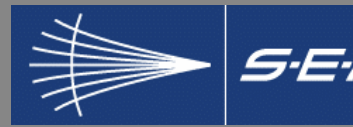


# cost benefit analysis of European space weather services – project overview

Tim Woodward  
([Tim.Woodward@sea.co.uk](mailto:Tim.Woodward@sea.co.uk))

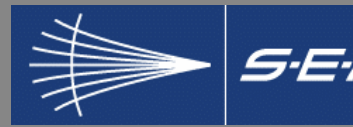


# objective

to establish **clear, reliable and objective**  
*economic, social and strategic* parts of a case  
for a future space weather programme

# why?

- to support decision making on future **European** involvement in space weather applications
- also to provide contextual feedback to the SDAs



# what do we know already?

it has been established that Europe:

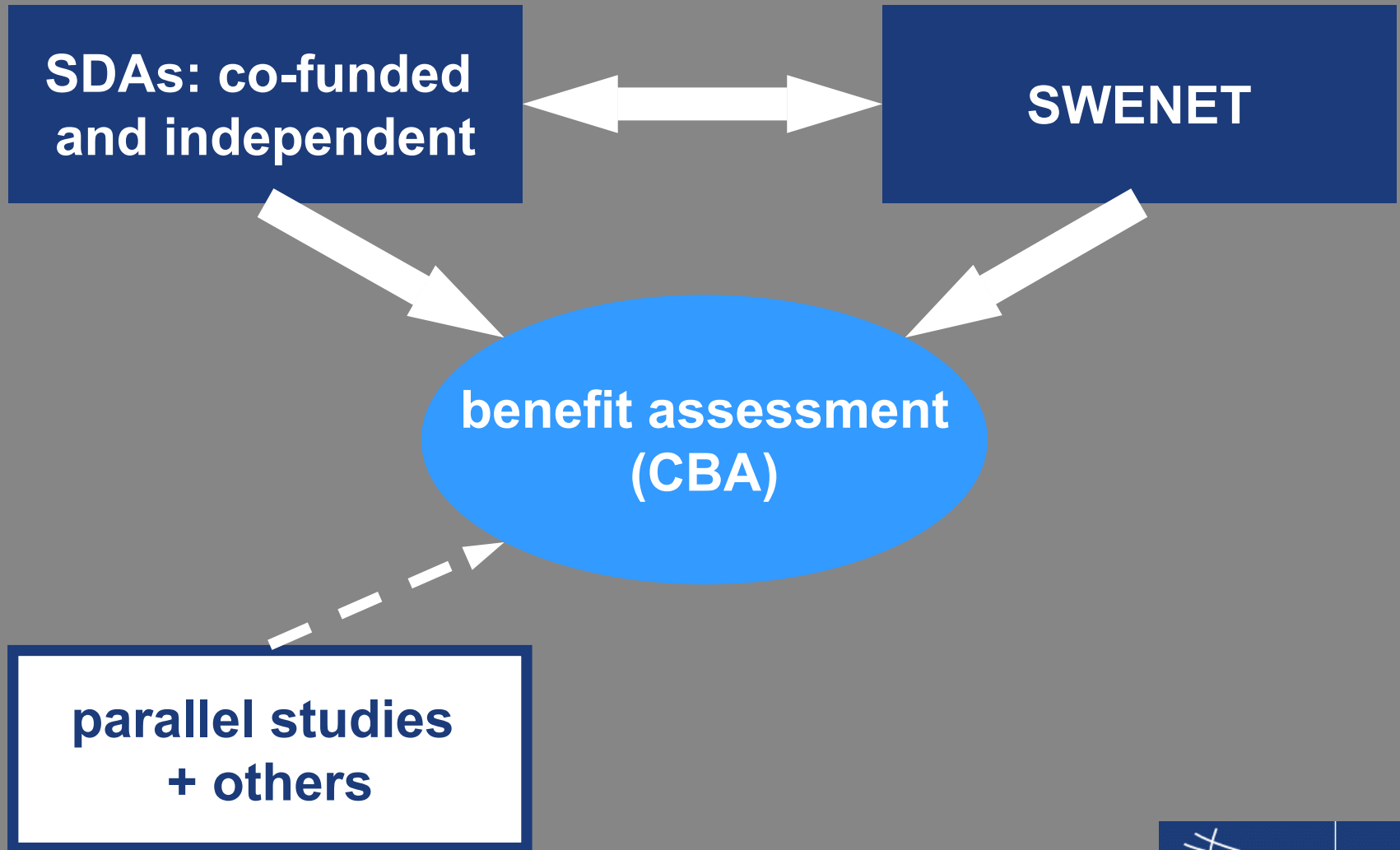
- has specific needs in SW
- is subject to significant SW impacts
- has assets for SW

