



MUFASA

Multidimensional Framework for Advanced SESAR Automation



<http://www.chpr.nl/mufasa.htm>
<http://www.hala-sesar.net/mufasa>



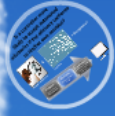
Carl Westin - carl@chpr.nl
Brian Hilburn - brian@chpr.nl
Clark Borst - c.borst@tudelft.nl



The effect of strategic conformance on acceptance of automated advice: concluding the MUFASA project

Carl Westin
Clark Borst
Brian Hilburn

Third SESAR Innovation Days
26th-28th November 2013
KTH, Stockholm, Sweden



The effect of strategic conformance on acceptance of automated advice: concluding the MUFASA project

Carl Westin
Clark Borst
Brian Hilburn

Third SESAR Innovation Days
26th-28th November 2013
KTH, Stockholm, Sweden



MUFASA

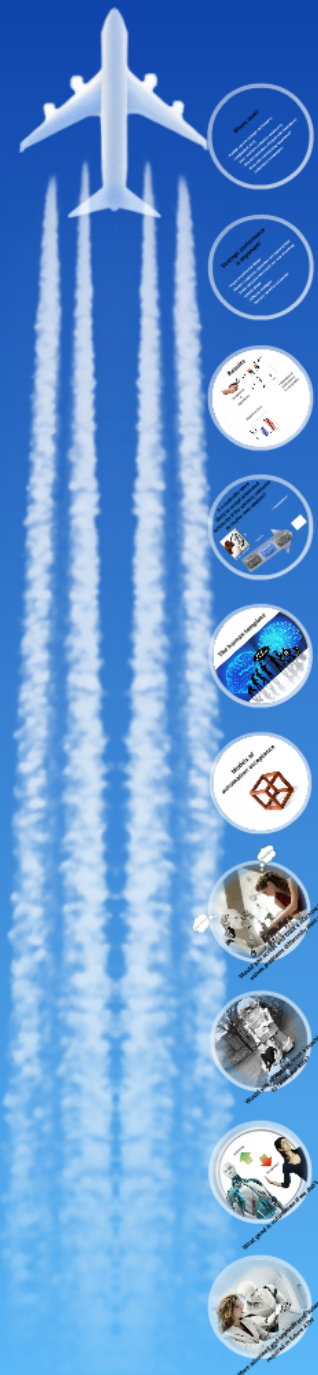
Multidimensional Framework for Advanced SESAR Automation



<http://www.chpr.nl/mufasa.htm>
<http://www.hala-sesar.net/mufasa>



Carl Westin - carl@chpr.nl
Brian Hilburn - brian@chpr.nl
Clark Borst - c.borst@tudelft.nl

