

# Correlates of AC Performance across Contexts:

An Investigation of Aggregated  
Measures of Executive Performance

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# Overview

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- Common findings regarding personality and executive performance findings
- Sample and methods, machine learning focus
- Results across several methods



# Personality Correlates of Executive Performance

Approach	Representative Finding
Single trait studies	Narcissism correlates with exec performance (e.g., Chatterjee & Hambrick, 2011)
Big-5 meta-analyses	Extraversion and Openness to Experience relate to leadership performance (e.g., Judge et al., 2002)
	Ambition (E), Learning orientation (OE), adjustment (N), show stronger correlations than other traits for exec performance (Hogan, 2008)
Exec performance studies	Extraversion, Openness, correlate with exec experience and strategic thinking competency (Dragoni et al., 2011)



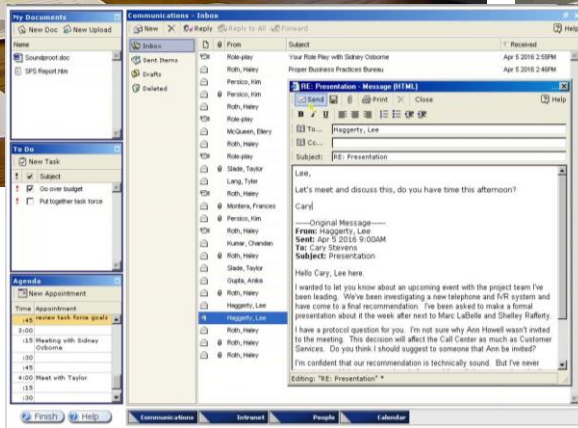
# Sample and Methods

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- Executive assessment results aggregated across industries and regions
- Assessments included behavioral measures of executive competencies and personality tests
- Machine learning techniques used to explore resulting database



# Data source: tech-facilitated assessment center



## Key characteristics:

- Day-in-the-life format
- Paired personality testing
- Live interactions
- Deployed globally





**Karen Gates**  
 Vice President , Operations

Started: 02.04.2000  
 Previous Position: Director, Operations  
 Education: MBA, Wharton Business School  
 Known Aspirations: VP of Eastern Region

# Sample Output

COMPETENCIES

## Interpersonal Skills

- P** Compelling Communication
- P** Cultivating Networks
- S** Navigating Politics
- D** Influence

## Business Management

- D** Building Organizational Talent
- S** Driving Execution
- P** Financial Acumen
- P** Operational Decision Making
- P** Entrepreneurship
- P** Establishing Strategic Direction

## Leadership

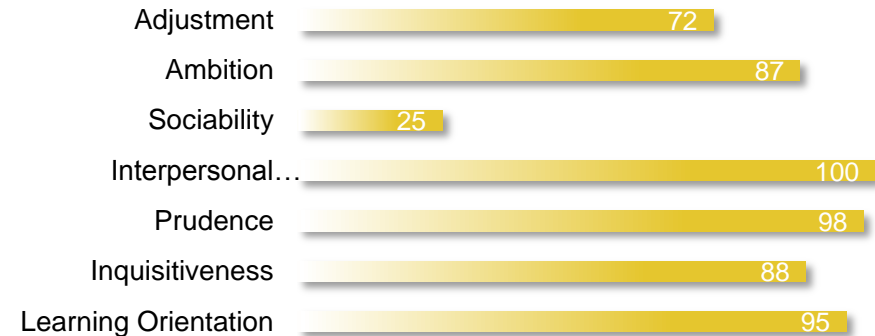
- S** Leading Change
- P** Coaching and Developing Others
- S** Selling the Vision
- P** Empowerment/Delegation

## Personal Competencies

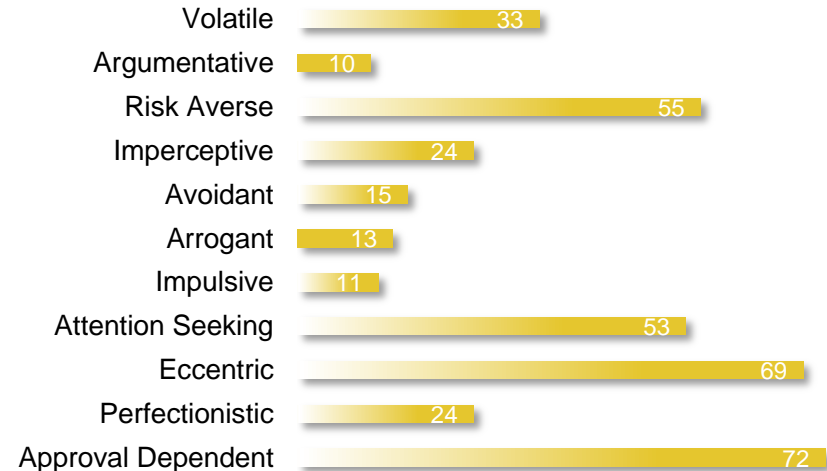
- P** Executive Disposition
- S** Passion for Results

