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MDMT: Multi-Dimensional Measure of Trust

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OVERVIEW

The Multi-Dimensional Measure of Trust (MDMT) is designed to be an intuitive and comprehensive measure of trust that is simple to administer in person or online. The MDMT was created to address the pressing need for valid measurement tools in the domain of human-robot trust but can also be used in human-human trust situations. The MDMT consists of 16 items that assess four differentiable dimensions of trust. One can trust an agent because the agent is Reliable, Capable, Ethical, and/or Sincere. These four dimensions are organized into two broader factors of trust, CAPACITY TRUST (Reliable, Capable) and MORAL TRUST (Ethical, Sincere). The dimensions form subscales of four items each:

CAPACITY TRUST
Reliable Subscale: *reliable, predictable, someone you can count on, consistent* (α = .92)
Capable Subscale: *capable, skilled, competent, meticulous* (α = .92)

MORAL TRUST
Ethical Subscale: *ethical, respectable, principled, has integrity* (α = .81)
Sincere Subscale: *sincere, genuine, candid, authentic* (α = .79)

INSTRUCTIONS FOR ADMINISTRATION

Each of the 16 items is designed to be evaluated on an 8-point discrete rating scale from 0 (Not at all) to 7 (Very). In situations in which some of the dimensions may not be applicable (e.g., trust in a simple machine may make several items unsuitable), each item should also carry a final option, "Does Not Fit," which prevents a forced and possibly meaningless rating. If checked, the item becomes a missing value. An example image of the scale is included on the following page. Researchers can recreate the scale in a variety of electronic survey environments or can use the following page as a paper version of the survey. We recommend that items are represented in blocks of four, with each block containing one item from each dimension so that items from any given dimension are not clustered together.

All 16 items of the MDMT are typically administered together to generate four trust dimension scores. Alternatively, a subset of the dimensions may be administered (e.g., only the items for *Capacity Trust*).

INSTRUCTIONS FOR SCORING

Dimension (subscale) scores are average ratings of the four items constituting the particular dimension (e.g., Capable = average ratings of *capable, skilled, competent, meticulous*). "Does Not Fit" endorsements are treated as missing values. To compute a score for **Capacity Trust** one averages ratings on the eight items constituting the Reliable and Capable subscales; for **Moral Trust**, one averages ratings on the eight items constituting the Ethical and Sincere subscales.

CONDITIONS OF USE

The MDMT is intended to be used by researchers studying trust and is free for this purpose.
If you use the MDMT please email us at scsrc@brown.edu to help with community validation of the measure. We plan to coordinate a collective validation effort and joint publication with users.

When using the current version of the MDMT (2019-04-01)*, please cite the following publication:*

Ullman, D., & Malle, B. F. (2019). Measuring gains and losses in human-robot trust: Evidence for differentiable components of trust. In *Proceedings of the 14th ACM/IEEE International Conference on Human-Robot Interaction*, 618-619.

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Please rate the robot using the scale from 0 (Not at all) to 7 (Very). If a particular item does not seem to fit the robot in the situation, please select the option that says “Does Not Fit.”

	Not at all 0	1	2	3	4	5	6	Very 7	Does Not Fit
Reliable	○	○	○	○	○	○	○	○	○
Sincere	○	○	○	○	○	○	○	○	○
Capable	○	○	○	○	○	○	○	○	○
Ethical	○	○	○	○	○	○	○	○	○
Predictable	○	○	○	○	○	○	○	○	○
Genuine	○	○	○	○	○	○	○	○	○
Skilled	○	○	○	○	○	○	○	○	○
Respectable	○	○	○	○	○	○	○	○	○
Someone you can count on	○	○	○	○	○	○	○	○	○
Candid	○	○	○	○	○	○	○	○	○
Competent	○	○	○	○	○	○	○	○	○
Principled	○	○	○	○	○	○	○	○	○
Consistent	○	○	○	○	○	○	○	○	○
Authentic	○	○	○	○	○	○	○	○	○
Meticulous	○	○	○	○	○	○	○	○	○
Has integrity	○	○	○	○	○	○	○	○	○
	Not at all 0	1	2	3	4	5	6	Very 7	Does Not Fit