**BUT** is there a **justifiable** SW programme?

# what do we do?

## cost benefit analysis:

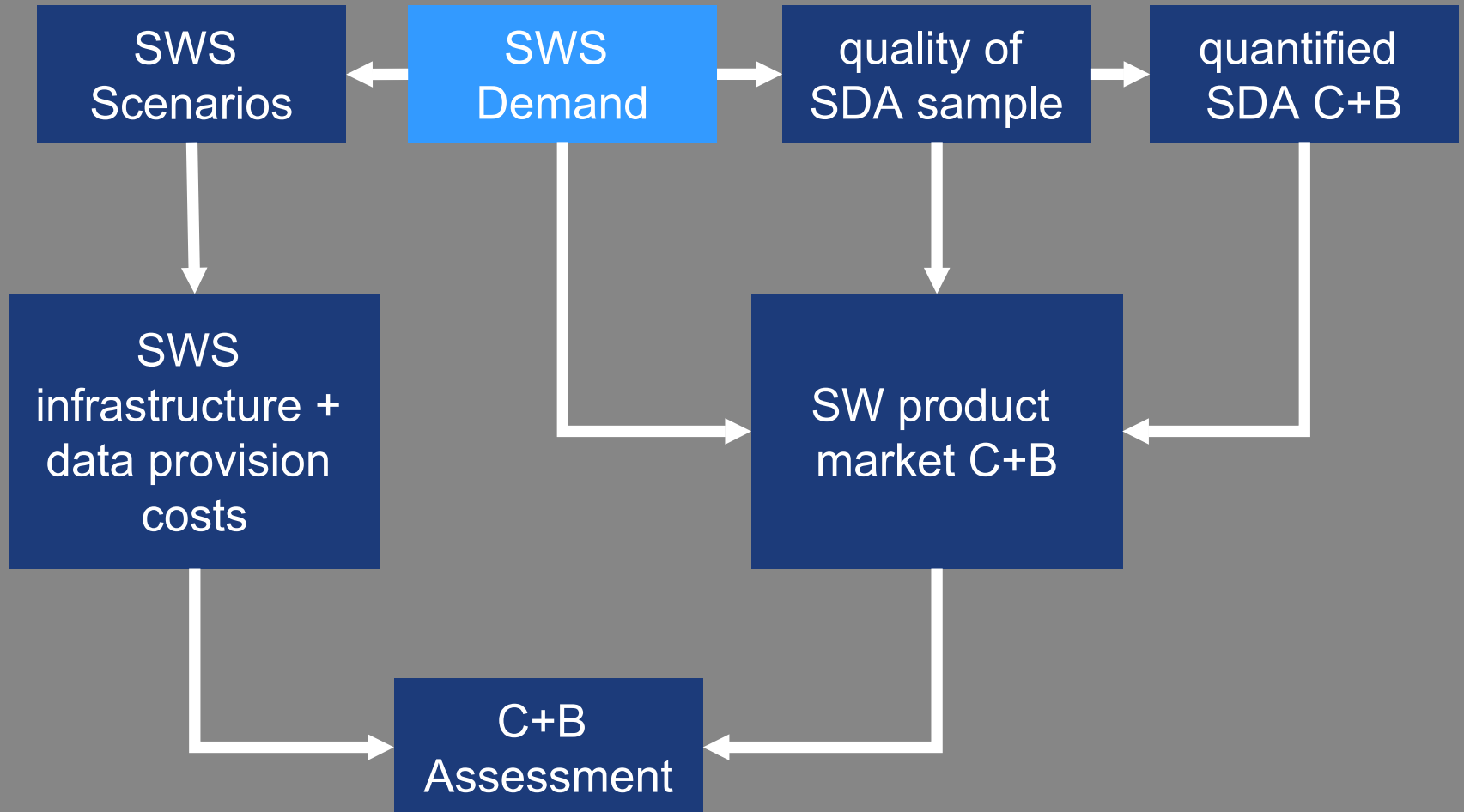
- this quantifies as many of the costs and benefits of a proposal as possible, including items for which the market does not provide a satisfactory measure of economic value



# analysis characteristics

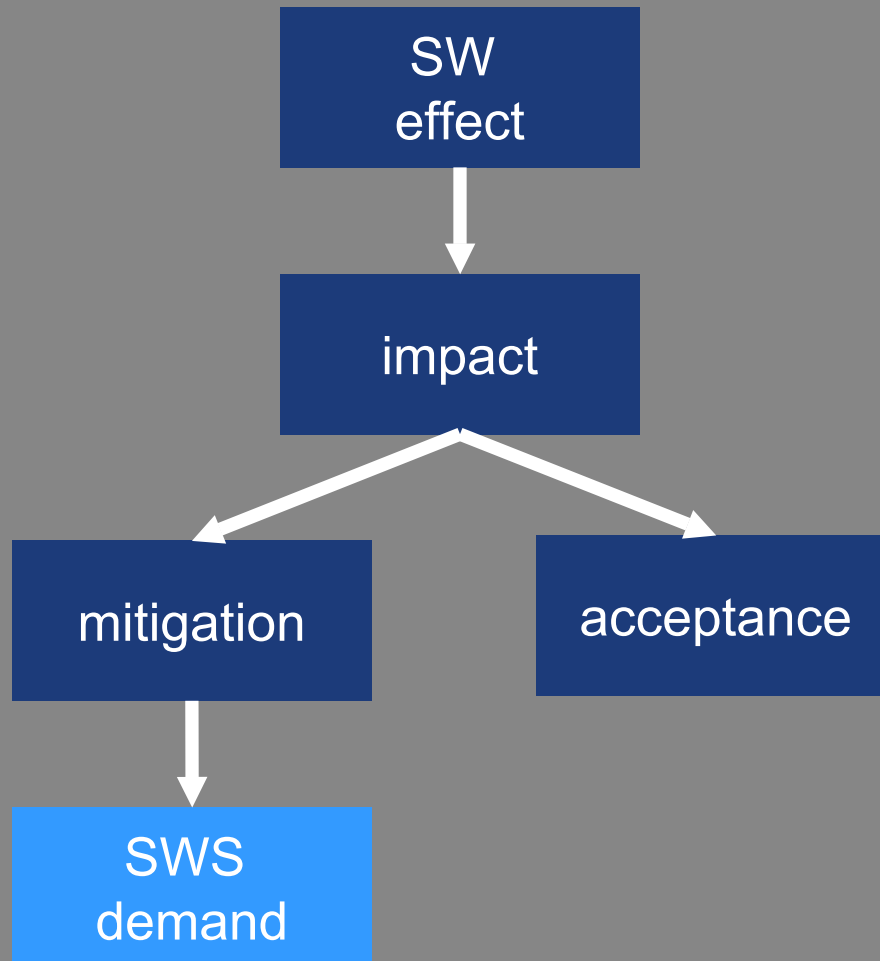
- independent
- provide a balanced review of CBA issues:
  - economic
  - social
  - strategic
- plausible options, including 'do nothing'
- European perspective
- sensitivity analysis and confidence levels