PERSONALITY PATTERNS

## Leadership Effectiveness Inventory




## Leadership Challenge Inventory

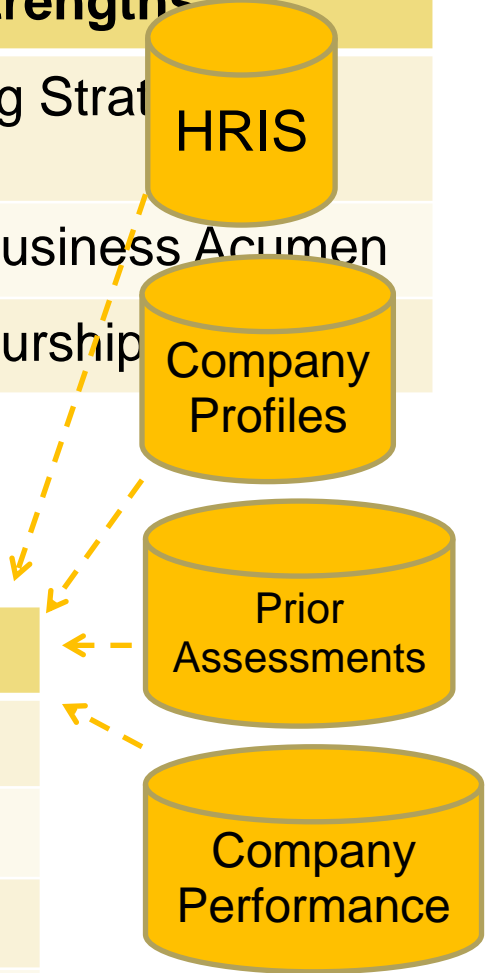


# Aggregated database



Strengths	
Establishing Strategic Direction	   
Financial/Business Acumen	
Entrepreneurship	

Strengths	
Driving	<b>Vary by:</b> Executive Level? Community Industry? Impact Experiences? Decision Personality profile? Customer Focus
Executive	
Community	
Impact	
Decision	
Customer	



# Machine Learning/Data Mining: When to Use?

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- Noisy predictor and criterion data
- Minimal theoretical grounding
- Limited experimental control





# Analysis design:

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- Executive assessment database
- Predictors: 18 personality scales
- Outcome:
  - Strategic vs. Non-Strategic profiles
  - Interpersonal vs. Non-Interpersonal profiles
- Predictive Accuracy: Cross-Validation

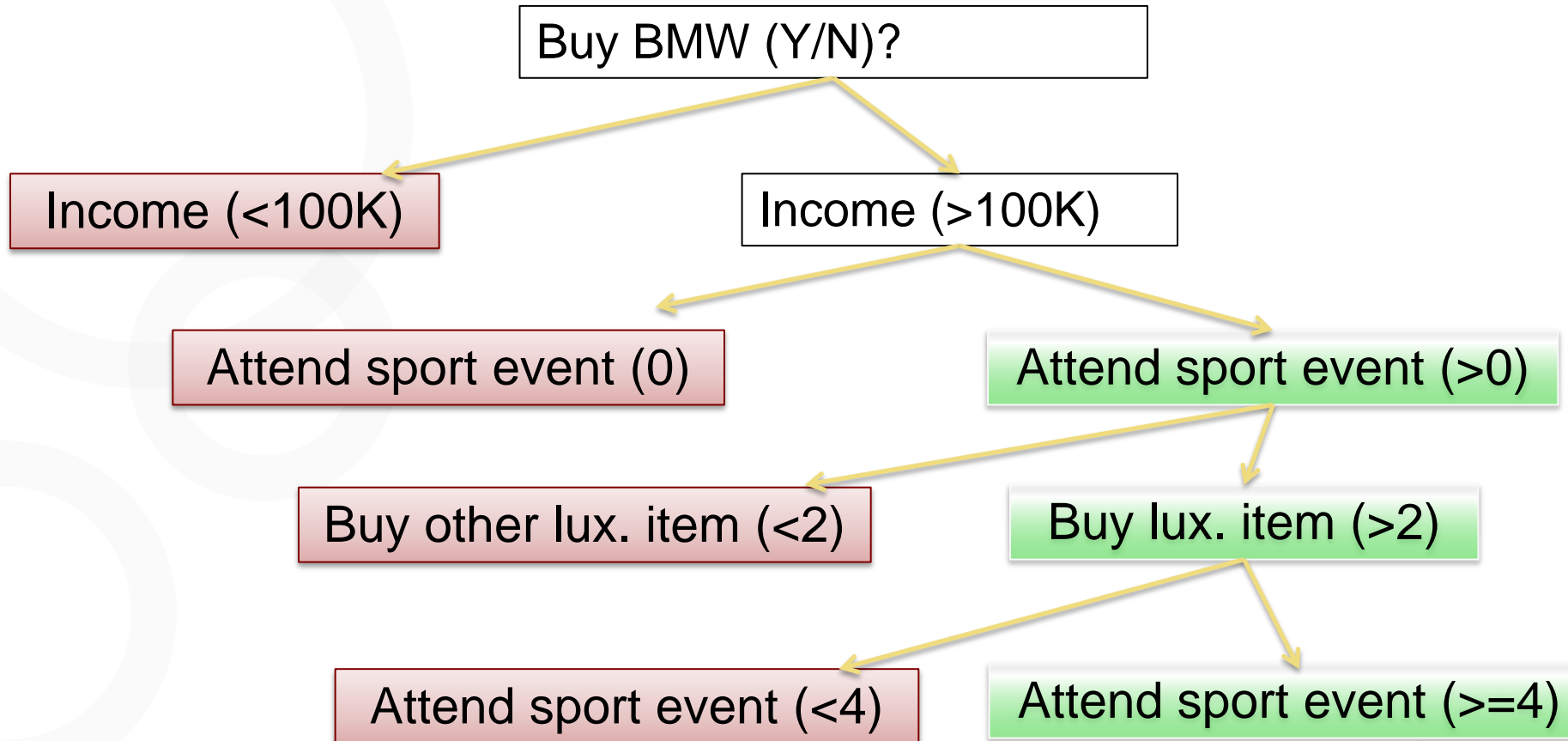


# Variable Importance: Comparison of Three Methods

	<b>Traditional Regression</b>	<b>Relative Importance</b>	<b>Random Forests</b>
Multicollinearity	X	√	√
Non-normality	X	X	√
Non-linearity	X	X	√
No A-Priori-Model	X	X	√



