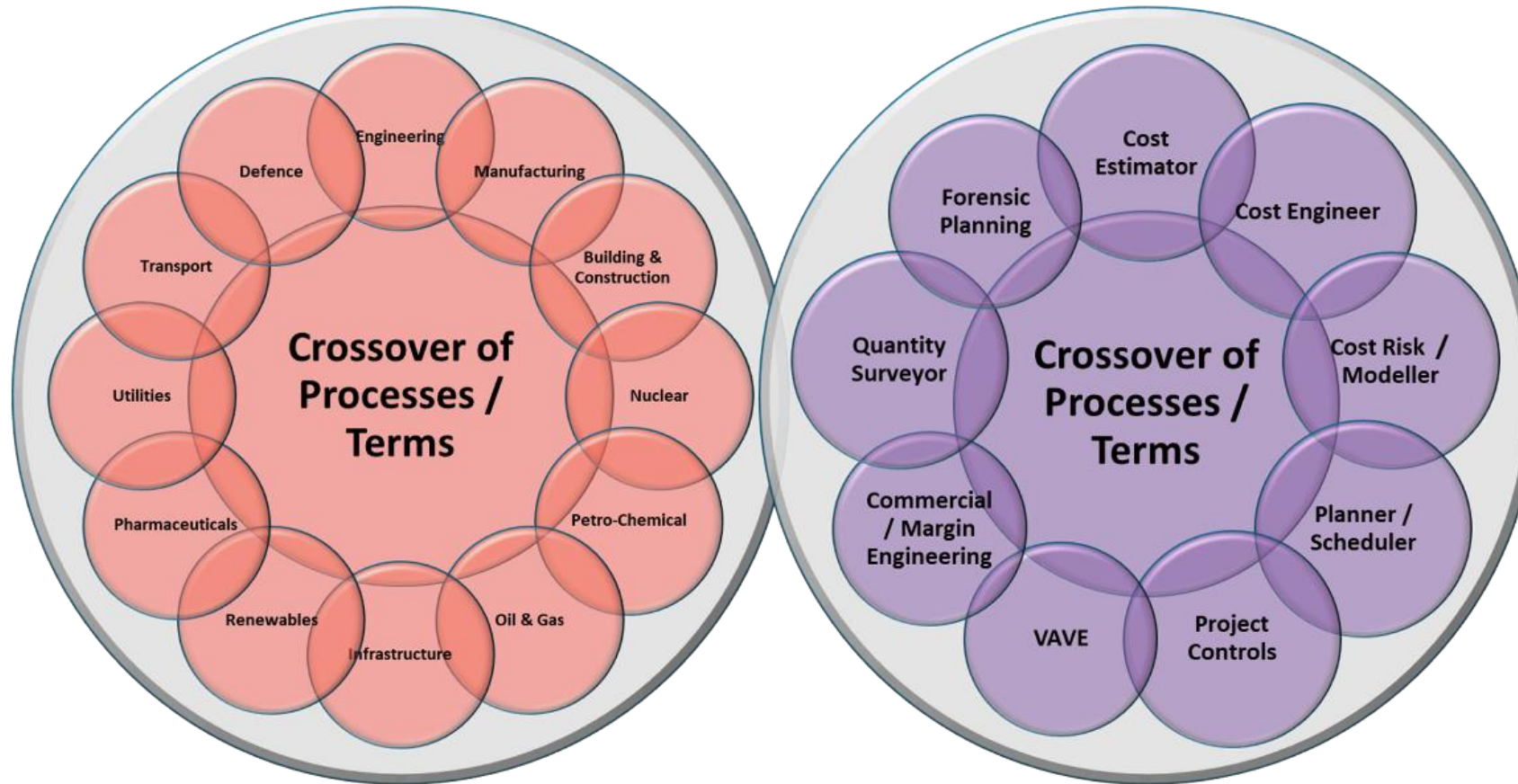




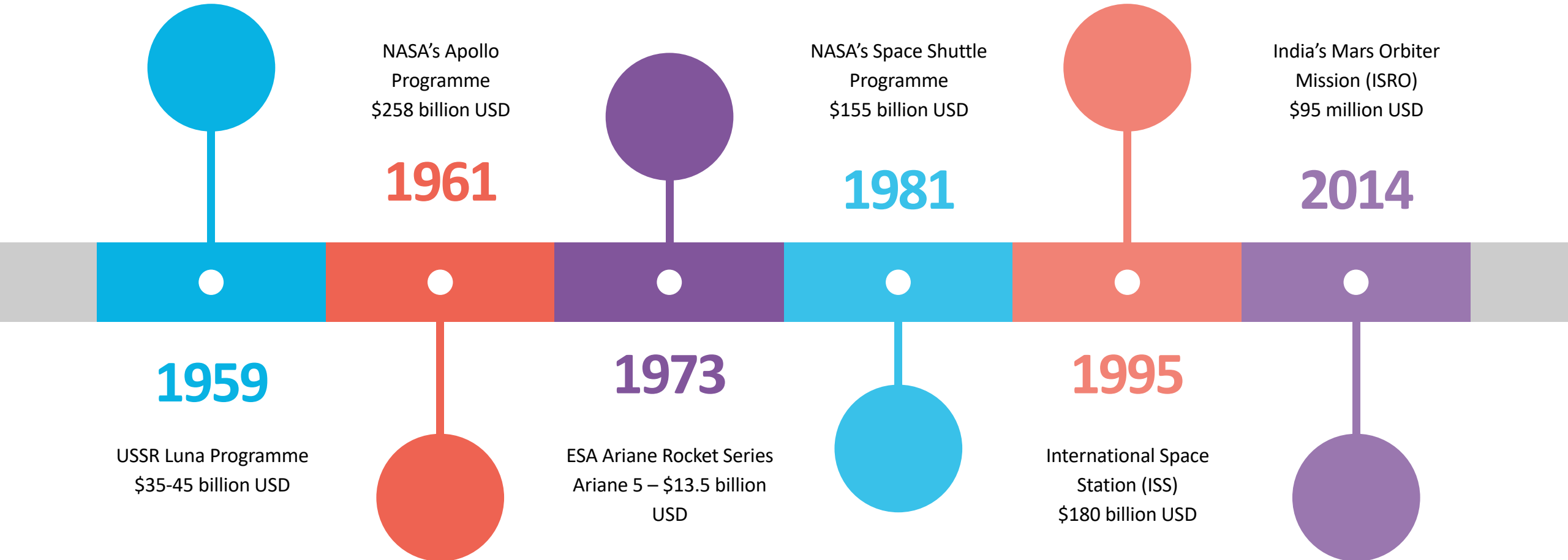
ACOSTE

Is it delusion, optimism, strategic misrepresentation or just an error?

ACOSTE: The Authority representing the professional interests of those with responsibility, at all levels, for the prediction, planning and