# methodology (1/12)

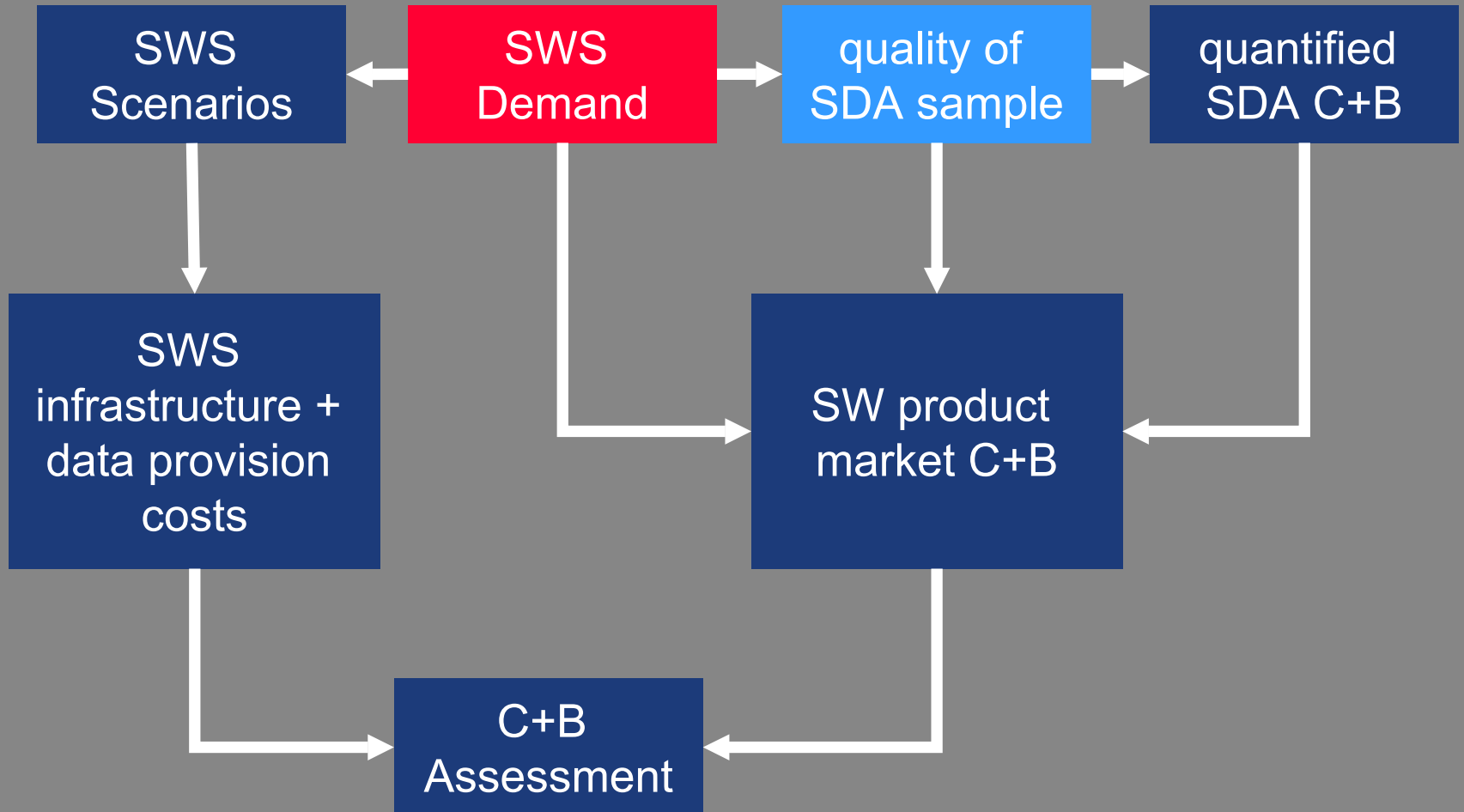




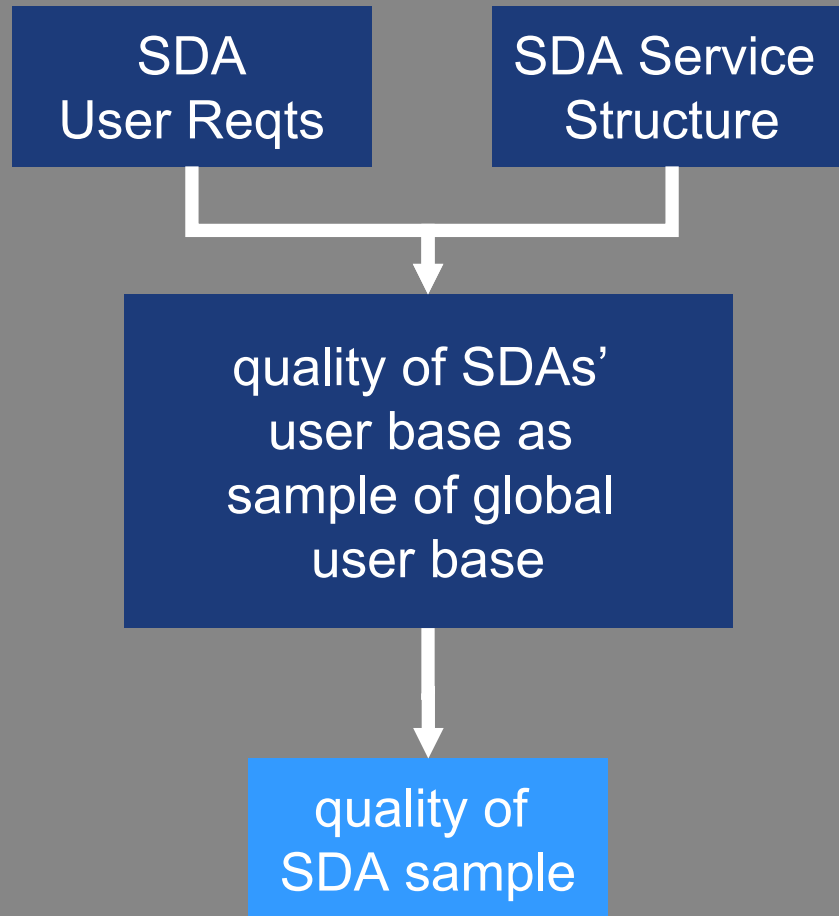
# methodology (2/12)



