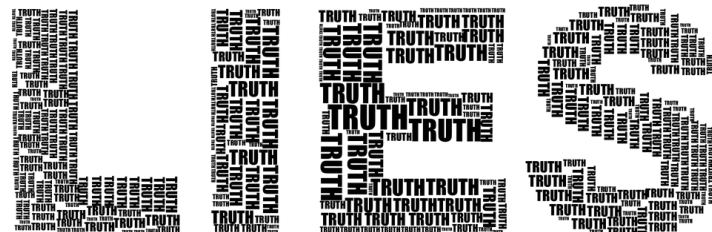




## Strategic Recommendation on Combating Fake News



**Communication** aimed at **influencing** the **attitude** of a community

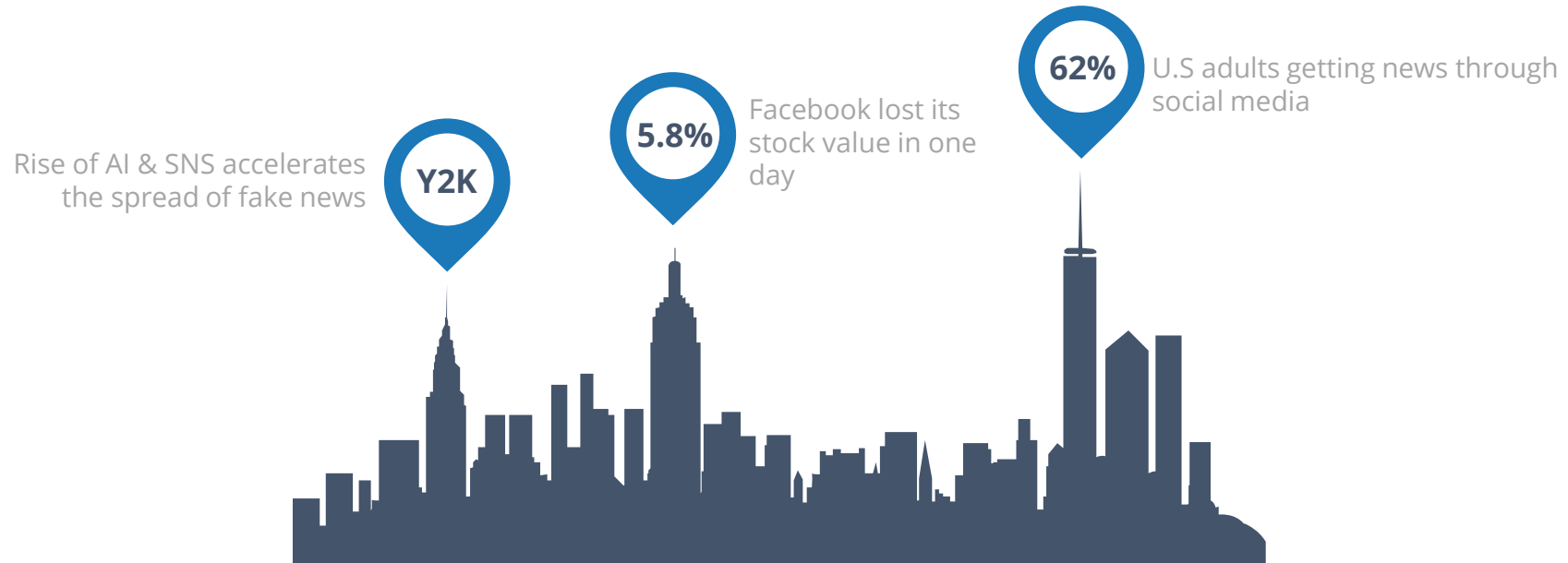
Combines **false facts** with facts to create **disinformation**

**Production & Distribution of fake news is problematic & dangerous**

What is **Fake** News?