# Example: Classification Tree

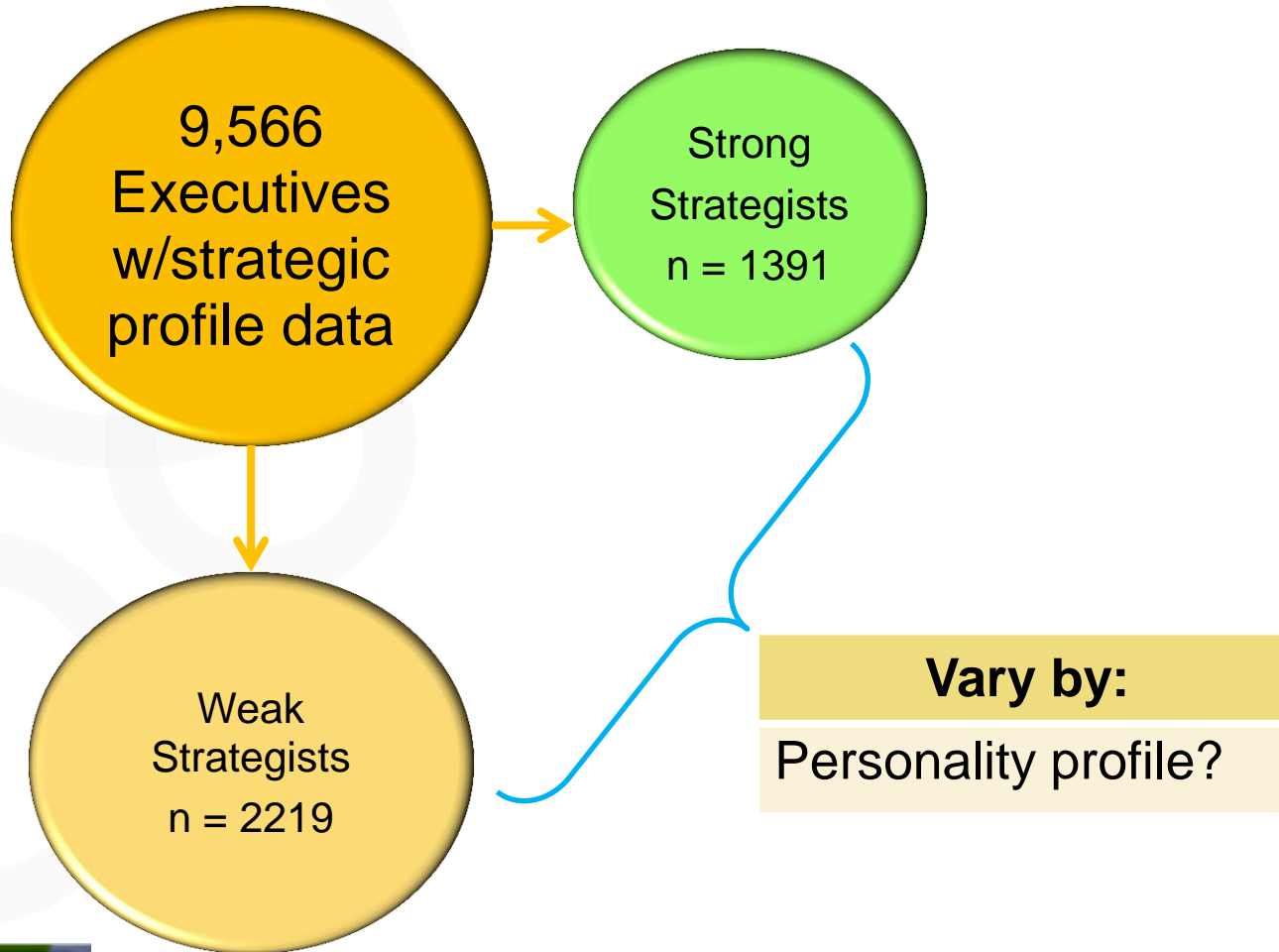


# Study 1: Predict Strategic Profiles

- Predictors: 18 personality traits (pos. & neg.)
- Criterion: ratings on strategic competencies
  - Business Acumen
  - Establishing Strategic Direction
  - Entrepreneurship