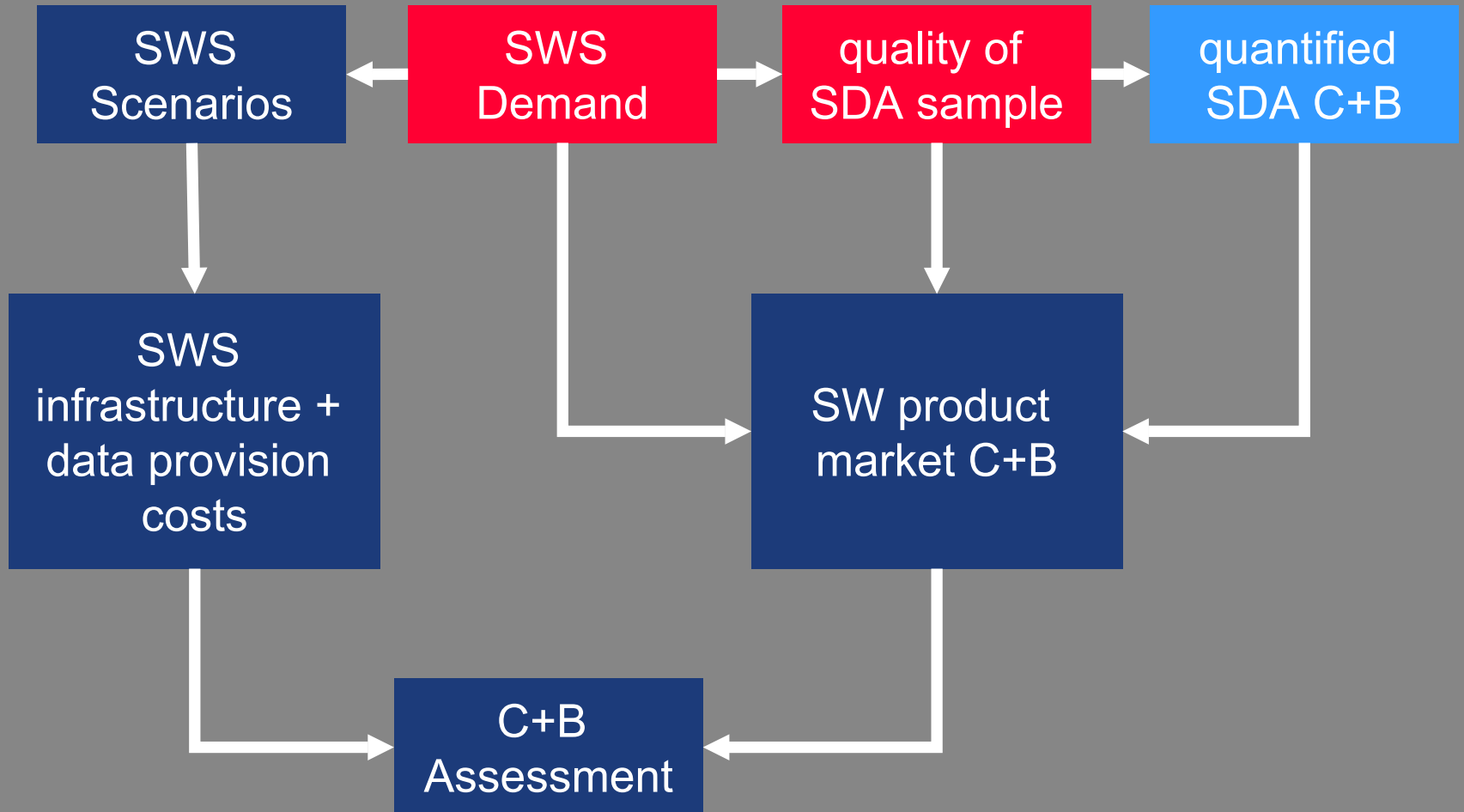
# methodology (3/12)