# What is Real or Fake?

DESIGNED TO MANIPULATE PEOPLE'S PERCEPTION OF REALITY



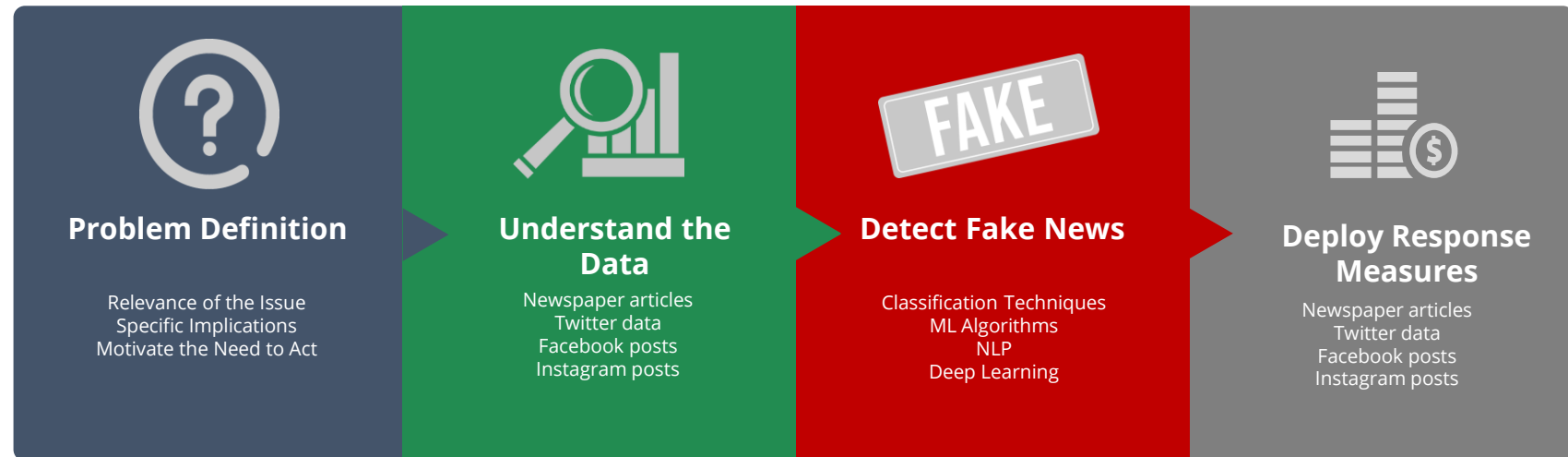
**90%** of Canadians have **fallen** for fake news  
**86%** of Americans believe online news **spread** fake news  
Intensify **conflicts** and distract people from **important issues**

Utmost interest of the public, government and the businesses  
to be able to **detect** fake news

Key **Success** Factor

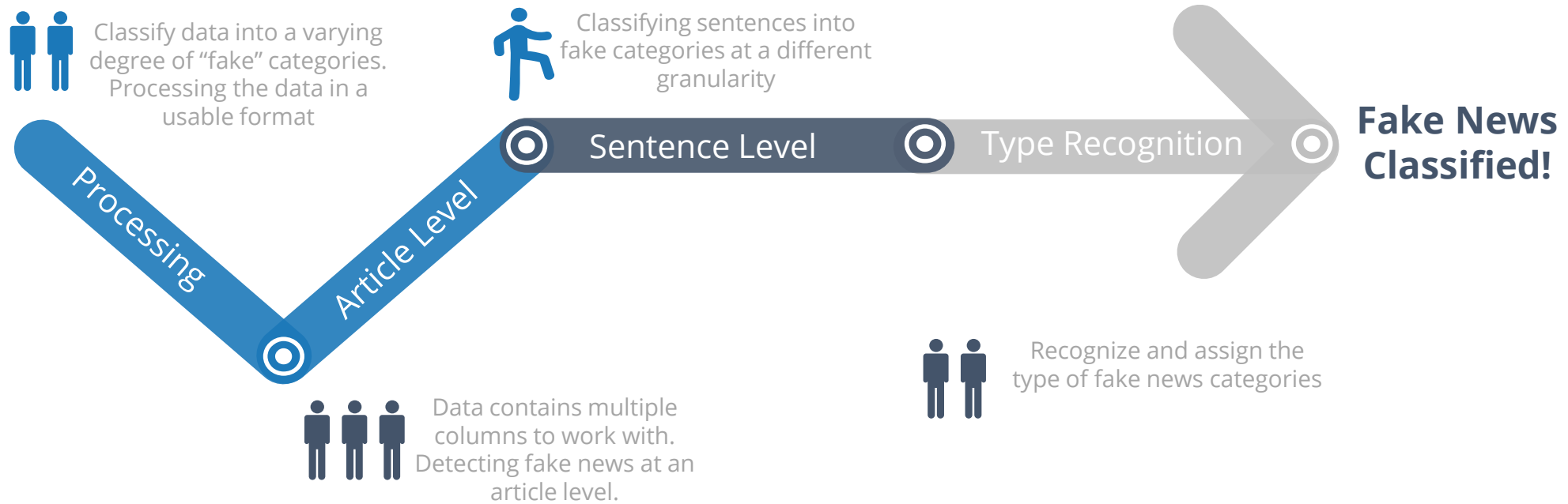
# How Can We **Combat** Fake News?