# Study 1: Sample



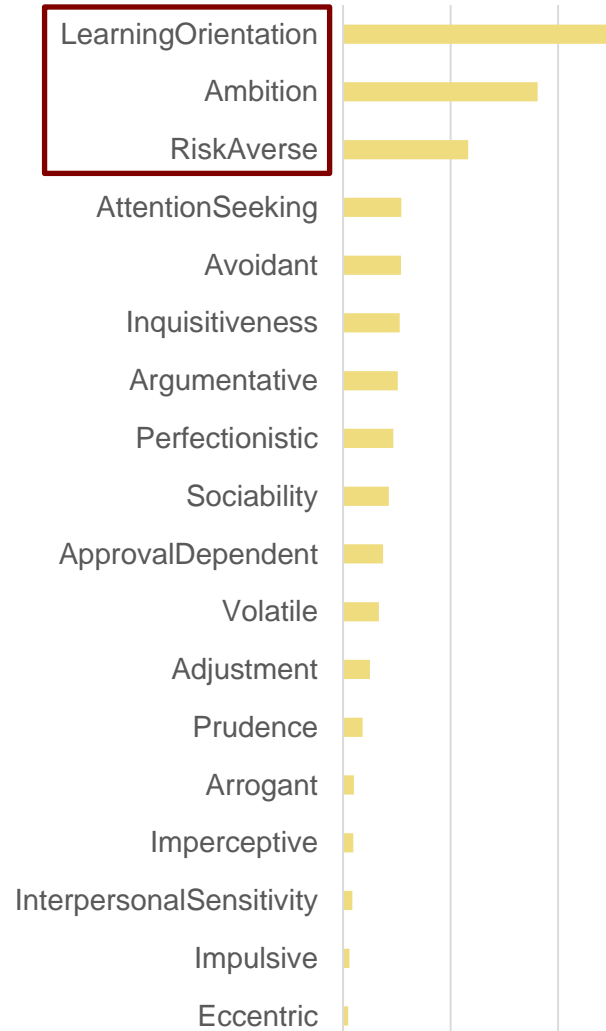
# Study 1: Variable Importance

## Logistic Regression:

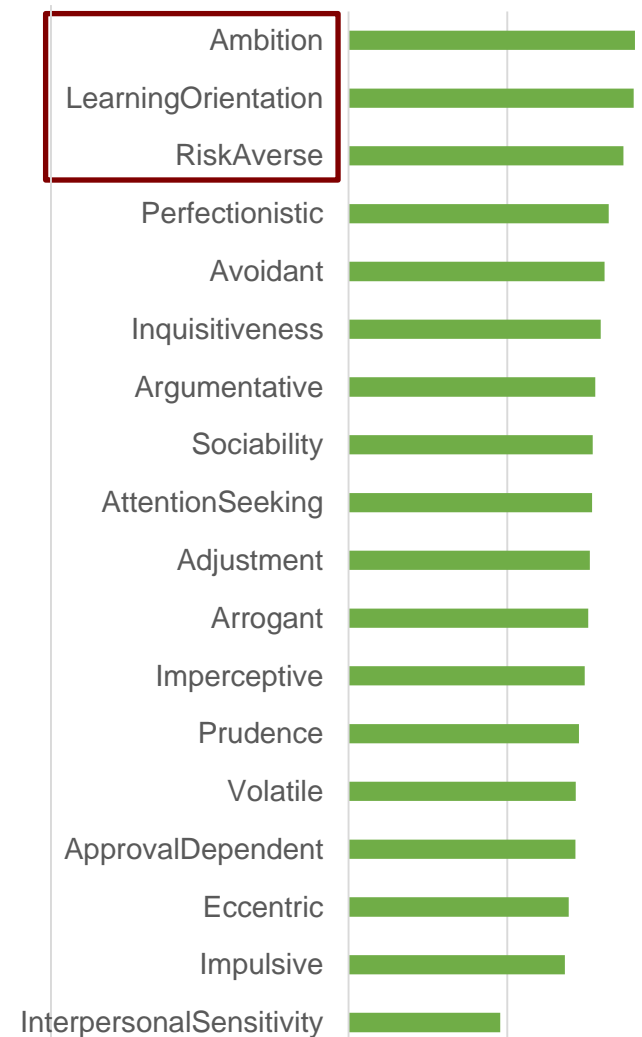


Accuracy: 65.05%

## Relative Importance:

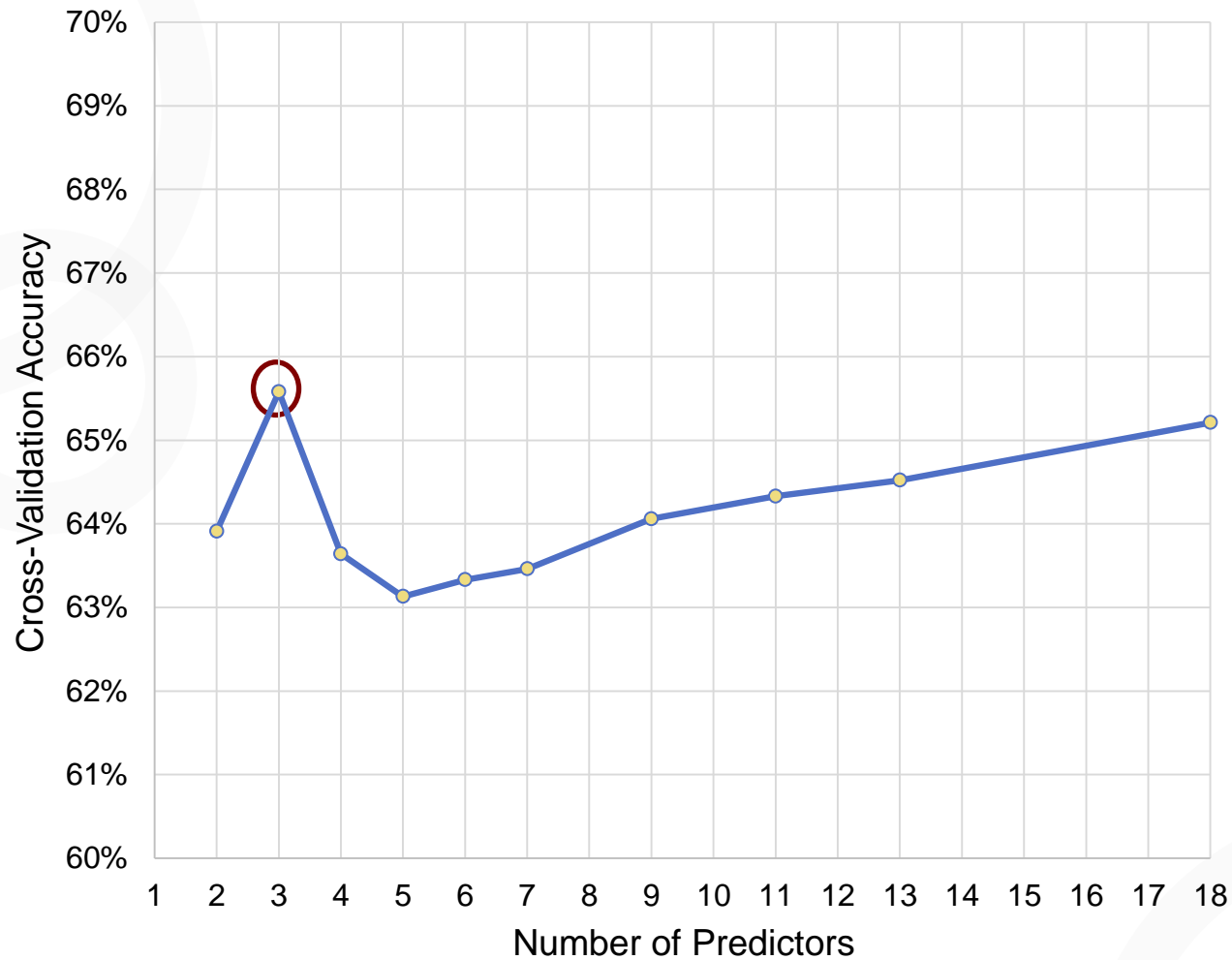


