Human Factor Certification

Of a

Modern Flight Deck

Gerard Temme
Why is human Facor certification a must?

1. Aircraft are becoming more complex
LOOKS COMPLEX / IS SIMPLE
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Good HF practice

SIMPLE
Why is human Facor certification a must?

1. Aircraft are becoming more complex
2. Systems are scrutinized for failure, but not humans
3. Pilots are believed to perform 100%, no matter the quality of the HMI
4. Need an incentive for good HMI design (pilot error analysis)
Complex aircraft + Systems unreliable

Need Pilot as mitigating factor
(100% succesful in procedures)

CS25.1302 : credit for better interface

Pilot error assessment
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5. Modern Flight decks too complex to analyse by Engineering judgement
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5. Modern Flight decks too complex to analyse by Engineering judgement
6. Too many applications for derivative certifications
Required on a modern flight deck?

1. Good situational awareness
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2. No need for non-standard operations / Alerting
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3. Lots of envelope protection
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4. Predetermined (uploaded) profiles
5. Lower minima without land based (ILS) navigation
6. Inclusion of safety enhancing technology
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3. Lots of Envelope protection
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5. Lower minima without land based (ILS) navigation
6. Inclusion of safety enhancing technology
7. Fly by wire
8. Full authority Autopilot
9. Full authority Autothrottle
10. More automation
Good HF practice

SIMPLE
SIMPLE =

more and better automation
Pilot in the loop:

In which loop?
Use as “MEAT SERVO“??

Use pilot for what he is good at:

OVERSIGHT
Still in service

Here we are

Next step

• Manual aircraft with automated help
• Automatic aircraft
• Limited fidelity
• Limited protection
• Limited automation authority

• Full authority Automation
• Sufficient fidelity
• Full protection

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How do the Certification Requirements facilitate the introduction of a modern Flight Deck?

What needs to be done in the future to speed up the Certification of technological advancements?
Thank You and Be SAFE