

# Toward a Quality Model for Hybrid Intelligence Teams

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## Hybrid Intelligence from a Team Perspective

**Hybrid Intelligence (HI):** an emerging paradigm in which artificial intelligence augments human intelligence.

**Various interpretations of HI:** an emergent property of human machine interactions, a form of human-in-the-loop or AI-in-the-loop, a type of collective intelligence, a design paradigm.

There is a **lack of guidelines (e.g., quality models) for the systematic development and evaluation of HI system.**

We frame **HI systems as human-AI teams** and explore human- and system-centric dimensions of HI, **beyond technology-centric AI research.**

**RQ1:** To what extent are the **properties of human teams** adequate to characterize HI teams?

**RQ2:** Which **measures of effectiveness** of human teams are also important for HI teams?

## Assessing team perspective for Hybrid Intelligence

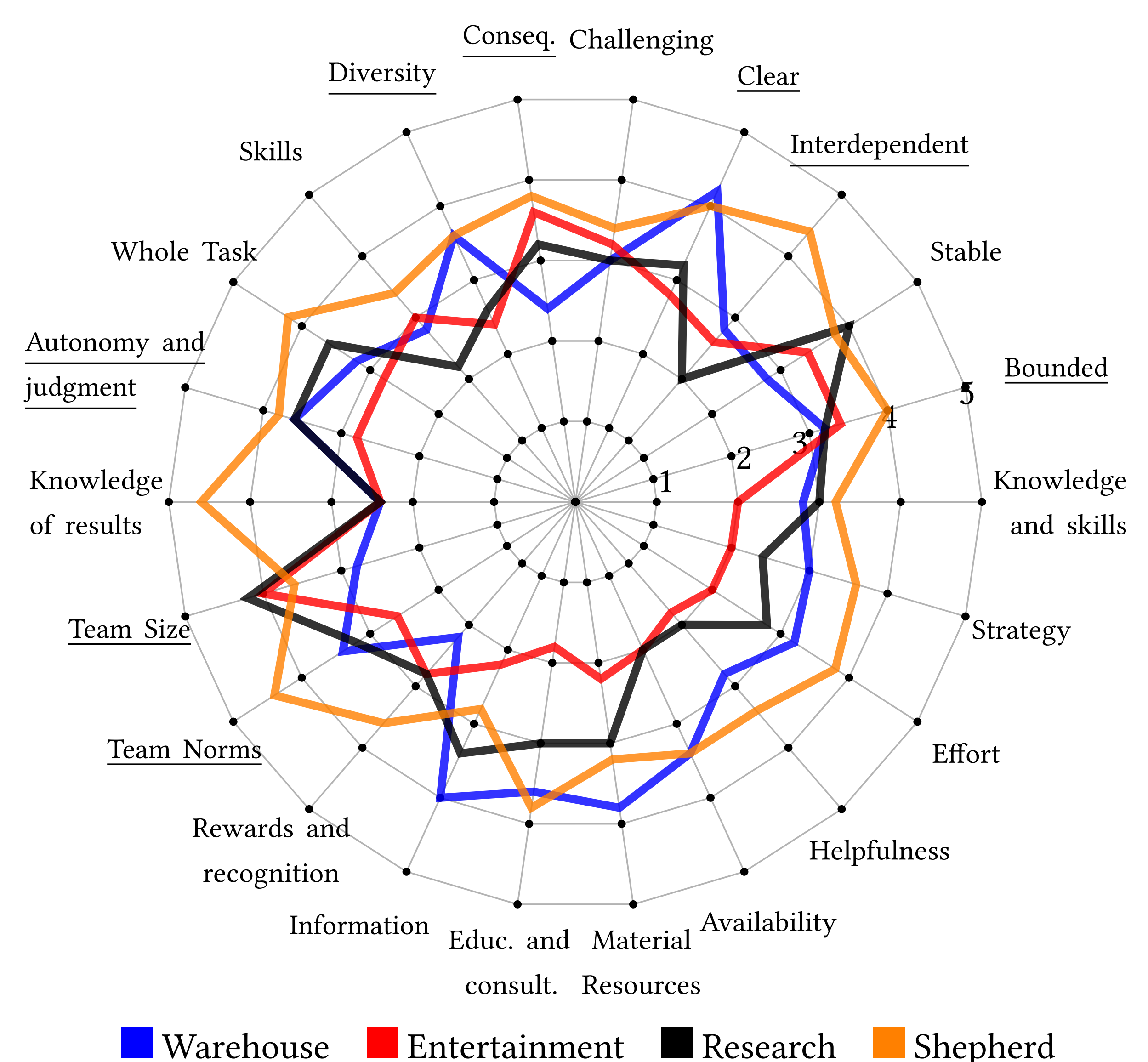
### Results from the application of the (human-)Team Diagnostic Survey (TDS) to four HI teams (15 participants)