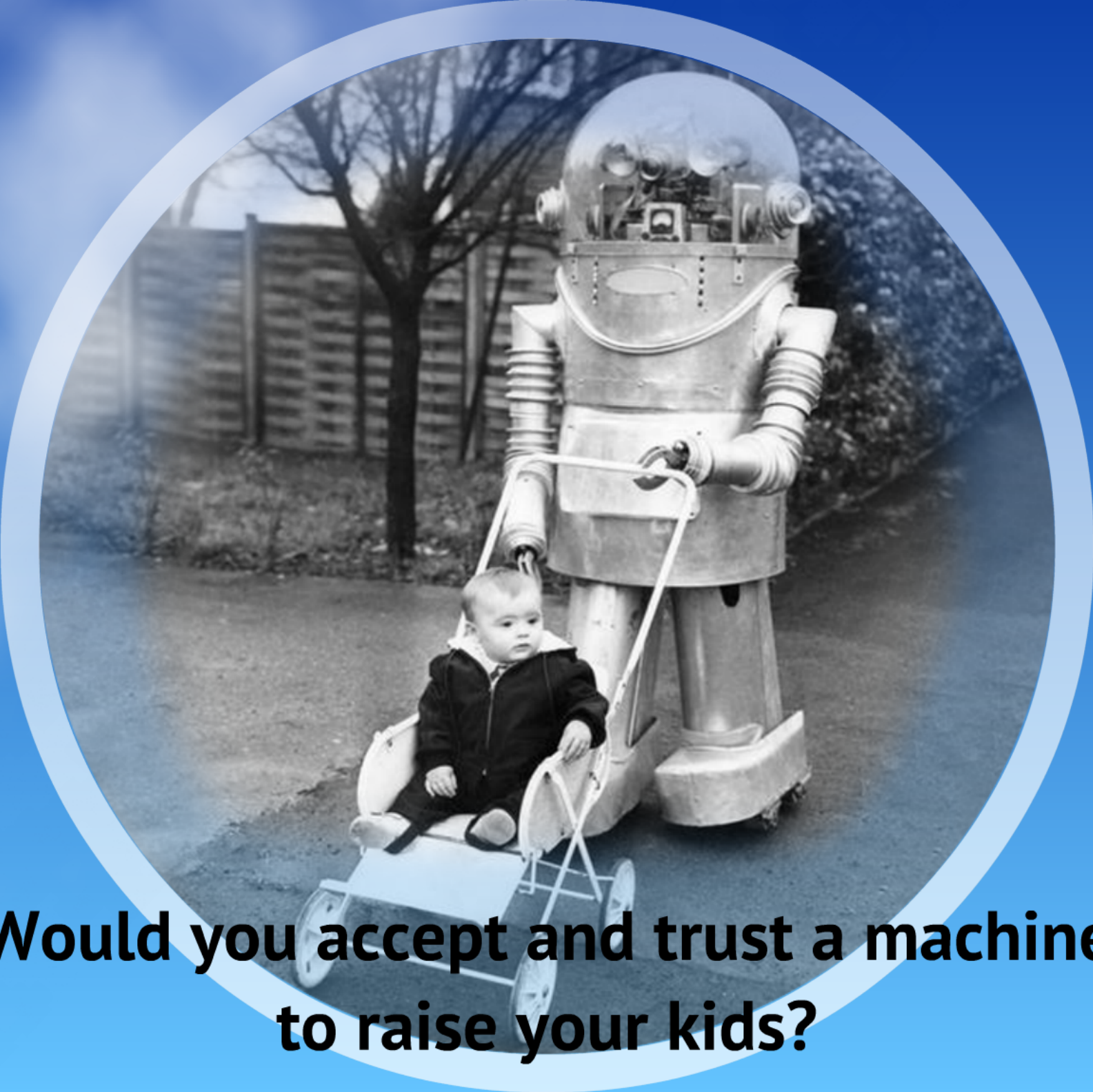




**More advanced and sophisticated automation
required in future ATM**



What good is automation if we don't accept it?



Would you accept and trust a machine to raise your kids?

