SAND2020-8955C

HFES

64TH INTERNATIONAL ANNUAL MEETING

OCTOBER 5-9, 2020 | VIRTUAL CONFERENCE

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ANSI / HFES 400-2020X

- New *Human Readiness Levels* (HRL) standard
- Formal kickoff in September 2020
- Writing committee – chair plus 10 members
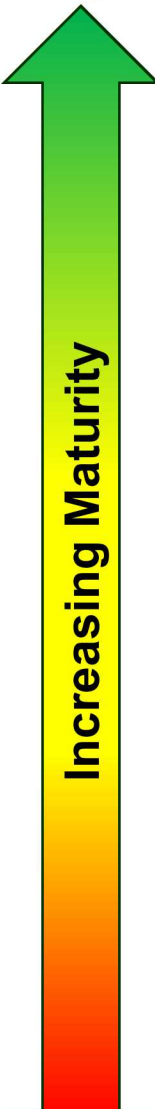- Expected completion in August 2021

Human Readiness Levels

- Simple nine-level scale that mirrors existing technology readiness levels (TRL) scale

- Designed to evaluate, track, and communicate readiness of a system for human use

- Fully incorporates human element throughout system lifecycle

> *Human readiness levels (HRL) are intended to capture and mitigate human systems issues early in the design phase to reduce human error in fielded systems.*

Mapping HRLs to TRLs

Increasing Maturity →

Level		Technology Readiness Level	Human Readiness Level
Production / Deployment	9	Operational use of deliverable	System successfully used in operations across the operational envelope with systematic monitoring of human-system performance
	8	Actual deliverable qualified through test and demonstration	Total human-system performance fully tested, validated, and approved in mission operations, using completed system hardware and software and representative users
	7	Final development version of the deliverable demonstrated in operational environment	Human systems design fully tested and verified in operational environment with system hardware and software and representative users
Technology Demonstration	6	Representative of the deliverable demonstrated in relevant environments	Human systems design fully matured as influenced by human performance analyses, metrics, prototyping, and high-fidelity simulations
	5	Key elements demonstrated in relevant environments	User evaluation of prototypes in mission-relevant simulations completed to inform design
	4	Key elements demonstrated in laboratory environment	Modeling, part-task testing, and trade studies of human systems design concepts completed
Research & Development	3	Concepts demonstrated analytically or experimentally	Requirements for supporting human performance established
	2	Concept and application formulated	Human-focused concept of operations defined and human performance design principles established
	1	Basic principles observed and reported	Relevant human capabilities, limitations, and basic human performance issues and risks identified

HRLs shift focus from lagging indicators (human error in fielded systems) to leading indicators (evidence-based measures of usability readiness).

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Evolution of the HRL Scale

- Concept first proposed in 2010
- Matured through two different working groups
  - 2015 working group led by DOD
  - 2019 working group led by SNL
- Inputs and reviews from diverse human systems community
- Demonstrated utility to detect human systems issues in historical scenarios

Organization	#
Air Force	2
Army	1
Navy	4
DOE	10
FAA	1
NASA	4
Industry	10
Academia	6
Total	38

ANSI / HFES 400-2020X Status

- Very early stages of writing the standard
- Primary chapter has sections identifying requirements and recommendations for each HRL level
- Each HRL level is a requirement (*shall*)
  - Activities that *should* be addressed at that level
  - Guidance that *should* be considered at that level
  - Criteria / supporting evidence that *should* be provided to exit that level
- Formal voting, public review, and comment ~January 2021

HRL 1: The human systems practitioner **shall** identify relevant human capabilities, limitations, and basic human performance issues and risks.