

Massimiliano Cea – SAS AI & Advanced Analytics Team

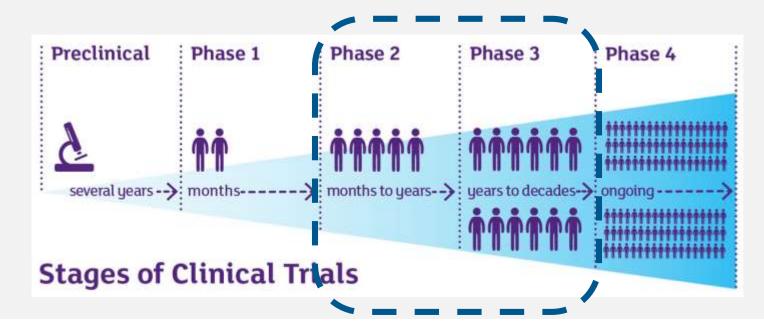
GRADIENT BOOSTING REINFORCEMENT LEARNING NEURAL NETWORKS STRUCTURAL EQUATIONS DEEP LEARNING **OPTIMIZATION** SEQUENCE ANALYSIS SENTIMENT ANALYSIS LOGISTICAL REGRESSION EDGE ANALYTICS DATA ANALYSIS HYPERPARAMETER AUTOTUNING PRINCIPAL COMPONENT ANALYSIS DATA MINING LINK ANALYSIS MIXED MODELS CONTROL CHARTS UNSUPERVISED LEARNING PSYCHOMETRIC ANALYSIS TRANSFER LEARNING STATISTICS LINEAR PROGRAMMING SUPERVISED LEARNING SURVEY SAMPLING AND ANALYSIS TRANSFER LEARNING **OPTIMIZATION** DEEP LEARNING NT SIMULATION SEQUENCE ANALYSIS NEURAL NETWORKS SENTIMENT ANALYSIS **GRADIENT BOOSTING** REINFORCEMENT LEARNING SUPPORT VECTOR MACHINE

Al Value Cases – Our Focus – Clinical Trial Optimization



Clinical Trials On-Time, within Budget and matching the Quality Standards







Clinical Trial AI Value Cases





ML techniques to identify the sites that more likely will have a better performance during the clinical study

Process Mining



Identification of bottlenecks and inefficiencies. Optimization of the different phases

Drop-Out



Predicts which patients have a higher chance of dropping out or not following protocols and the study timelines

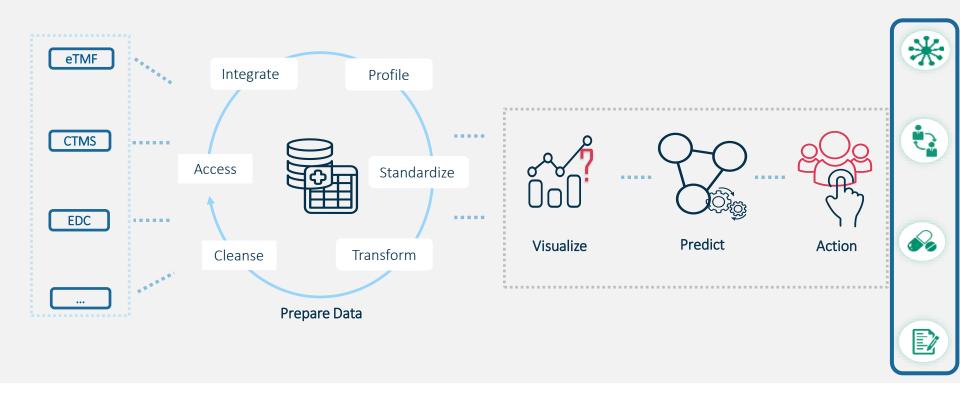
Data Quality



Anomaly detection in the Clinical Trial



Overview of the AI Clinical Trial Value Cases Process





Site Selection



We frequently invest significant time and resources in identifying qualified investigators and establishing study sites. Delays and difficulties obtaining information around the site experiences and qualifications of an investigator often delays crucial trials.

#1

TIME AND ACCURACY TO REPLY TO THE SURVEY





NUMBER OF HISTORICAL PATIENTS #2
DROP-OUT

#3

NUMBER OF QUERIES

NUMBER OF CLINICAL TRIAL ON-GOING



Clinical Trial Process Mining





Drop-out Rate



Predicts which patients have a higher chance of dropping out or not following protocols and the study timelines



Data Mining & Machine Learning Approach

Prepare the historical data for analytics

Understand why people dropped out in the past

Predict who is likely to drop out in current trials Take **actions** to prevent drop-out before happening



Data Investigation + Q&A System



Offers immediate, relevant support to identify data not conform and resolve most of investigator's queries, related to study protocol, procedures, accounts, trainings, use of SOPs, eCRF, eTMF, other study applications and or devices



Business Rule, Network Analytics, Machine Learning Anomaly Detection in Clinical Trials

Search System to find answers to technical questions



Q & A Systems &

Text Analytics



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Thank you <u>Gaetano.Varriale@sas.com</u> <u>Massimiliano.Cea@sas.com</u>

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Dalla sperimentazione alla realtà

Milano, 13 marzo

Roma, 21 marzo

Registrati gratuitamente

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