# methodology (4/12)



# methodology (5/12)



# methodology (6/12)

## SDA provider and user surveys

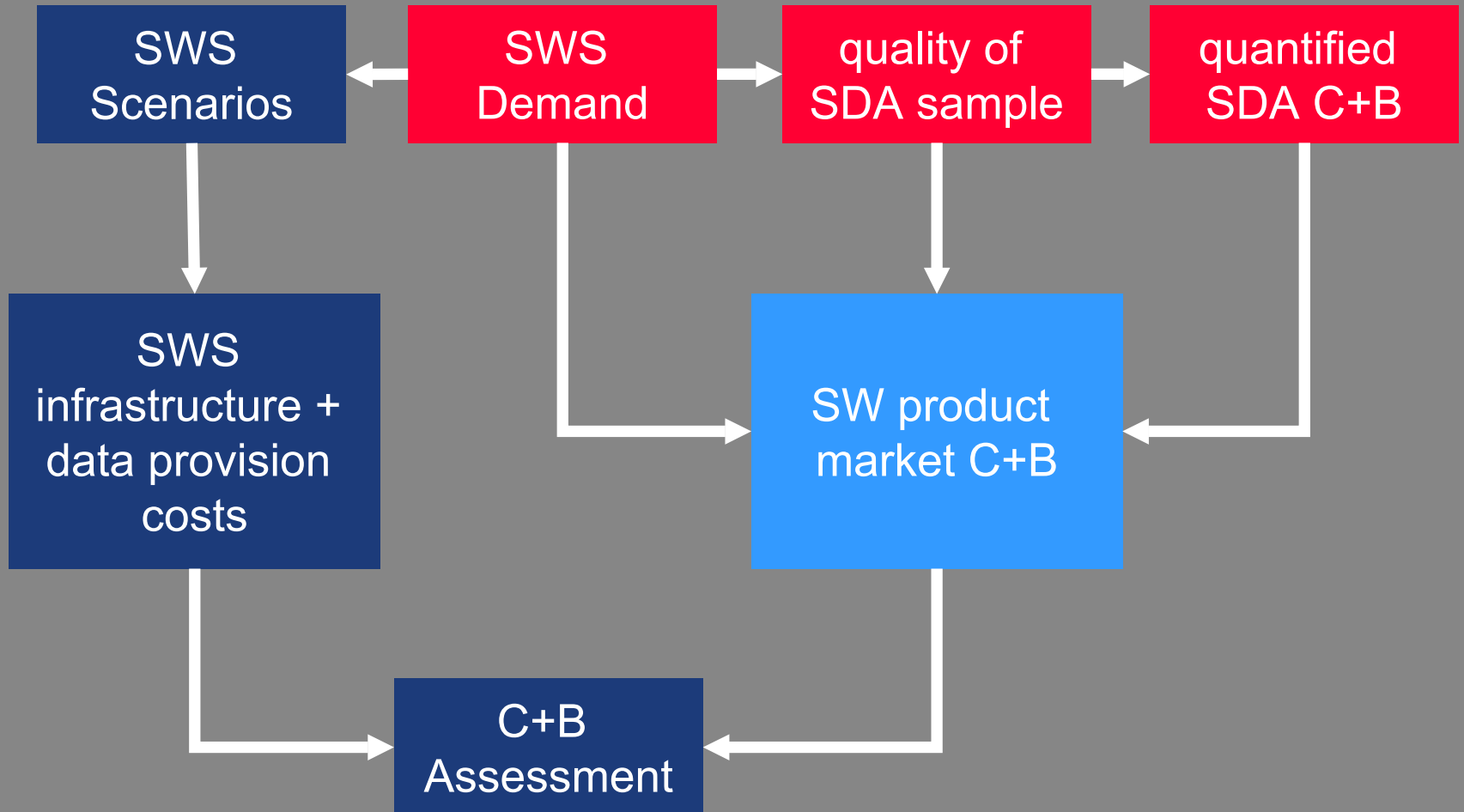
benefits of  
SDAs for their  
users