control of resources and cost for activities.



Space ProjectsTimeline



MAJOR COMPLEXITIES



Environmental & Regulatory Factors

Launch Window & Orbital Dynamics
Regulatory Compliance

Supply Chain & Logistics

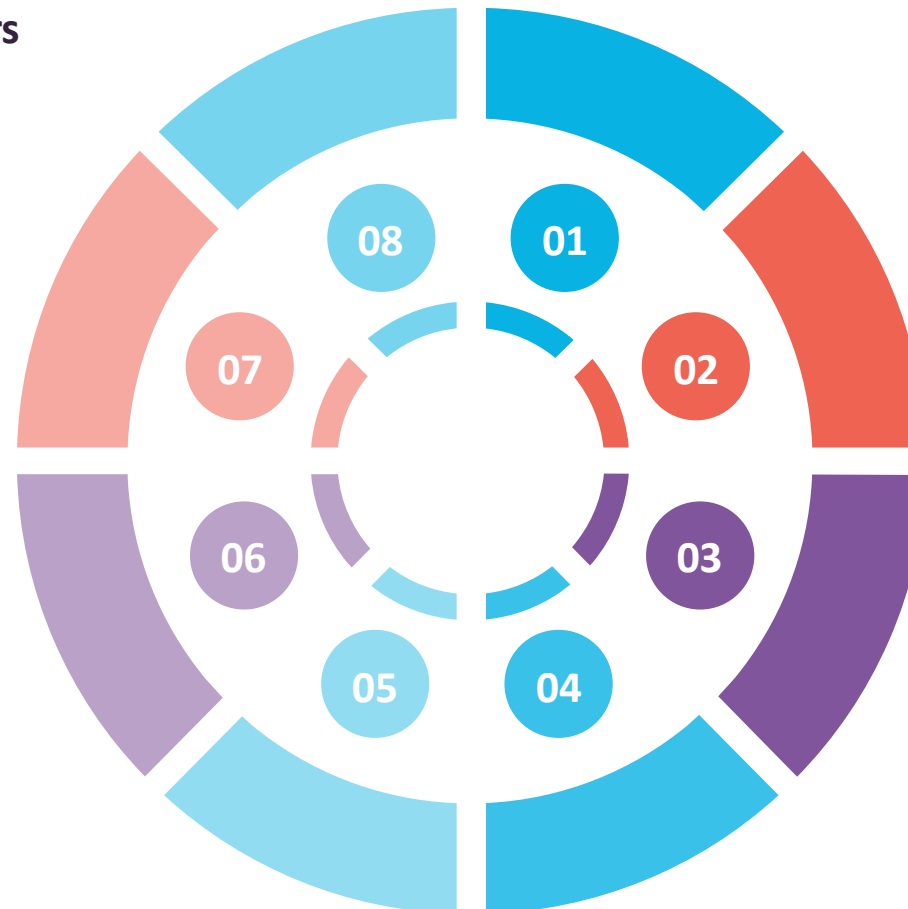
Sourcing Specialised Materials
Supply Chain disruption