## Random Forests:

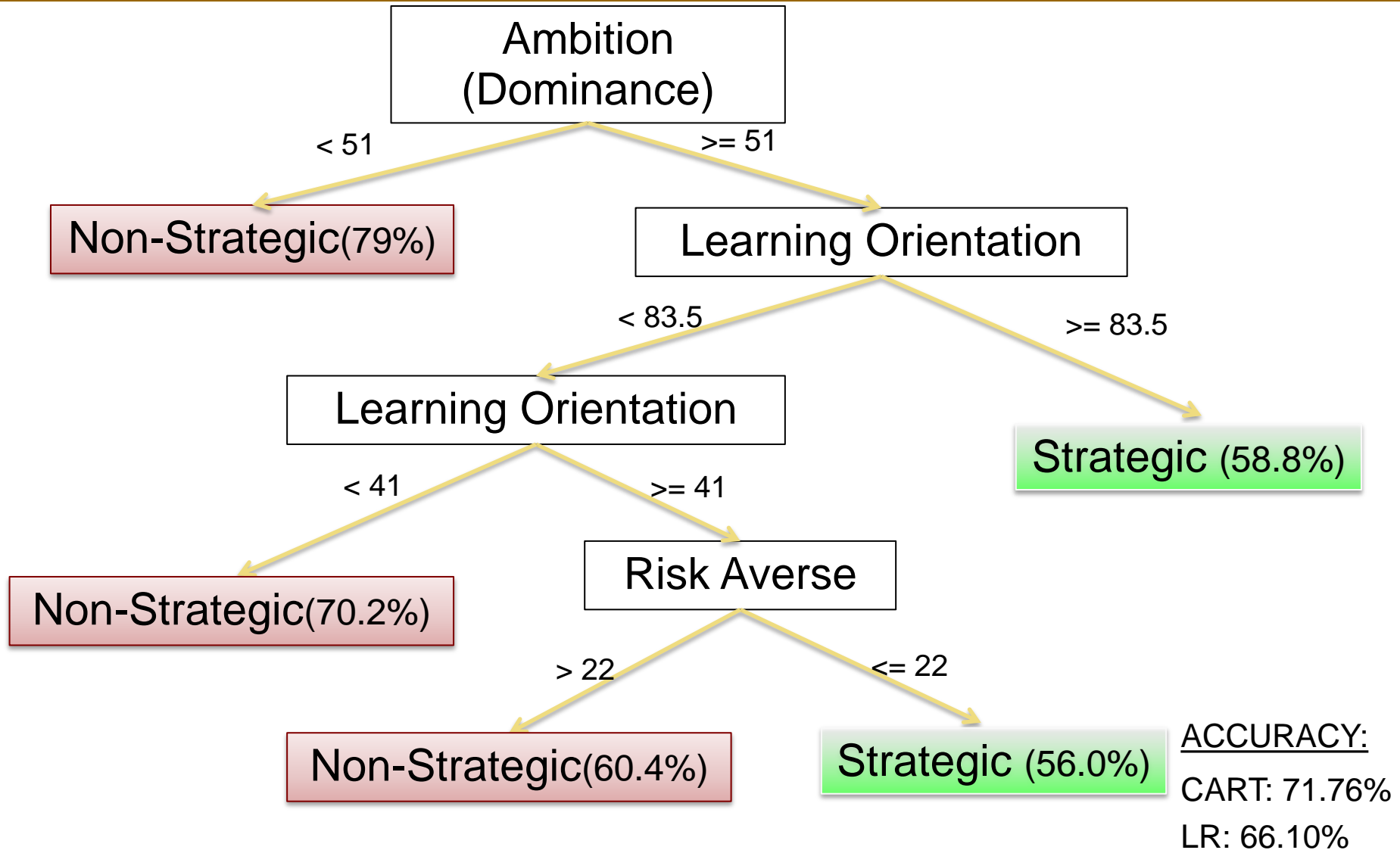


Accuracy: 66.02%

# Study 1: Feature Selection



# Study 1: Sample Classification Tree



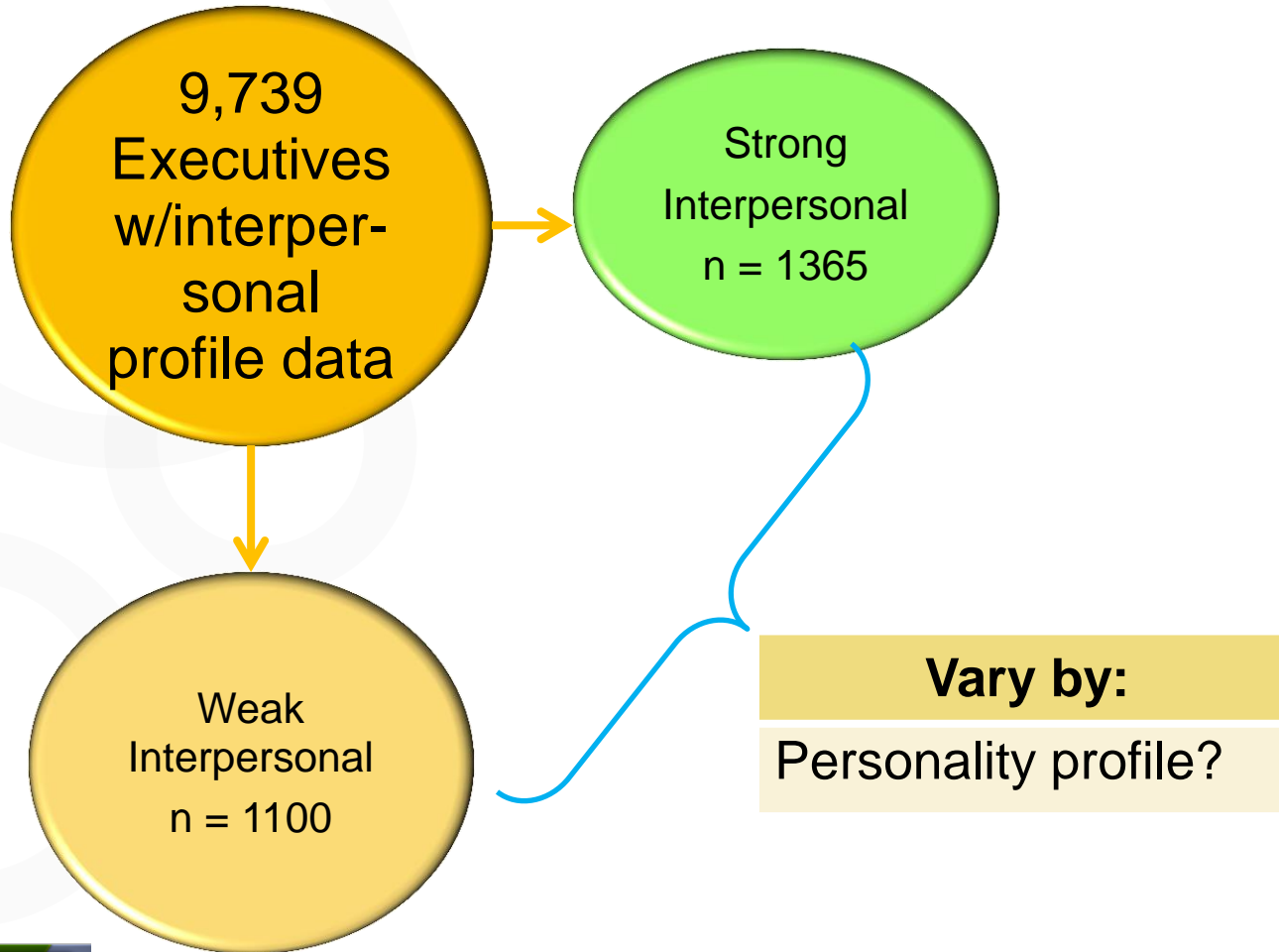


# Study 2: Predict Interpersonal Profiles

- Predictors: 18 personality traits (pos. & neg.)
- Criterion: ratings on interpersonal competencies
  - Cultivating Networks
  - Communicating with Impact
  - Influence