costs of SDA  
provision

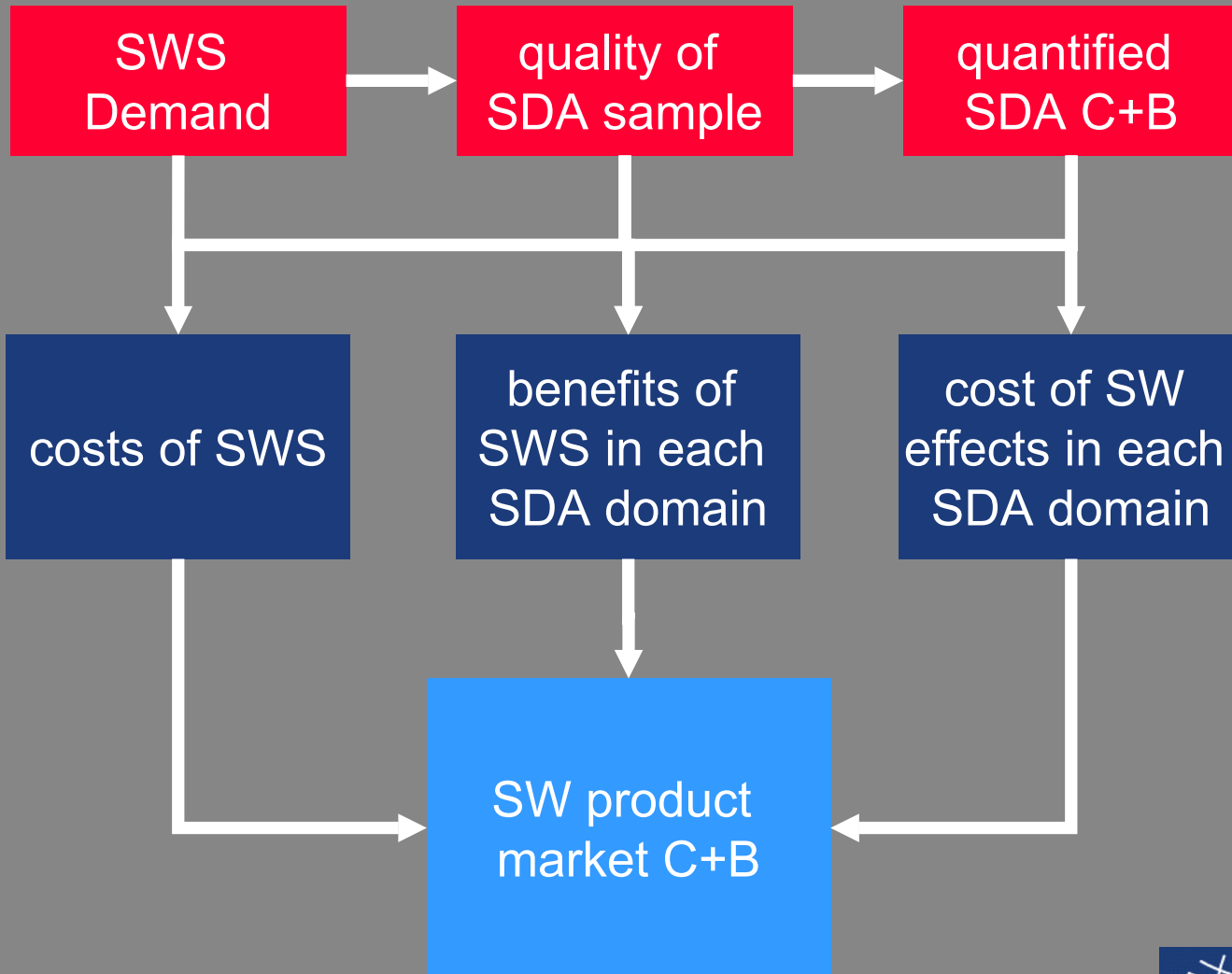
costs of  
alternative  
mitigations

quantified  
SDA C+B

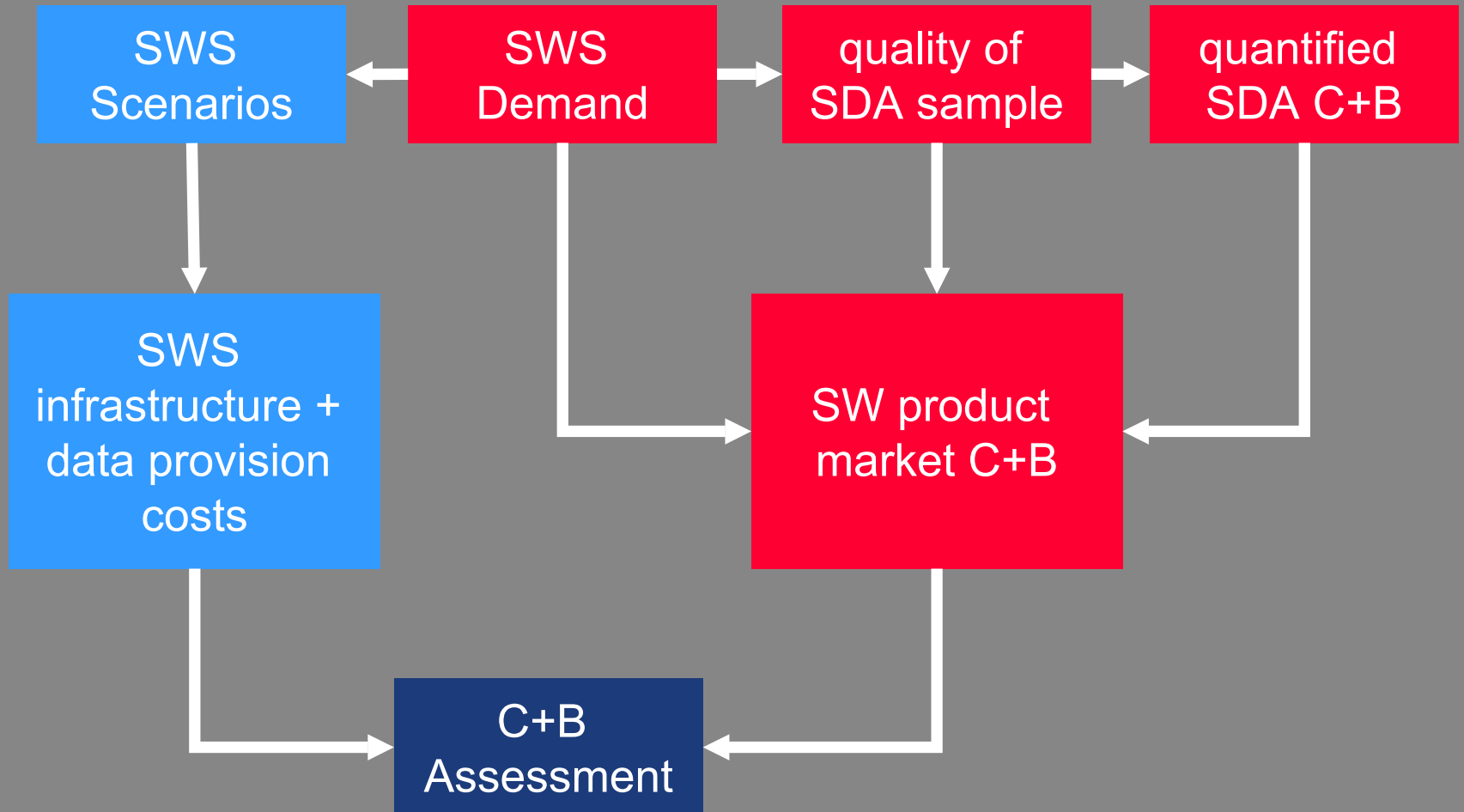
# methodology (7/12)