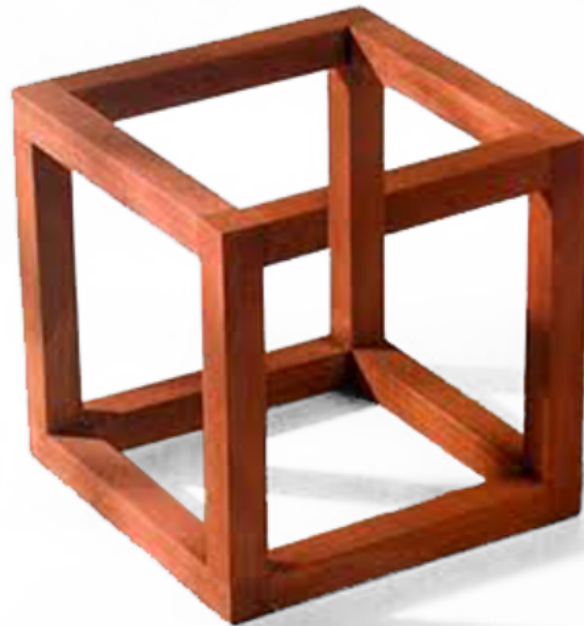
algorithms

heuristics

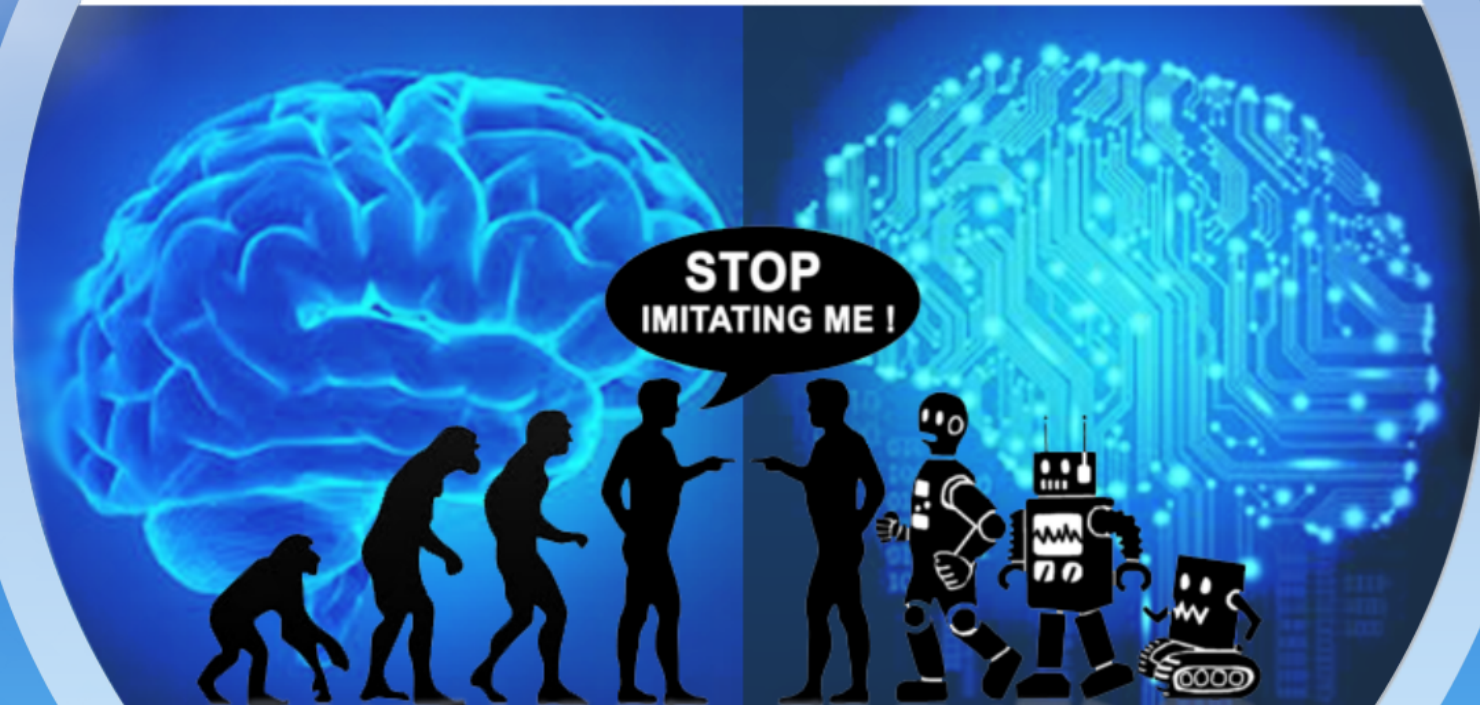


Would you accept and trust a machine that solves problems differently than you?

Models of automation acceptance



The human template



Is a controller more likely to accept automated advisories if the advisory conforms to his/her own solution?



Strategic conformance

&



Complexity

= Acceptance?

Prequel:

record manual
SSD interaction

Analysis:

extract resolution
vectors

Experiment:

present vector replays
as automation
advisories





Strategic conformance

&



Complexity

= Acceptance?

Prequel:

record manual
SSD interaction

Analysis:

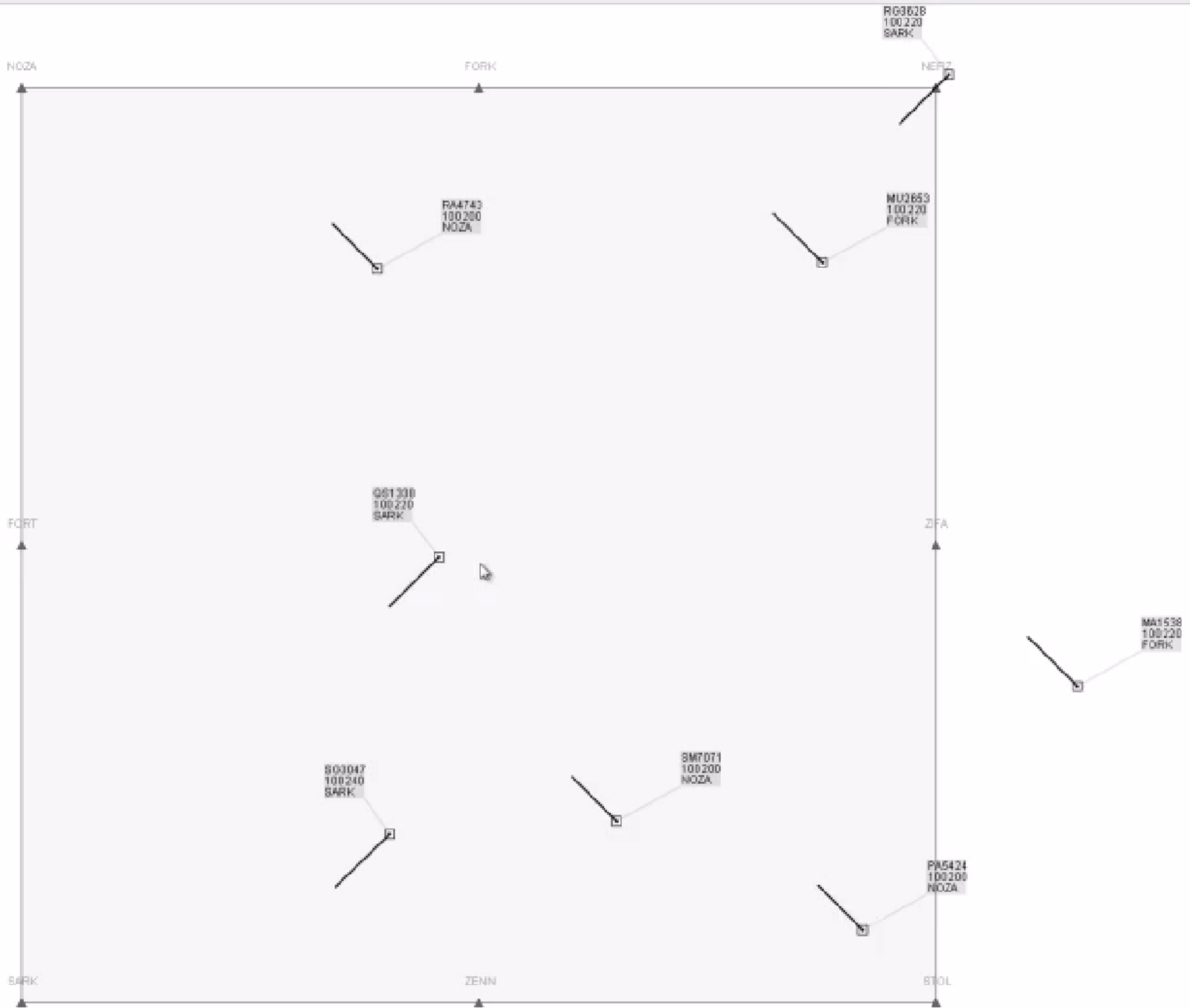
extract resolution
vectors

Experiment:

present vector replays
as automation
advisories



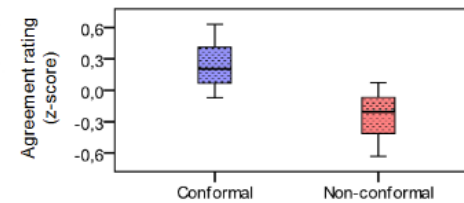
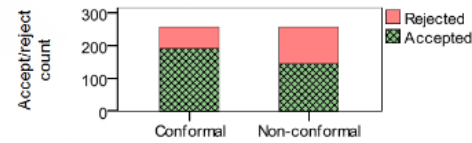
Time: 00:00:50
Score: 69.23%
Run: 1 / 16



