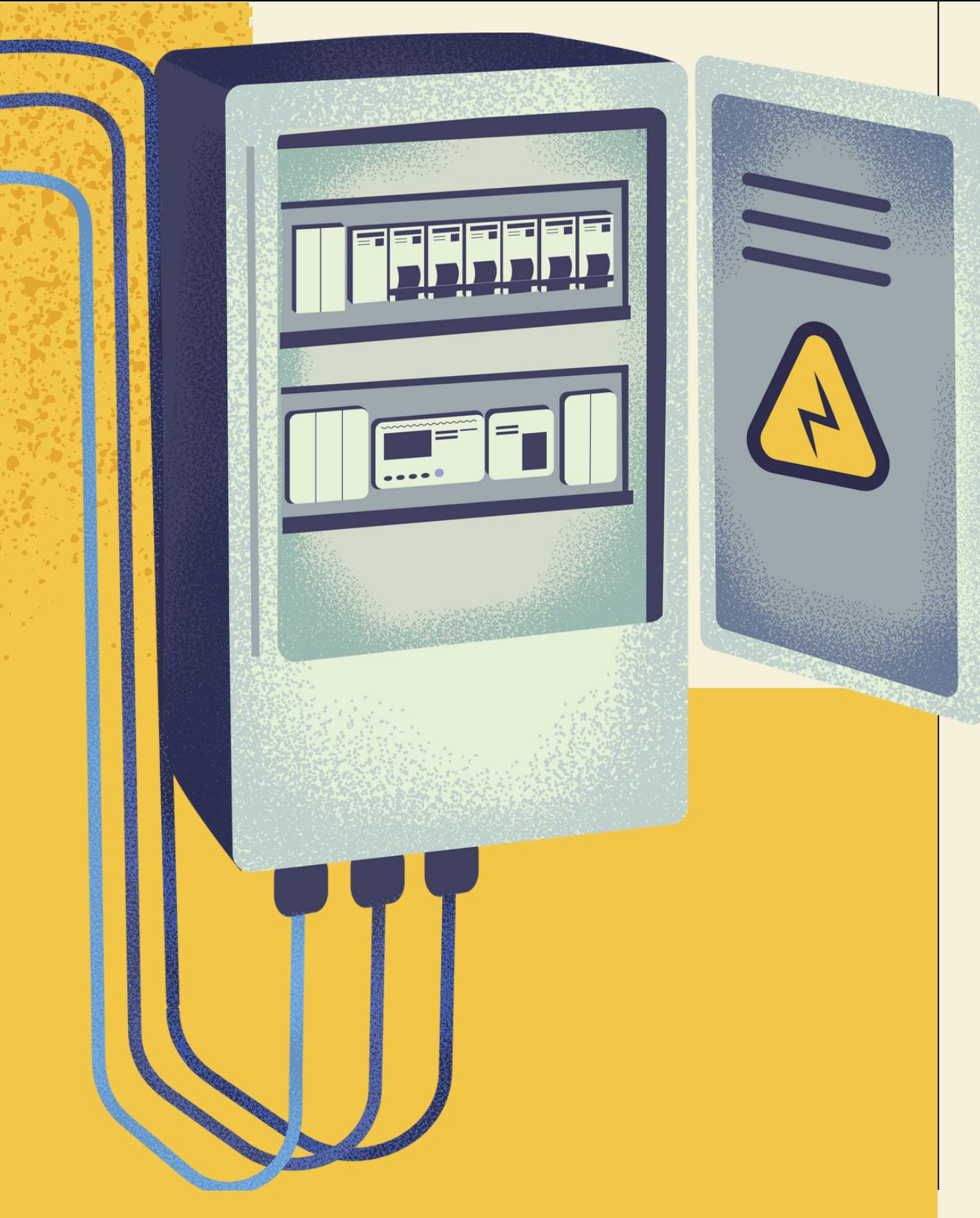


# REPAIRABILITY IN CONSUMER ELECTRONICS

ANDREW CHAU

# WASTE VS. REWARD



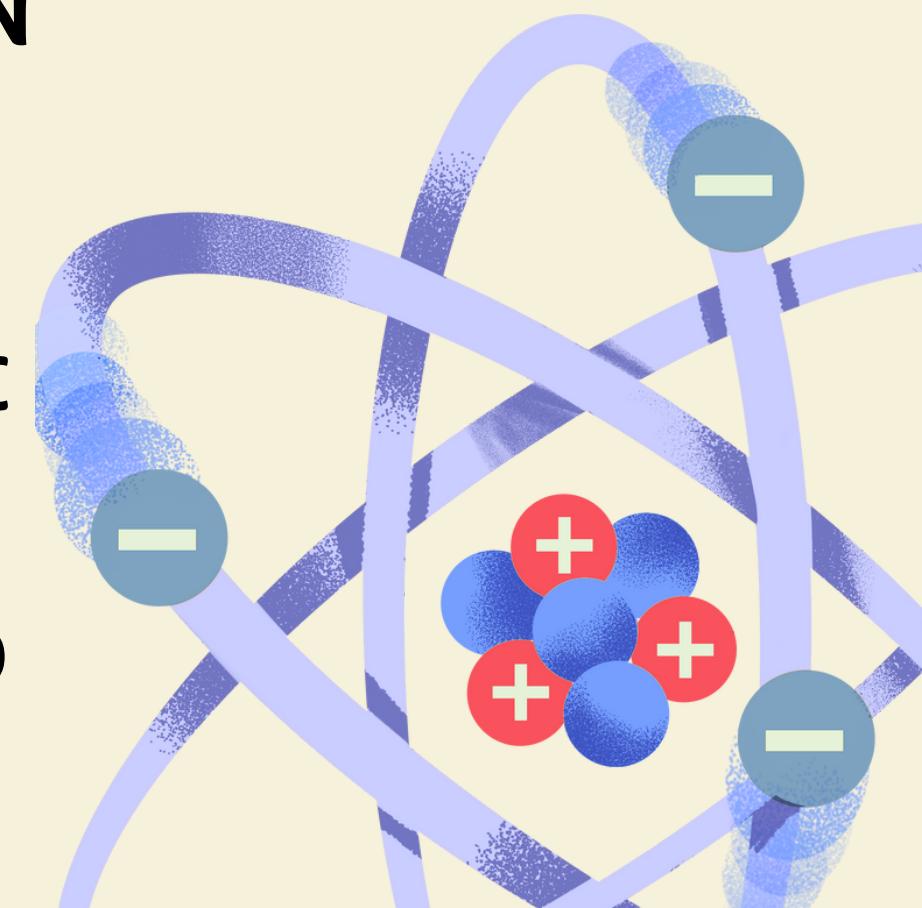
DISCARDING CONSUMER ELECTRONICS IS DETERIMENTAL ON  
MULTIPLE LEVELS, BUT AVOIDABLE!

E-WASTE COMPRISES 70% OF  
OUR OVERALL TOXIC WASTE.

CANADIANS HAVE TRIPLED THEIR  
TOTAL VOLUME OF E-WASTE IN  
THE PAST 20 YEARS

60% OF MANUFACTURES CITE  
RAW MATERIALS AS A SOURCE  
OF CONCERN

HOUSEHOLDS AVERAGE \$1600  
PER YEAR IN SPENDING ON  
CONSUME ELECTRONICS





REPAIRING ELECTRONICS REDUCES WASTE AND POLLUTION IN  
MULTIPLE LEVELS AND DIRECTIONS

## REPAIRABILITY IS THE KEY

- Reduction of waste at the manufacturing level
- Reduction of waste going into landfills, environment
- Reduction of waste from at transportation and other secondary and tertiary levels
- Reduction of raw materials that need to be extracted

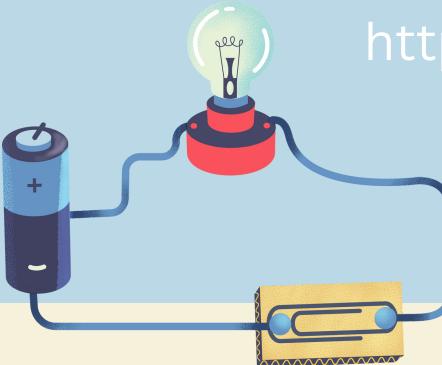
Empowering increased repairability as a practice and mindset  
fortifies against scarcity, poor design, and obsolescence