RESPOND WITH AI & TECHNOLOGICAL ADVANCEMENTS



# Our Approach

DESIGNING A PROCSS TO DETECT AND CLASSIFY FAKE NEWS



# Our Modelling Approach

USING ML ALGORITHMS TO COMBAT FAKE NEWS

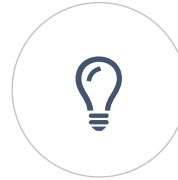
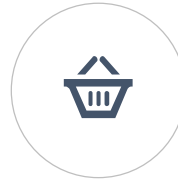
## Vectorizers

Using Count, Tf-idf, Hash, N-Grams to convert texts into numbers



## Meta-Data Features

Features extracted from meta data by exploratory analysis



## Cosine Similarity

Sentence based extraction based upon cosine similarities of Claims and Related articles



## Passive Aggressive Algorithm

Probabilistic machine learning approach to classification based on Bayes theorem

## LSTM

Meta estimator that fits a number of decision tree classifiers on sub samples of data

## BERT

Consists of neurons(units) arranged in layers, which converts an input vector into output by applying a non linear function

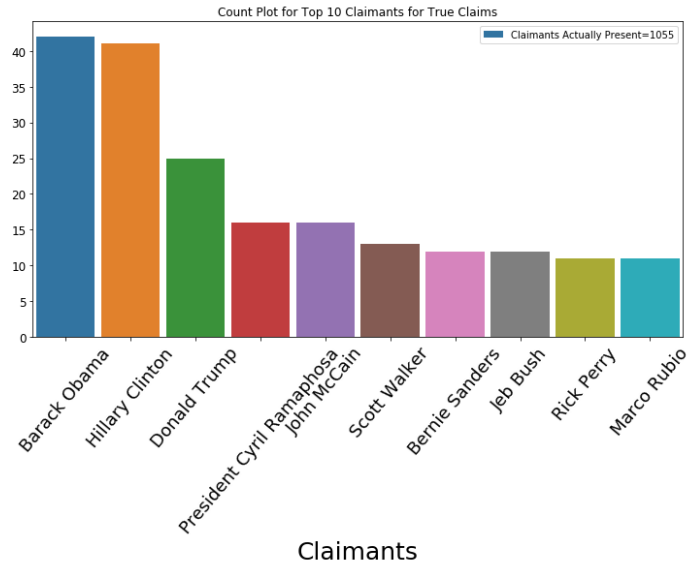
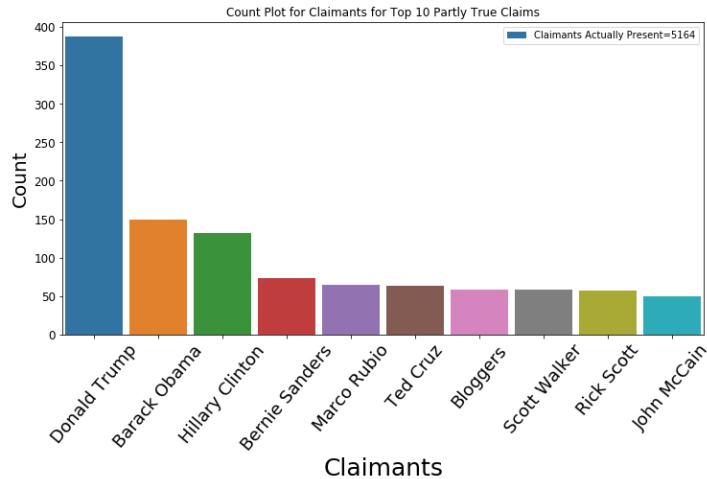
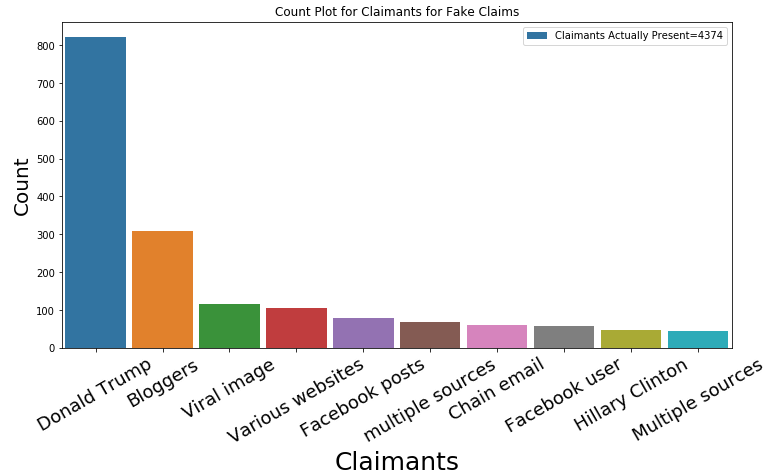
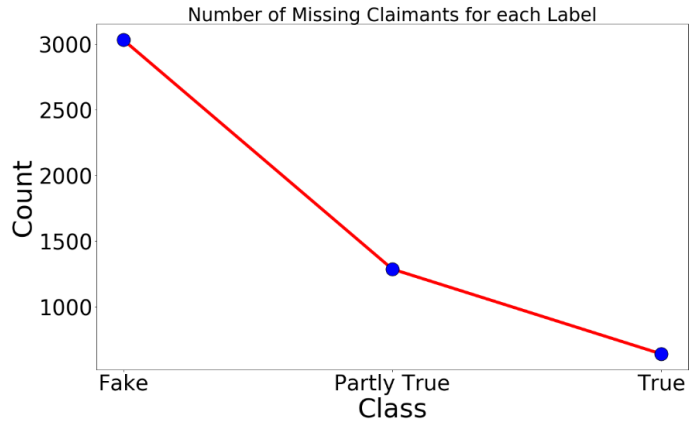
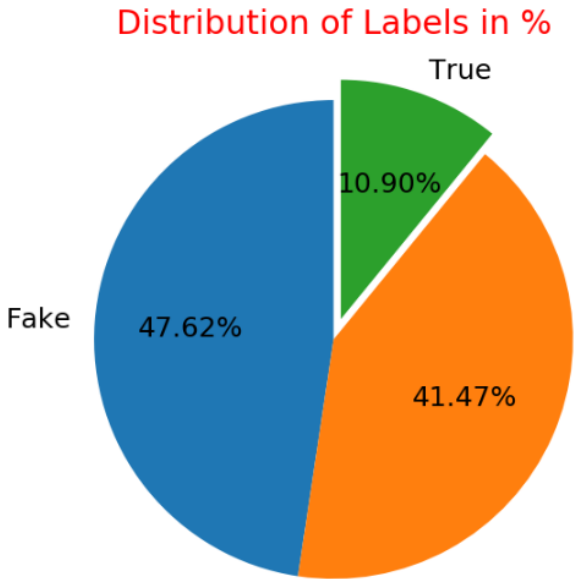
# Exploratory **Analysis**