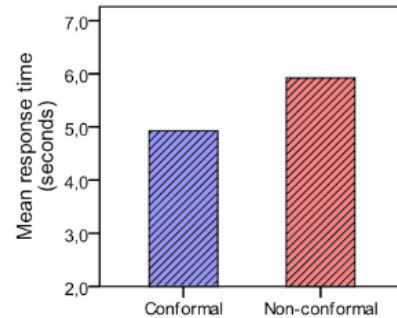
Results



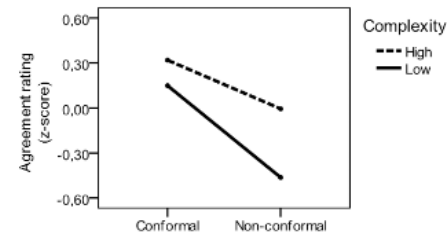
Acceptance & Agreement



Response time



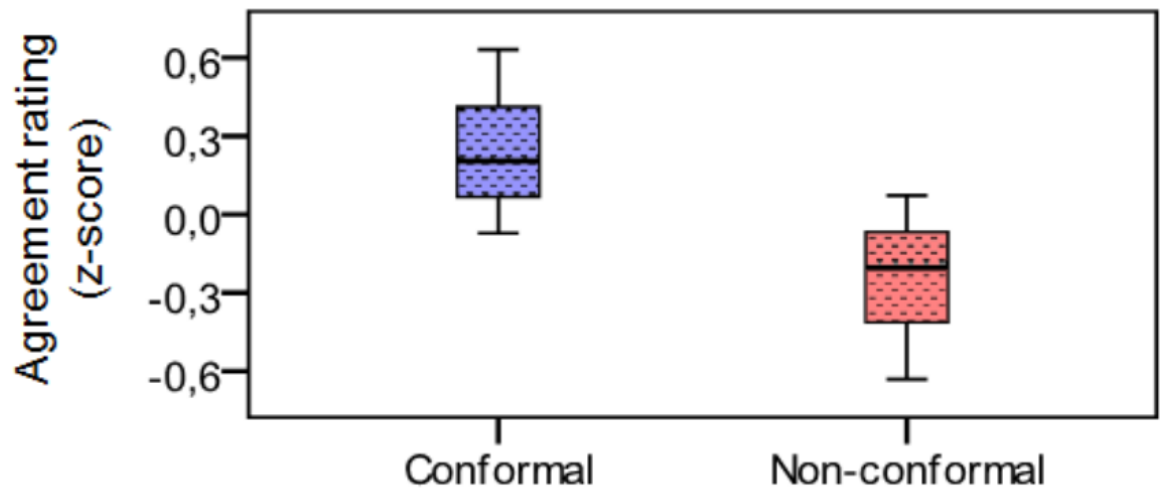
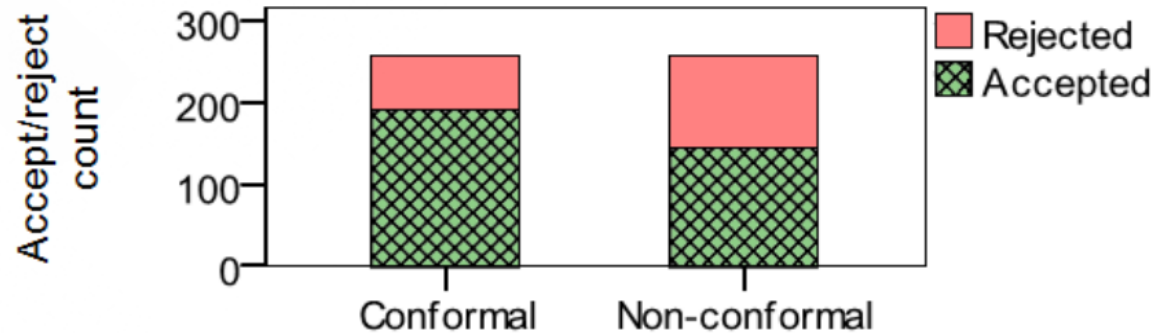
Interaction of conformance & complexity



