



The Reliable Replacement Warhead and NNSA's “Wicked” Transformation Challenge

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What is a “Wicked” Problem?

From Rittel and Weber, 1973

- **Some characteristics of “wicked” problems are:**
 - There is no definitive formulation
 - Solutions are not true-or-false, but good-or-bad
 - There is no immediate and no ultimate test of a solution
 - It is essentially unique
 - It can be considered a symptom of another problem
- **Wicked problems are highly complex, highly dynamic, and involve not only technology but political, social, and economic considerations**
- **The opposite of wicked is “tame”**





What are Some Important Linkages Involving RRW and Transformation? (1)

Stockpile
Transformation

Nuclear
weapons
Complex
transformation

International non-
proliferation and
disarmament efforts

What are Some Important Linkages Involving RRW and Transformation? (2)

Stockpile Transformation

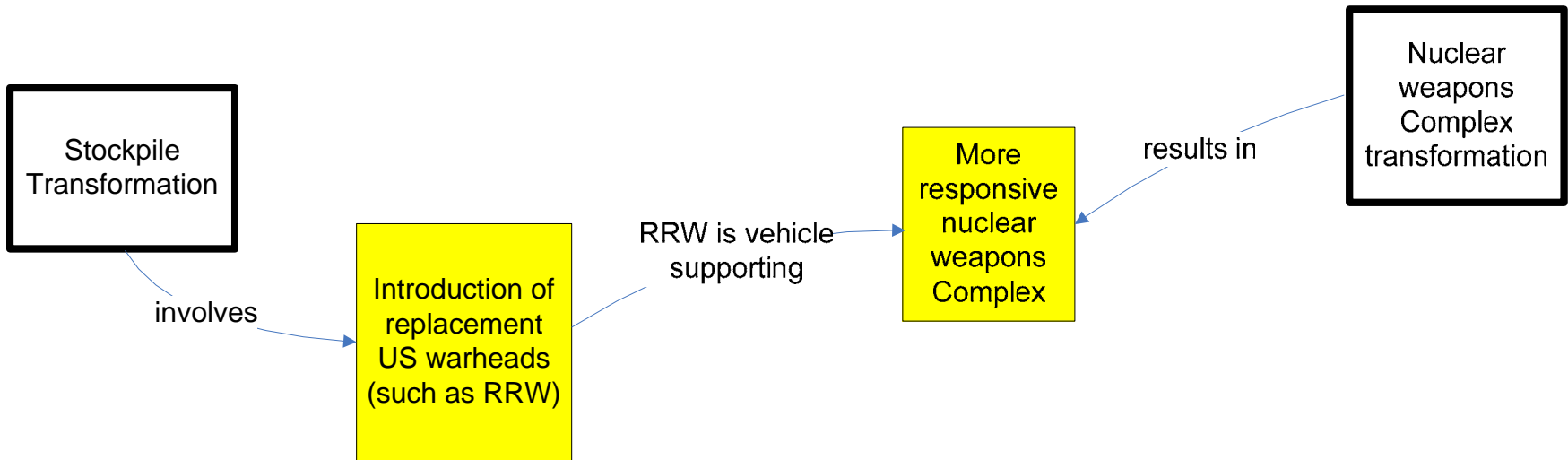
involves

Introduction of replacement US warheads (such as RRW)

Nuclear weapons Complex transformation

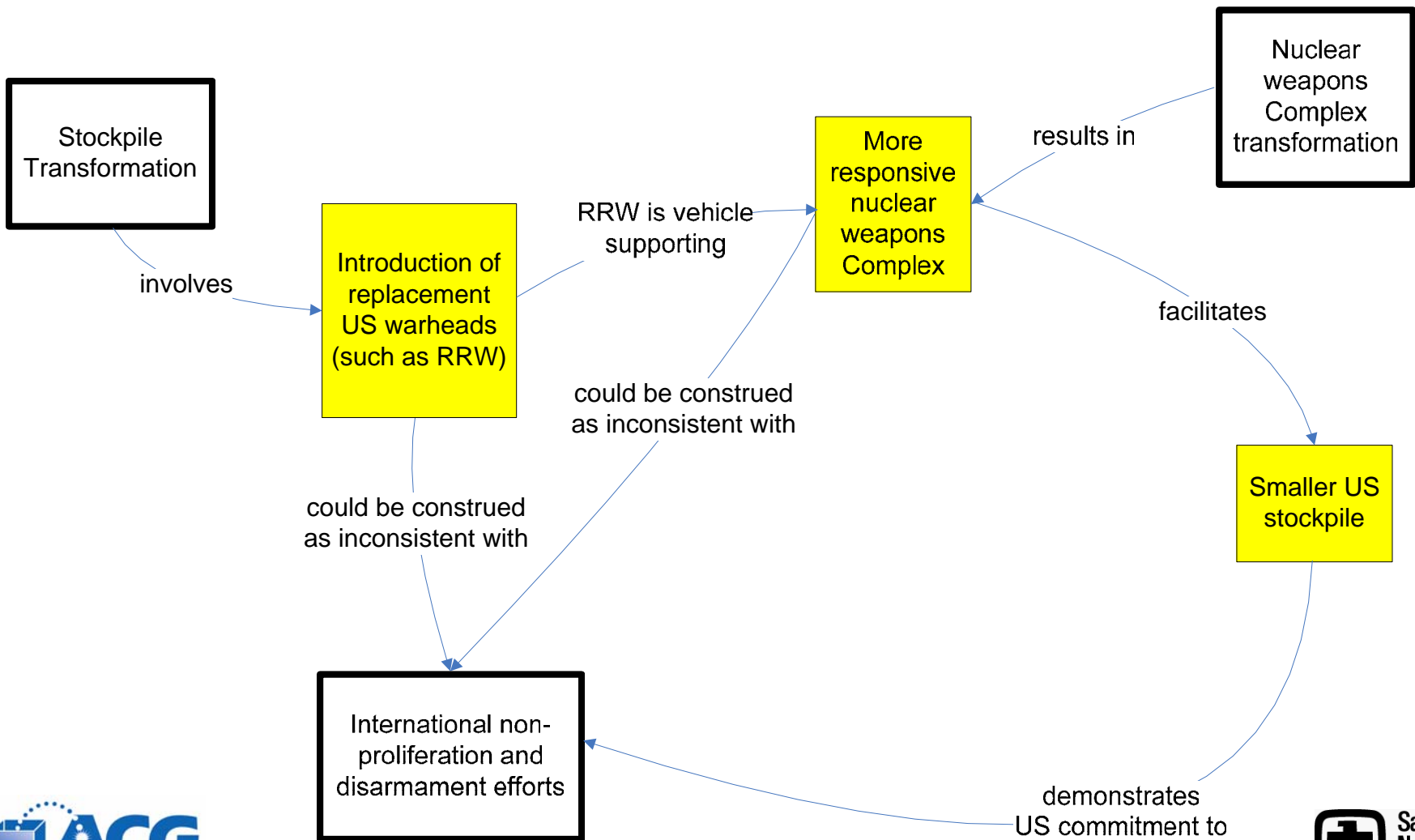
International non-proliferation and disarmament efforts