Deriving Actionable Insights



# Key Findings – Meta-Data Analysis

WHAT THE DATA IS TELLING US?



# Text Analysis: Word Clouds of Claims and Related Articles

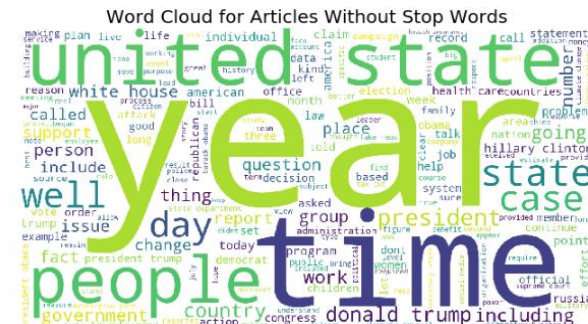
WHAT THE DATA IS TELLING US ?



Claims

Fake (0)

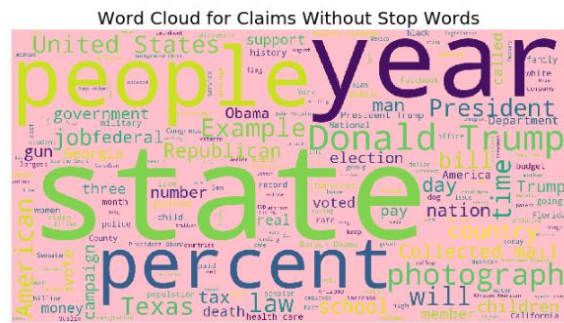
Articles



Claims

Partly True (1)

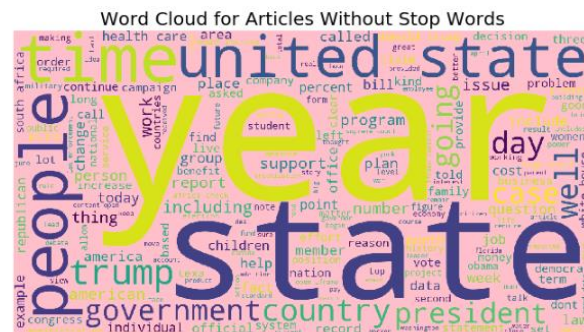
Articles



Claims

True (0)

