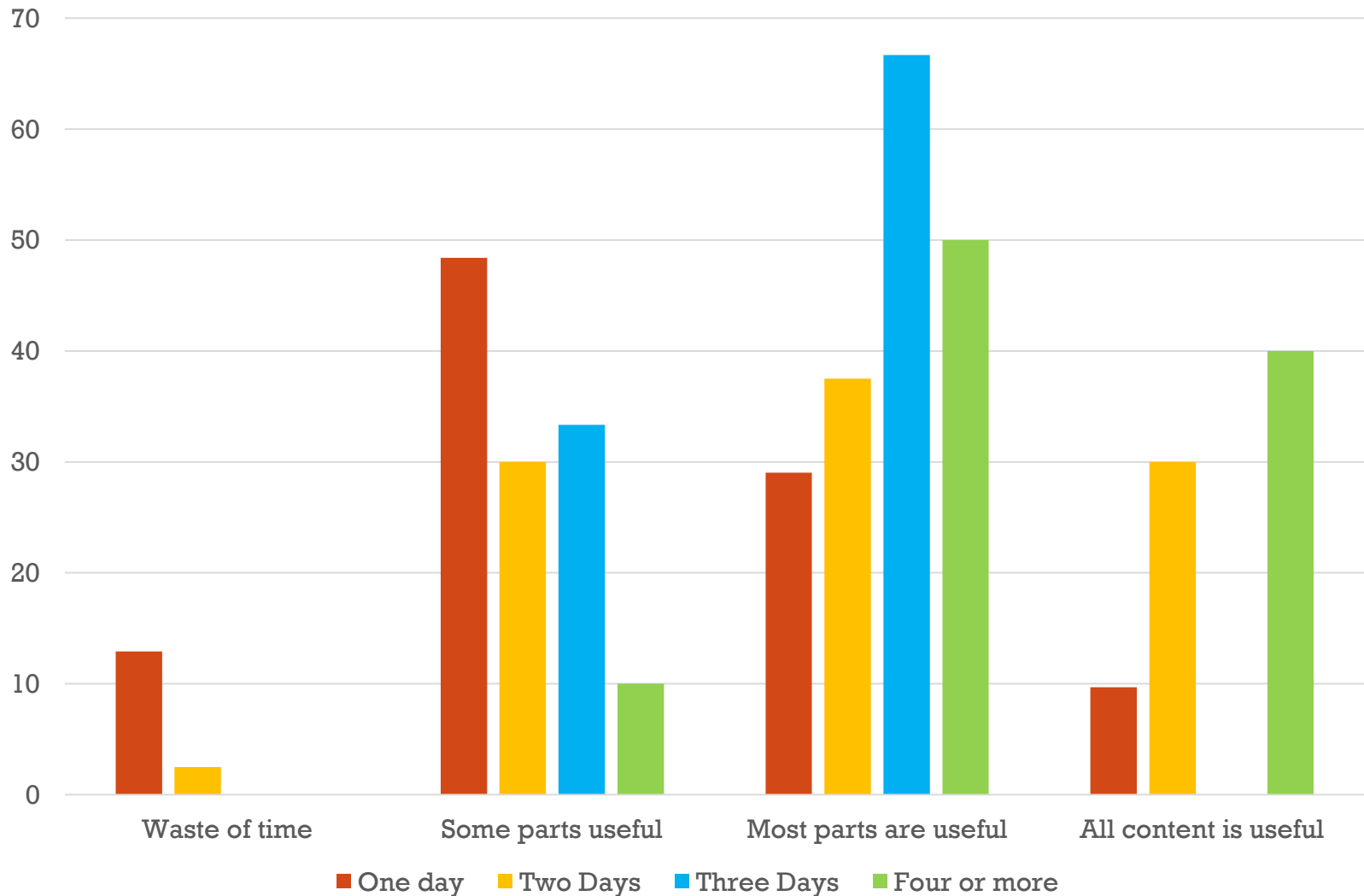
RESPONSE ON CONTENT BASED ON HOURS OF RECURRENT ANNUAL CRM



RATING ON PRESENTATION BASED ON DAYS OF INITIAL



RATING BASED ON CONTENT OF DAYS OF INITIAL



CONCLUSIONS ON CRM STUDY

CRM SURVEY – JUNE 2019

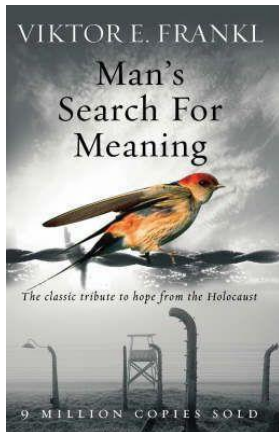
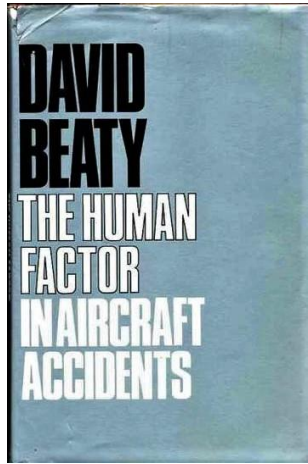
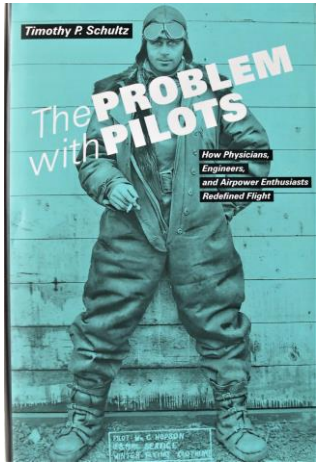
- 98 Respondents
- 33 Countries
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Flight Crew – 71%
Cabin Crew – 6%
ATC – 5%
Managers – 12%
Other – 6%

- Initial CRM 12-15 plus hours over 3 days
- Recurrent CRM 6 – 8 Hours over one day
- Use the hours constructively – presentation and content
- Work on your presenters – provide enhancing workshops
- Provide them with usable and relevant content
- Use Evidence Based Training relevant to your airline or company
- Provide the attendees with tools on HOW to enhance their resilient competencies
- Coordinate with the training department as to the training themes of the year
- Never ever give up on fighting for what you believe in