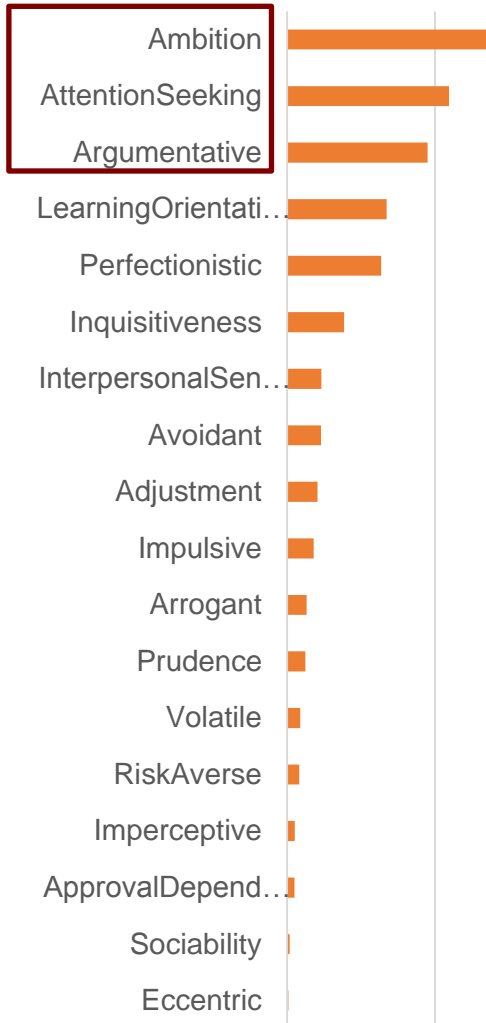


# Study 2: Sample



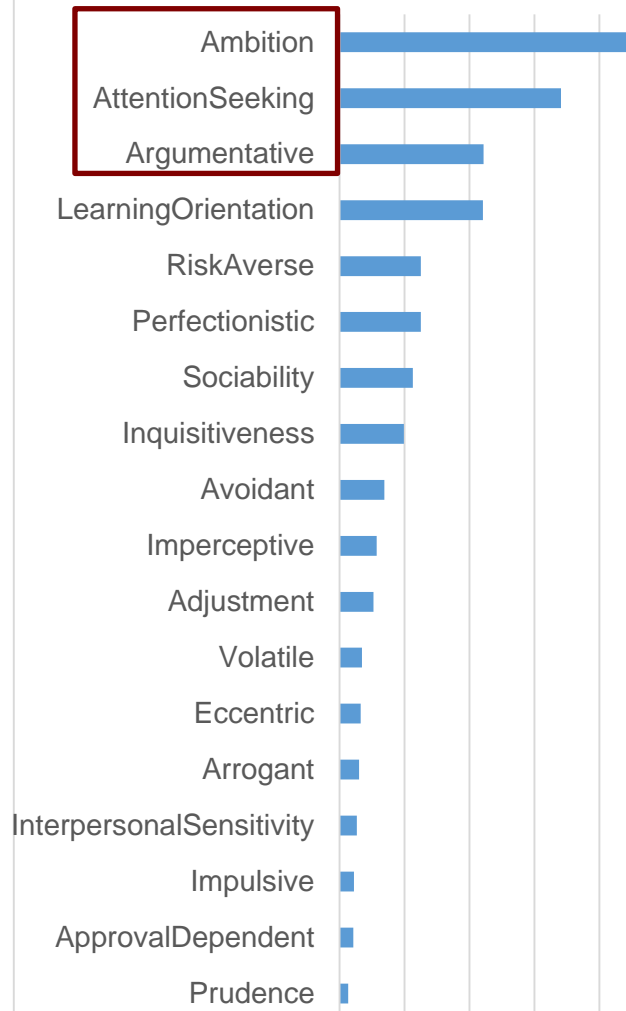
# Study 2: Variable Importance

## Logistic Regression:

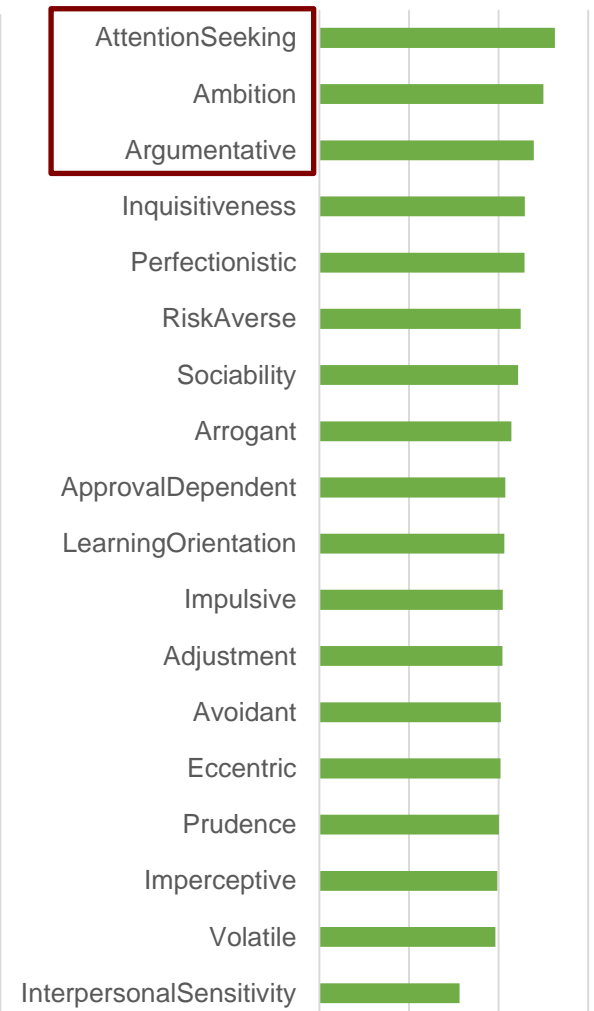


Accuracy: 64.27%

## Relative Importance:

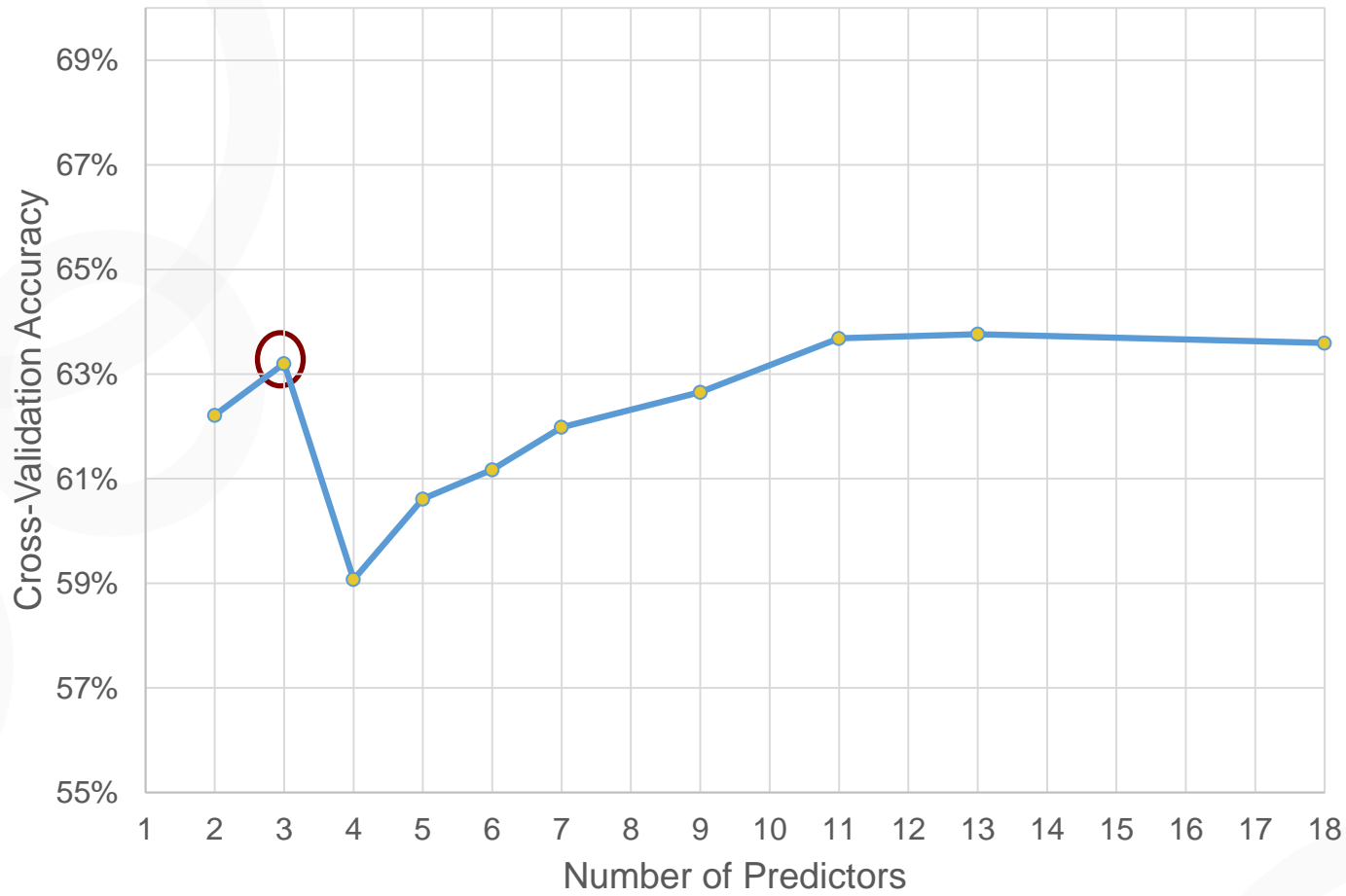


## Random Forests:

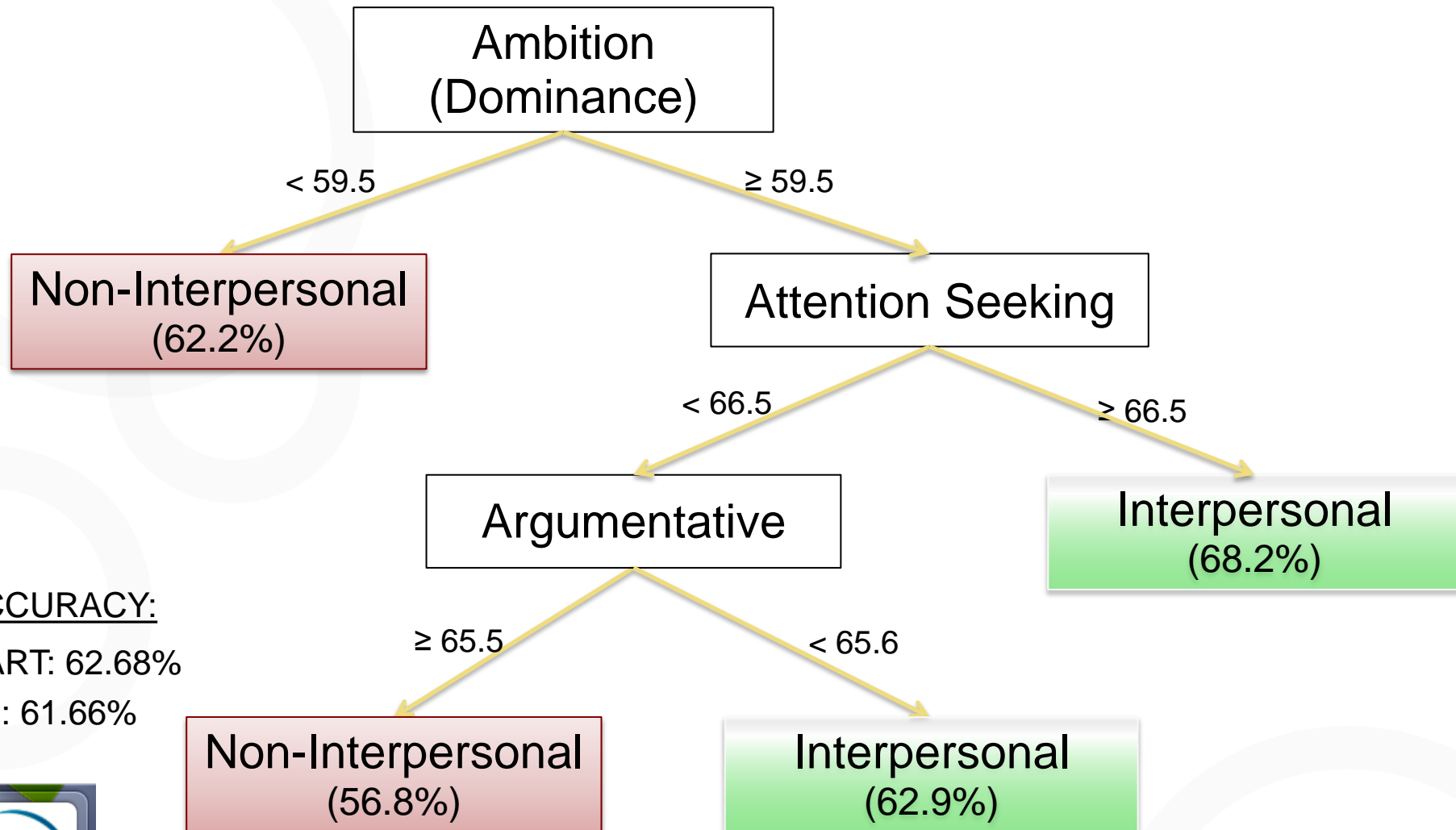


Accuracy: 64.18%

# Study 2: Feature Selection



# Study 2: Sample Classification Tree



ACCURACY:

CART: 62.68%

LR: 61.66%



# Conclusions:

- Personality variables have consistently shown relationships with executive performance
  - Strategic: ambitious, willing to learn, not afraid of risks
  - Interpersonal: ambitious, willing to be on the spot, not argumentative
- Complex relationships among variables may be obscured by traditional analyses
- Machine learning and “big data” analytics provide useful tools for extending our understanding of these complex relationships