Multiple stakeholders can benefit

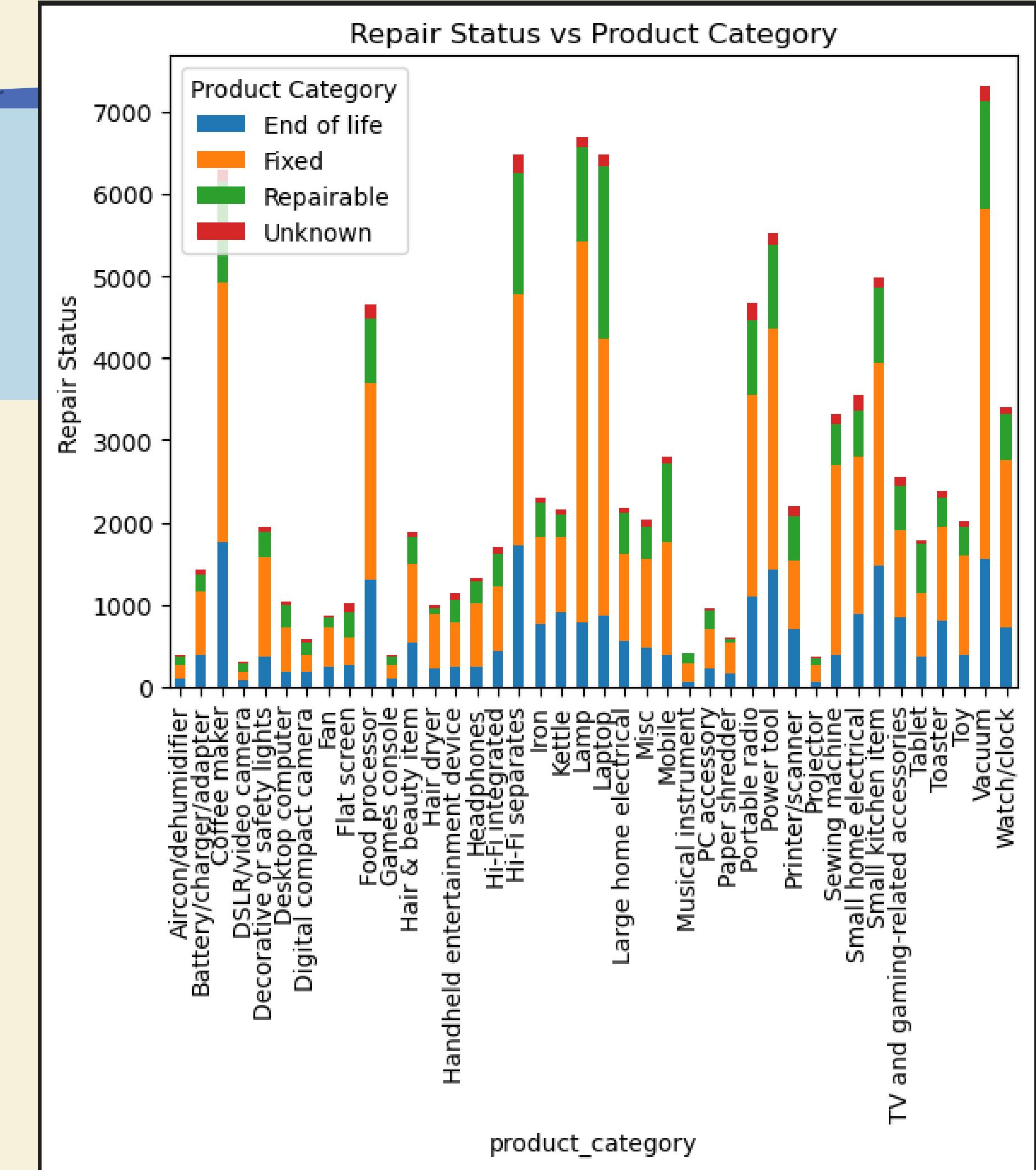
- \*Individuals
- \*Manufacturers
- \*Third Party
- \*Government
- \*WORLD

# OPEN REPAIR DATA STANDARD

<https://openrepair.org/open-data/open-standard/>



```
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 1   data_provider     103076 non-null    object  
 2   country          103076 non-null    object  
 3   partner_product_category  103076 non-null    object  
 4   product_category  103076 non-null    object  
 5   product_category_id 103076 non-null    int64   
 6   brand             103070 non-null    object  
 7   year_of_manufacture 37117 non-null    float64 
 8   product_age       37117 non-null    float64 
 9   repair_status     103076 non-null    object  
 10  repair_barrier_if_end_of_life 7268 non-null    object  
 11  group_identifier  103076 non-null    object  
 12  event_date        103076 non-null    object  
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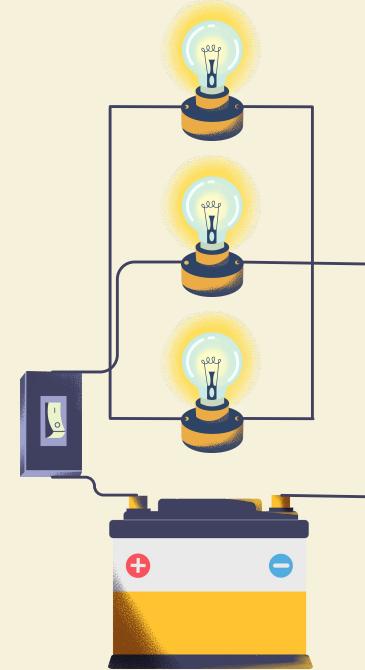
# DATA SCIENCE METHODS

- Regression Analysis
- NLP (after translation)
- Decision Tree

		precision	recall	f1-score	support
	0	0.49	0.04	0.08	4923
	1	0.69	0.98	0.81	10823
	<b>accuracy</b>				
	macro avg	0.59	0.51	0.45	15746
	weighted avg	0.63	0.69	0.58	15746

## NEXT STEPS

- Experiment with additional models, parameters
- Combine with repair instruction database to generate viability within certain criteria
- Cost, Time, Existing tools / materials



# REPAIRABILITY

SAVE THE WORLD, ONE TRINKET AT A TIME

THANKS FOR YOUR ATTENTION!  
QUESTIONS?