# methodology (8/12)

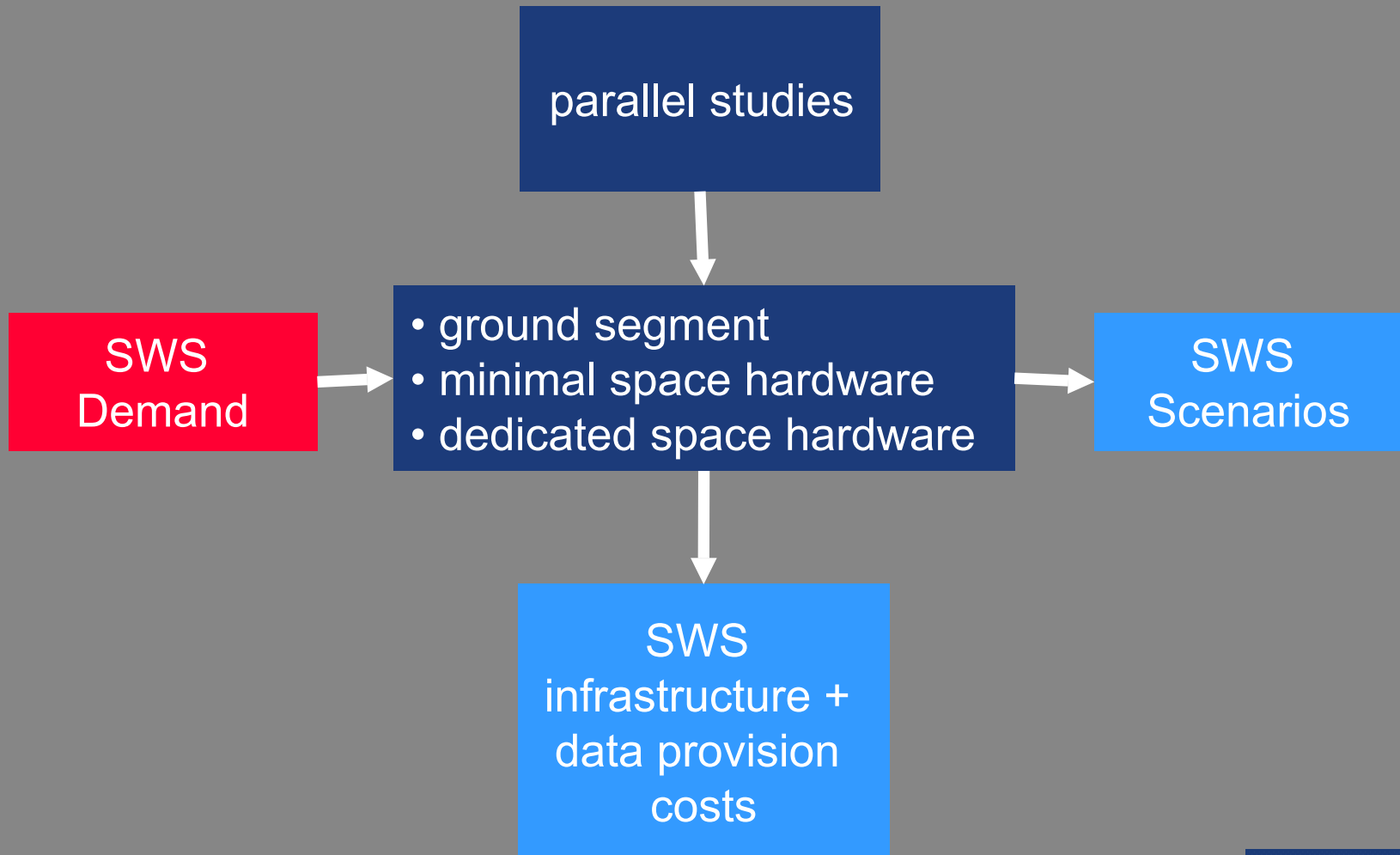


# methodology (9/12)

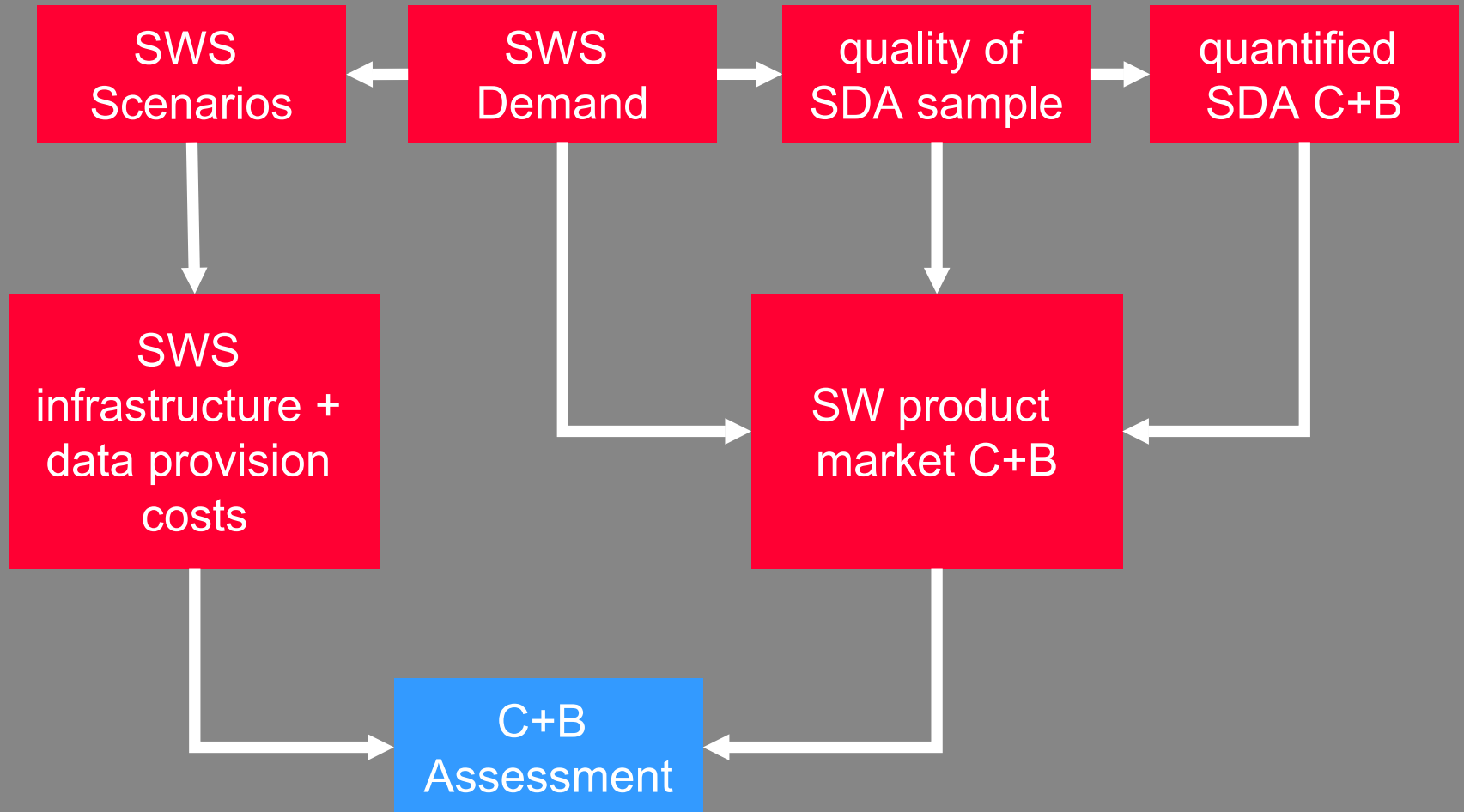




# methodology (10/12)



# methodology (11/12)



# methodology (12/12)

SWS  
infrastructure +  
data provision  
costs

SW product  
market C+B

combine C+B from:

- infrastructure + data provision
- SWS provision
- benefits of SWS

•trends  
•drivers  
•sensitivities

C+B  
Assessment

# valued and unvalued impacts

- valued impacts
  - accurate data
  - understand how well the SDA sample represents the whole market
- unvalued impacts
  - careful consideration if these are to be valued somehow
  - otherwise present suitable qualitative argument