Launch Costs & Risks

Launch vehicle costs
Risk of launch failure

Human Factors

Human Spaceflight Safety
Extended Missions



Technical Challenges

Engineering Complexity
Precision Requirements
New Technologies

Scientific and Mission Objectives

Ambitious Mission Scope
Exploring Uncharted Territories

Development and Testing Phases

Prototyping and Testing
Failure during Testing

Delays and Schedule Overruns

Delays in development
Political and Funding Instability

REFERENCE CLASS FORECASTING



A

SIMILAR TYPE OF MISSIONS

Crewed missions, Interplanetary missions,
Satellite Launches, Space telescopes

B

ADJUSTING FOR SYSTEMATIC RISK

Technical delays, cost escalations, political or
funding issues

C

HANDLING TECHNOLOGICAL INNOVATION

Accounting for inherent uncertainty of new
technologies

D

ESTABLISHING MORE REALISTIC BUDGETS AND TIMELINES

Improving transparency and decision making



LIMITATIONS OF REFERENCE CLASS FORECASTING



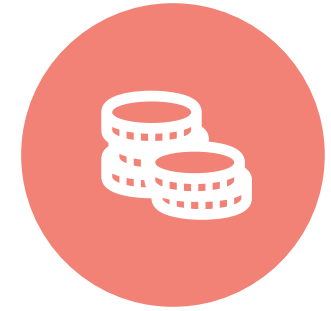
LIMITED HISTORICAL
DATA



TECHNOLOGICAL
UNIQUENESS



HIGH VARIABILITY



POLITICAL AND
ECONOMIC FACTORS

HM TREASURY OPTIMISM BIAS UPLIFTS

- Default optimism bias percentages
- Equipment/ Development projects
 - Uplifts range from 10% - 200%
- Factors for space projects
 - Technological innovation and uncertainty
 - High risks of failure and delays
 - Increased costs



EXCITING NEW PROJECTS IN THE UK



James Webb Space
Telescope

Solar Orbiter

BepiColombo mission to
Mercury



HOW MUCH WILL IT COST TO GO TO MARS?



A

HISTORICAL CONTEXT

B

COST COMPONENTS

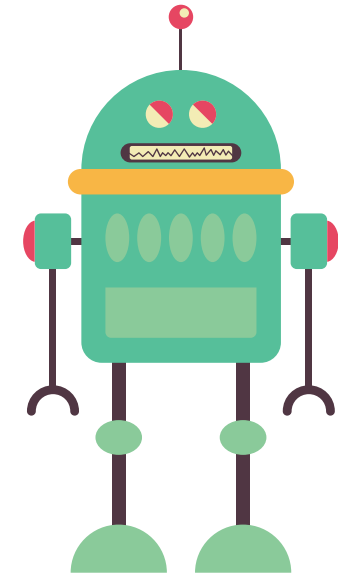
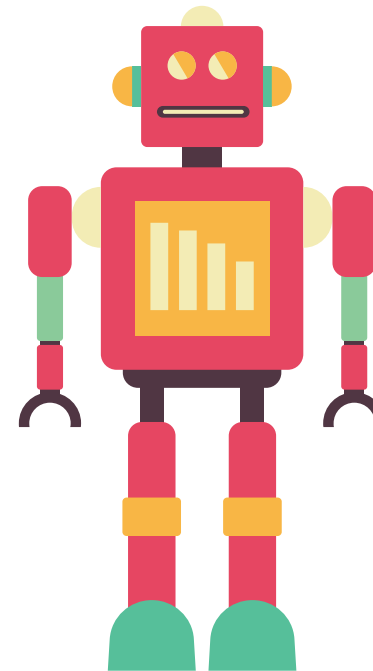
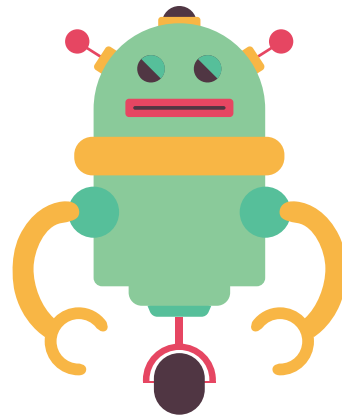
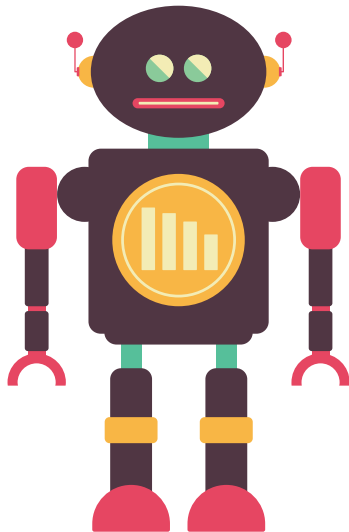
C