Results

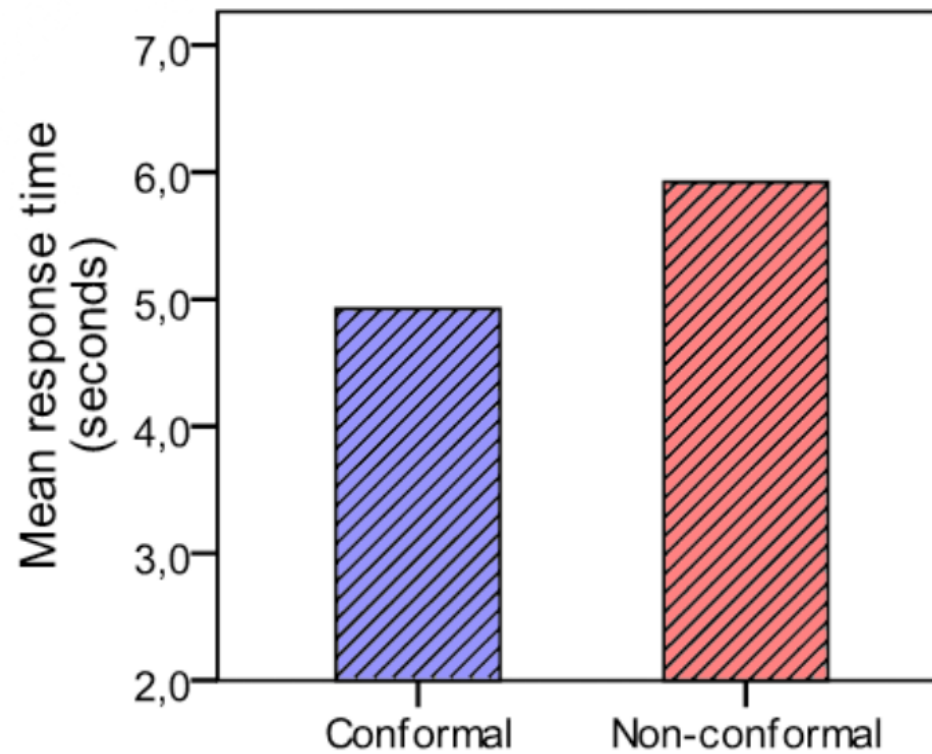


Acceptance & Agreement



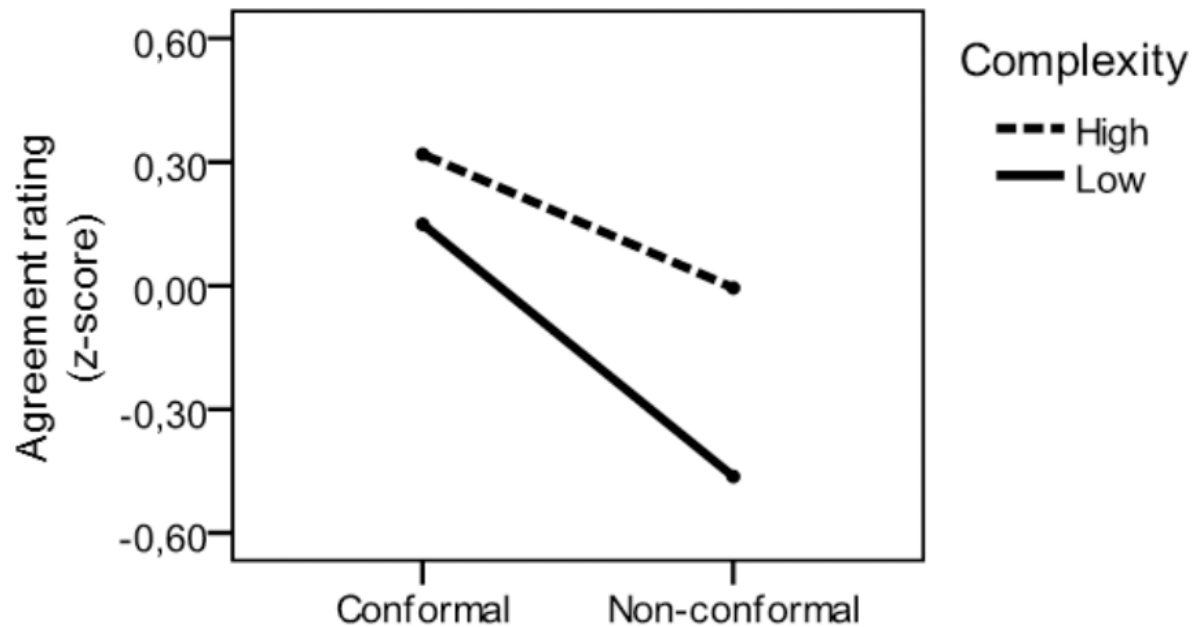


Response time





Interaction of conformance & complexity



Strategic conformance is important!

- **Unique experimental design**
 - **Benefit acceptance, agreement and response time**
 - **Prefer advisories that match own way of working**
 - **Instinct driven**
 - **Different strategies**
 - **Operator sensitive automation**

Where next?

- Further explore strategic conformance
 - Longitudinal study
 - Inter- and intra-controller consistency
 - Why did controllers disagree with themselves?
 - Risks with manipulating acceptance?
 - Automation transparency



MUFASA

Multidimensional Framework for Advanced SESAR Automation



<http://www.chpr.nl/mufasa.htm>
<http://www.hala-sesar.net/mufasa>



Carl Westin - carl@chpr.nl
Brian Hilburn - brian@chpr.nl
Clark Borst - c.borst@tudelft.nl