# initial observations

## economic dependence

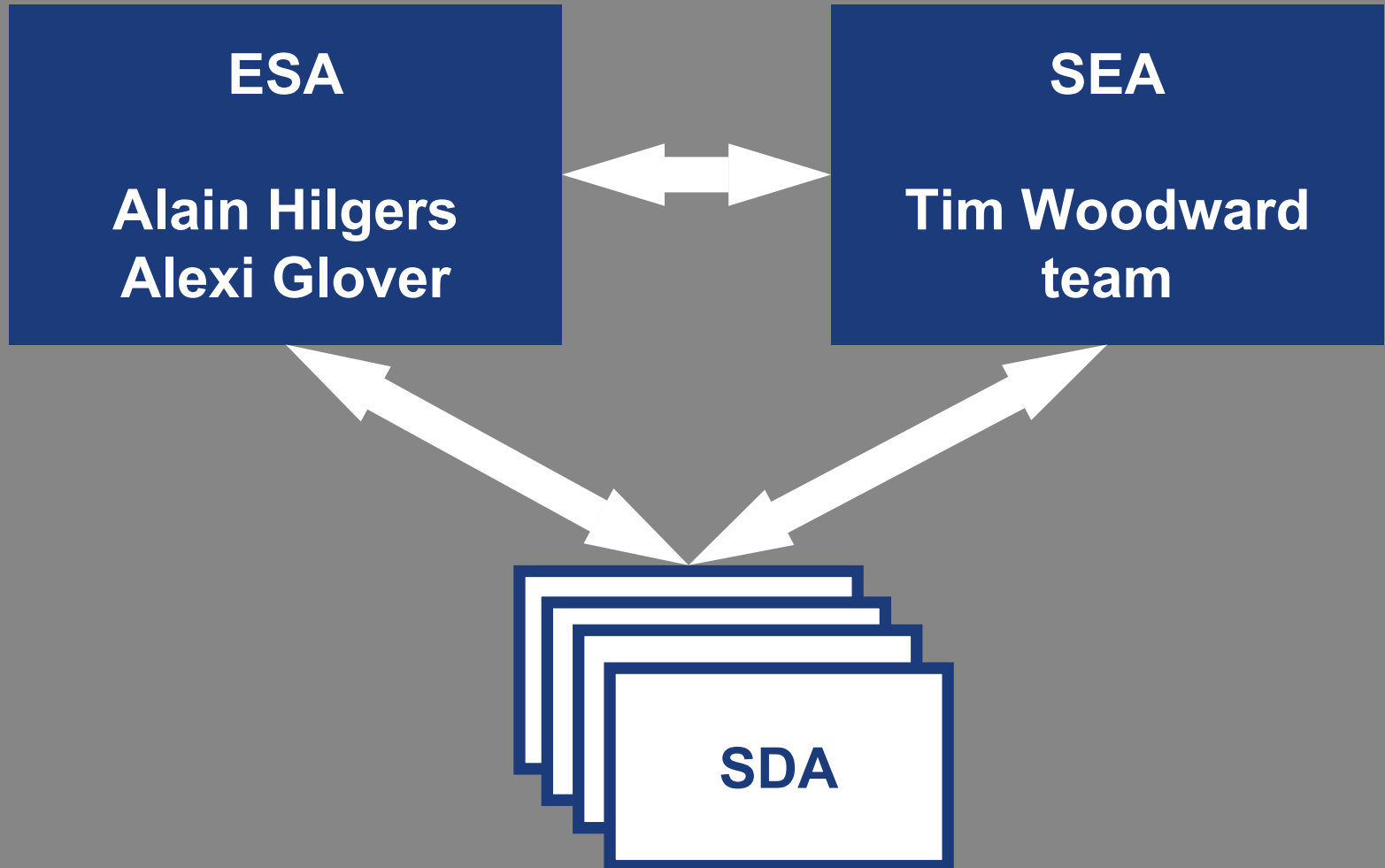
- more SW-susceptible systems:
  - greater dependence on space borne technology
  - greater dependence on SW-vulnerable technologies in such systems as avionics
- greater awareness/understanding
- ⇒ increased economic impact of SW effects

# observations from other projects

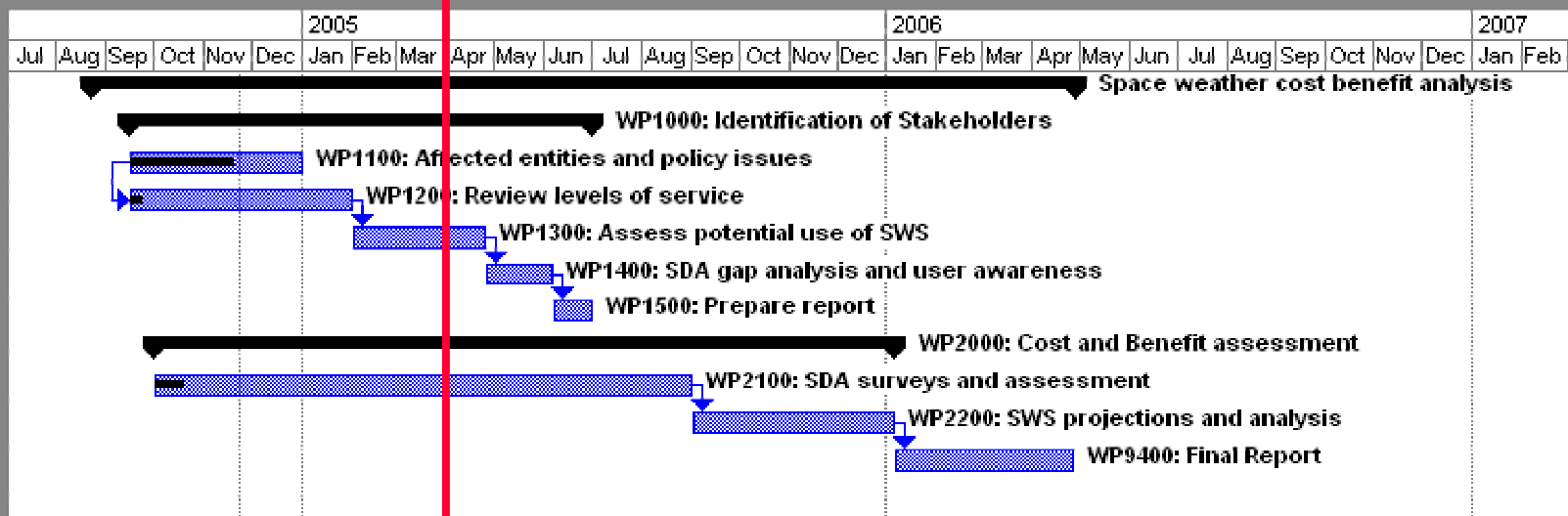
from a transport study on the possible future of vehicle and road co-operative systems:

- transparent, simple C+B combination
- costs and benefits timing
- individual vs societal issues

# organisation



## SDA contracts expire





# summary

- key decision and CBA assessment will provide crucial input
- inputs from the SDAs are crucial