COST PREDICTION

D

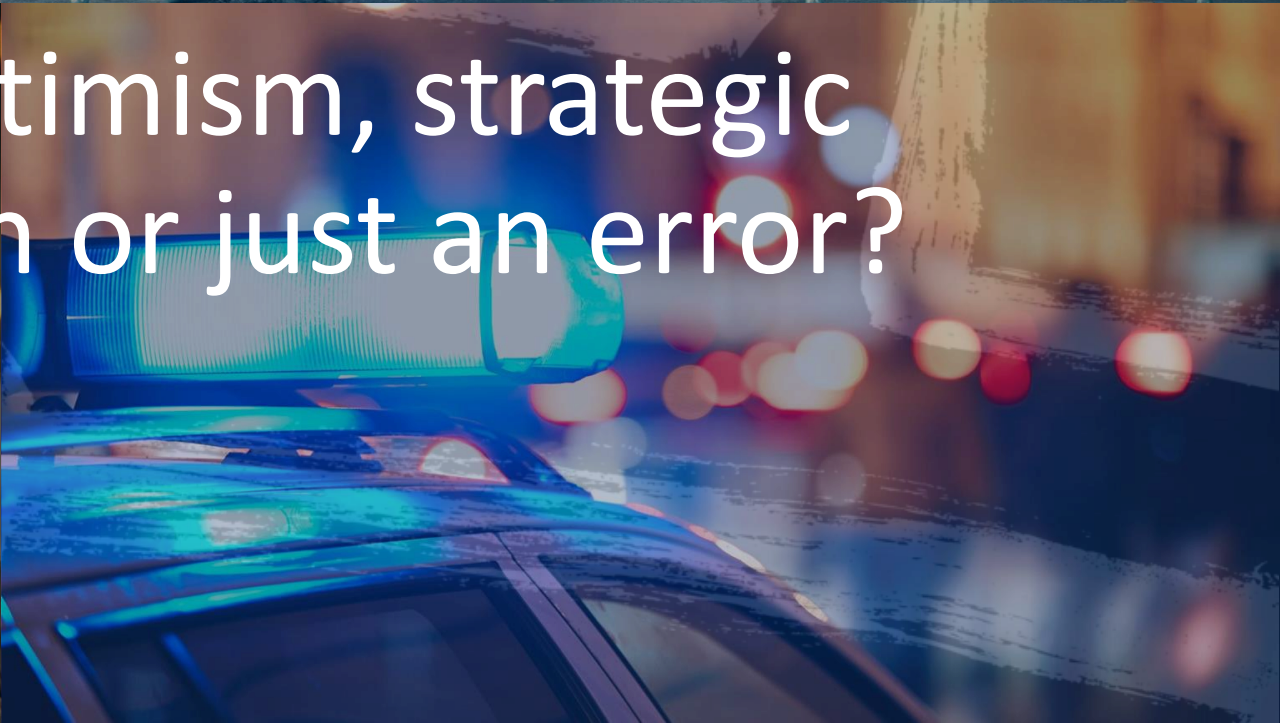
UNCERTAINTY AND
VARIABLES

\$500,000 to \$1 billion per person





Is it delusion, optimism, strategic misrepresentation or just an error?



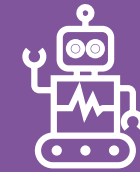
SUMMARY SLIDE



Optimism bias uplifts are rough adjustments that can be made to cost and schedules



Reference class forecasting can improve the accuracy of budget and time



AI will not replace the current capability of estimating professionals

THANK YOU!

DO YOU HAVE ANY
QUESTIONS?