HI Teams: Humans-Robots Warehouse team, Human-Netflix Entertainment team, Human-Elicit Research team, Human-Dog Shepherd team.

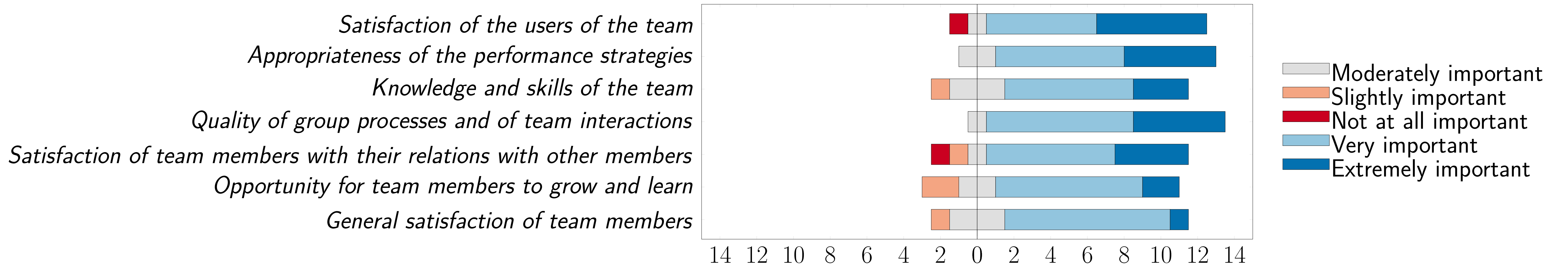
A **Yes** in the *Is well understood* column (left table) indicates that no participant reported difficulties in understanding the feature for HI teams.

Right figure: average scores assigned by the participants to the teams to indicate how well the team reflected the features.

	Property of effective human team (from TDS)	Is important	Is well understood
Essentials	Real Team - Bounded	5 (100%)	Yes
	Real Team - Stable	4 (80%)	Yes
	Real Team - Interdependent	5 (100%)	Yes
	Compelling Direction - Clear	5 (100%)	Yes
	Compelling Direction - Challenging	4 (80%)	No
	Compelling Direction - Consequential	5 (100%)	Yes
	Right People - Diversity	5 (100%)	Yes
	Right People - Skills	4 (80%)	No
Enablers	Sound Structure - Whole Task	3 (60%)	No
	Sound Structure - Autonomy and judgment	5 (100%)	Yes
	Sound Structure - Knowledge of results	4 (80%)	No
	Sound Structure - Team Size	5 (100%)	Yes
	Sound Structure - Team Norms	5 (100%)	Yes
	Supportive Context - Rewards and recognition	3 (60%)	No
	Supportive Context - Information	5 (100%)	No
	Supportive Context - Education and consultation	4 (80%)	No
	Supportive Context - Material Resources	5 (100%)	No
	Coaching - Availability	3 (60%)	No
Coaching - Helpfulness	3 (60%)	No	
Key Task Processes	Effort	3 (60%)	No
	Strategy	5 (100%)	No
	Knowledge and skills	5 (100%)	No



### Importance of measures of effectiveness of human teams for measuring effectiveness of HI systems (15 participants)



## Recommendations for Quality Attributes and Quality Measures for HI Teams

