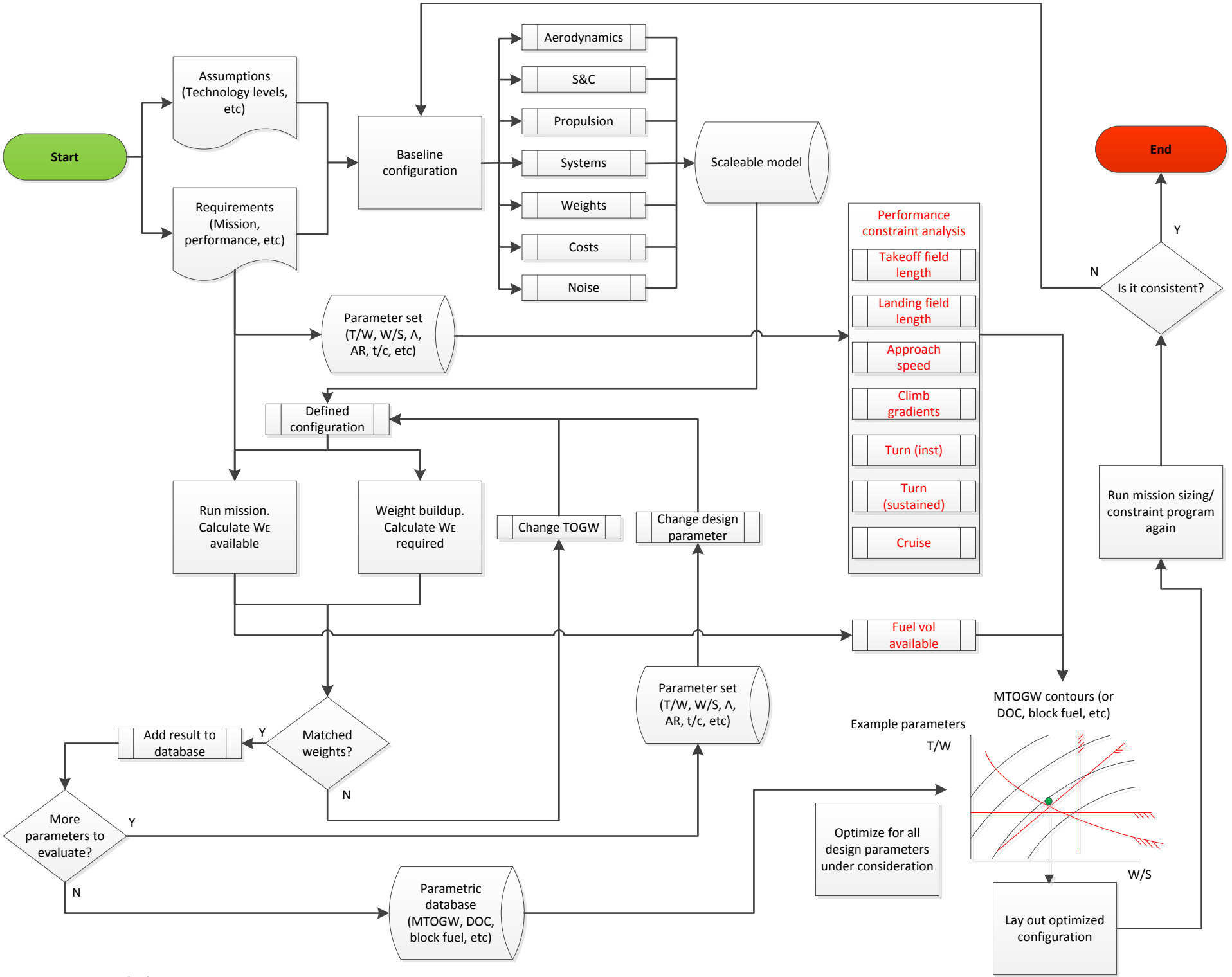
Start
Assumptions (Technology levels, etc)
Requirements (Mission, performance, etc)
Baseline configuration
Aerodynamics
S&C
Propulsion
Systems
Weights
Costs
Noise
Scaleable model
End
Is it consistent?
Y
N
Performance constraint analysis
Takeoff field length
Landing field length
Approach speed
Climb gradients
Turn (inst)
Turn (sustained)
Cruise
Parameter set (T/W, W/S, Λ, AR, t/c, etc)
Defined configuration
Run mission. Calculate WE available
Weight buildup. Calculate WE required
Change TOGW
Change design parameter
Run mission sizing/ constraint program again
Fuel vol available
Parameter set (T/W, W/S, Λ, AR, t/c, etc)
MTOGW contours (or DOC, block fuel, etc)
Example parameters
T/W
W/S
Add result to database
Matched weights?
Y
N
More parameters to evaluate?
Y
N
Optimize for all design parameters under consideration
Parametric database (MTOGW, DOC, block fuel, etc)
Lay out optimized configuration