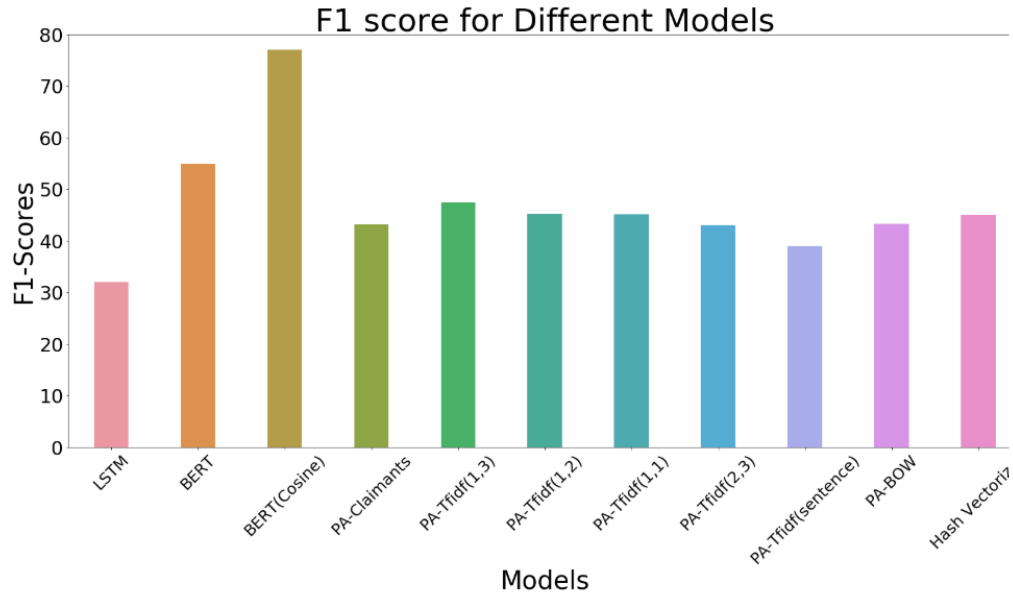
Articles



# Model **Performance**

Deciding on Appropriate Measures

# Model Performance



Best Model – BERT (Cosine Similarity + Sentence Based Extraction)

F1-Score (Macro-Avg) = 0.77

Test Accuracy = 80.9%

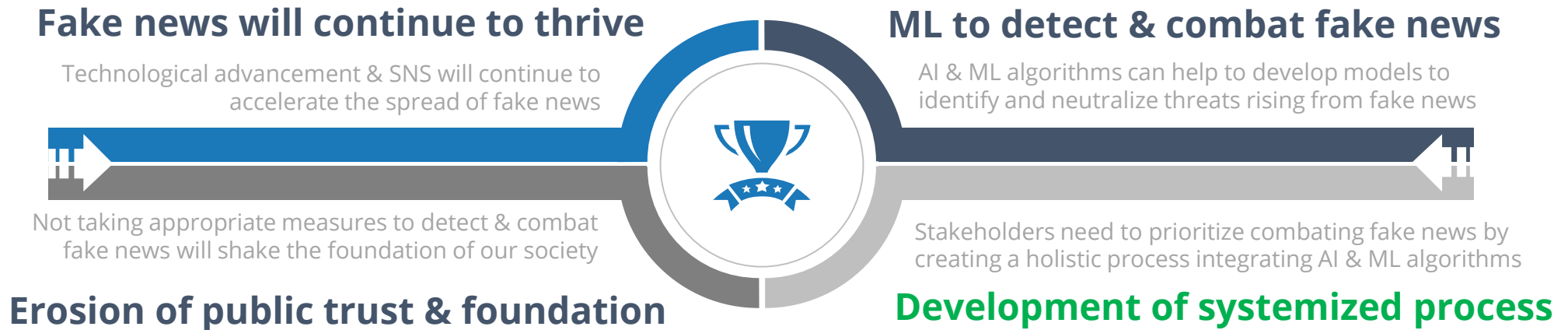
Train Accuracy = 81.4%

# Recommendations

Deciding on Appropriate Measures

# So What?

TRANSFORM KEY INSIGHTS INTO ACTIONABLE DECISIONS



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