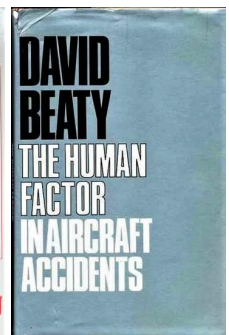
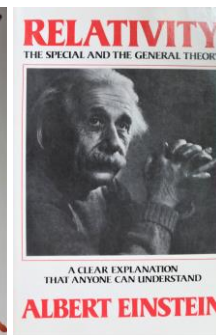
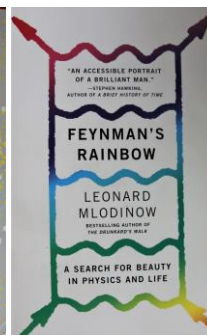
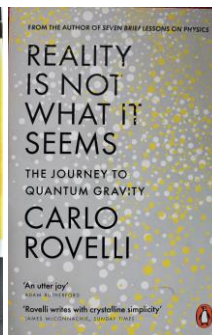
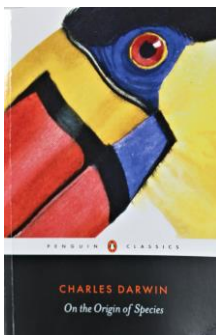
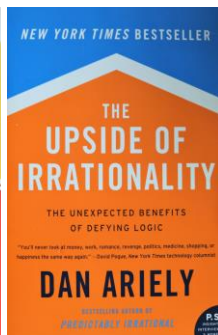
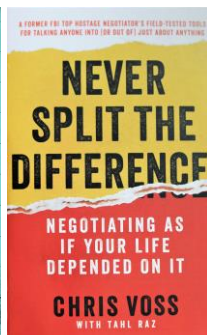
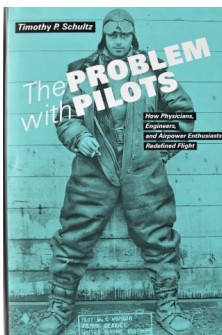
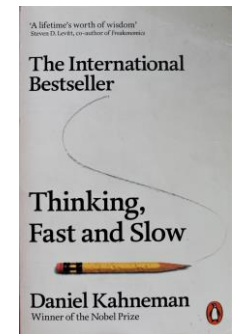
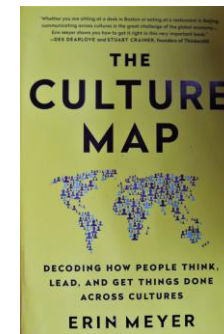
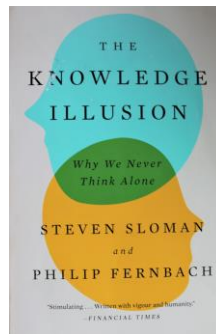
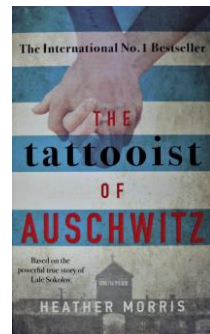
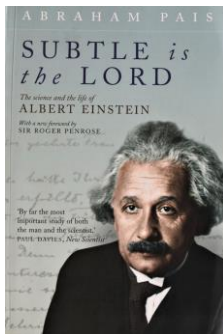
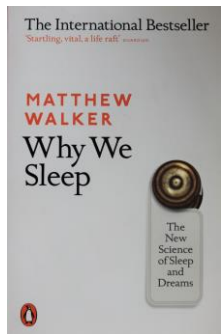
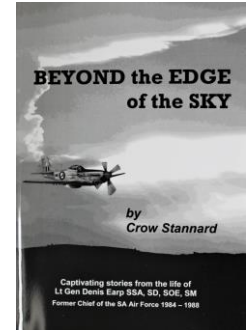
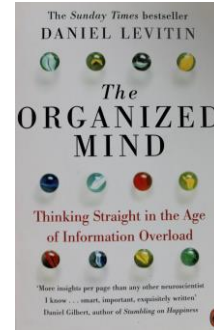
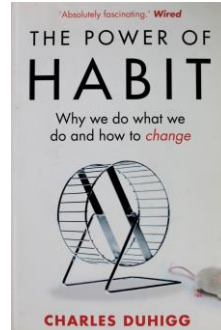
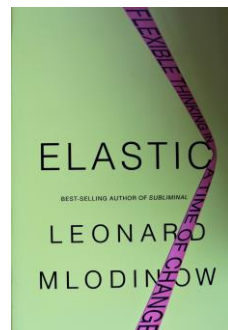
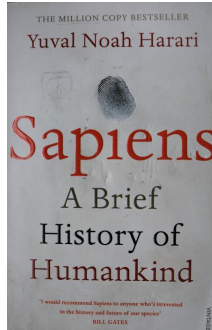
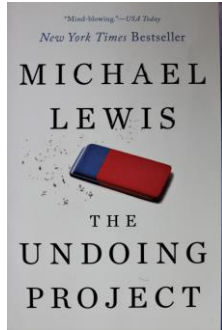


THE F WORD

- Several airlines now parking aircraft due to shortage of suitable pilots
- Highly likely that regulators will be approached to review and increase flight hours per year
- Highlighting fatigue issues will increase automation and further reduce pilot autonomy (*Problem with Pilots 1920's & 1930's*)
- Highly stressful flights are perceived as longer, while moderately challenging and constructive flights appear to pass quickly.
- Do we survey what they do in their off time?
- Effective CRM/Human Factors training can aid crews in experiencing less fatiguing flights



FURTHER READING RECOMMENDED



CRM FACILITATION WORKSHOP —

THURSDAY 1330-1500

- The role of facilitation
- Understanding your clients
- Human Factor Threat & Error
- Is culture an issue?
- Story Telling – does it work?
- Evidence based CRM – relevance
- Where to find your evidence
- Surveys – provide your students a mirror
- Exercises that work for your specific target audience