What are Some Important Linkages Involving RRW and Transformation? (3)

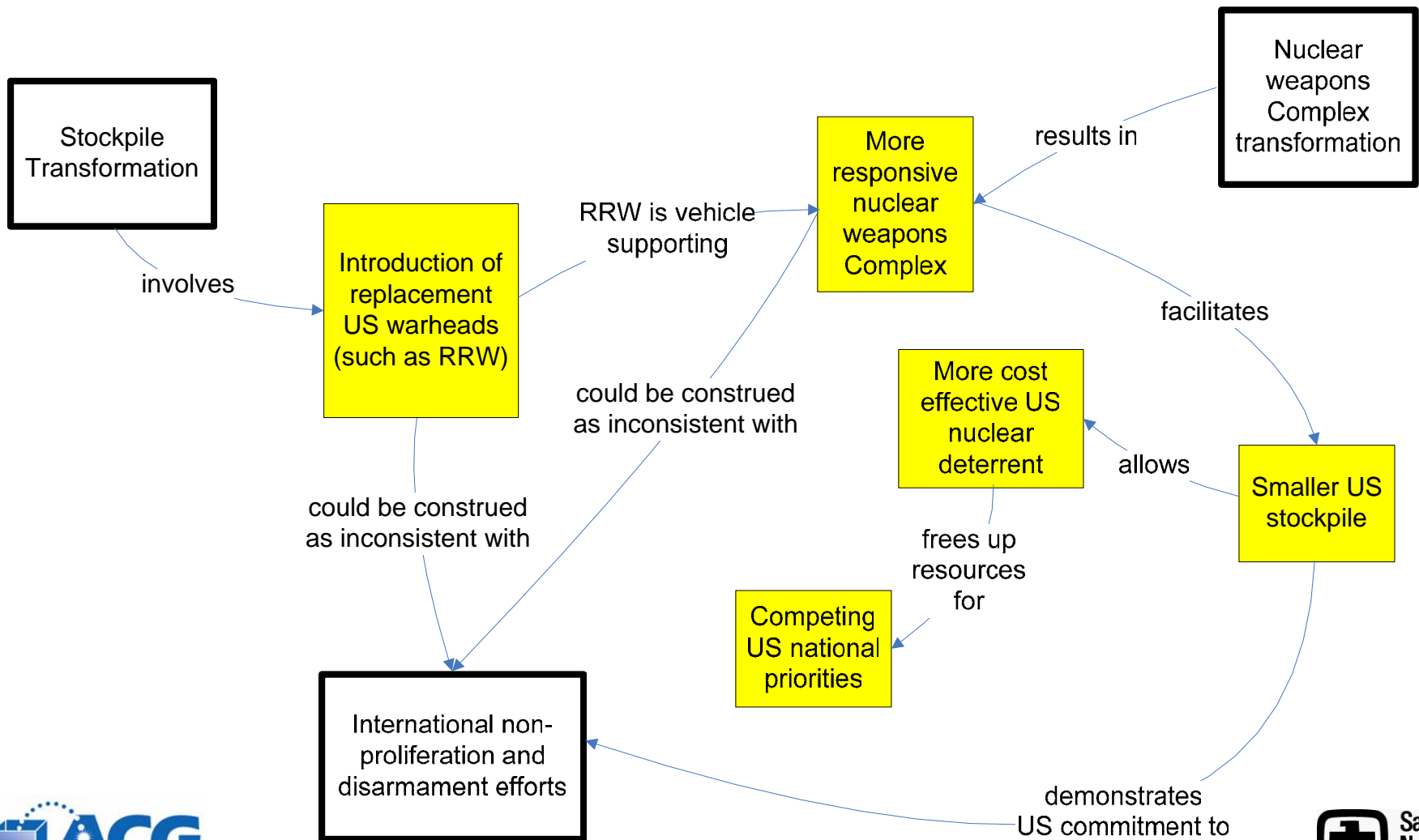


International non-proliferation and disarmament efforts

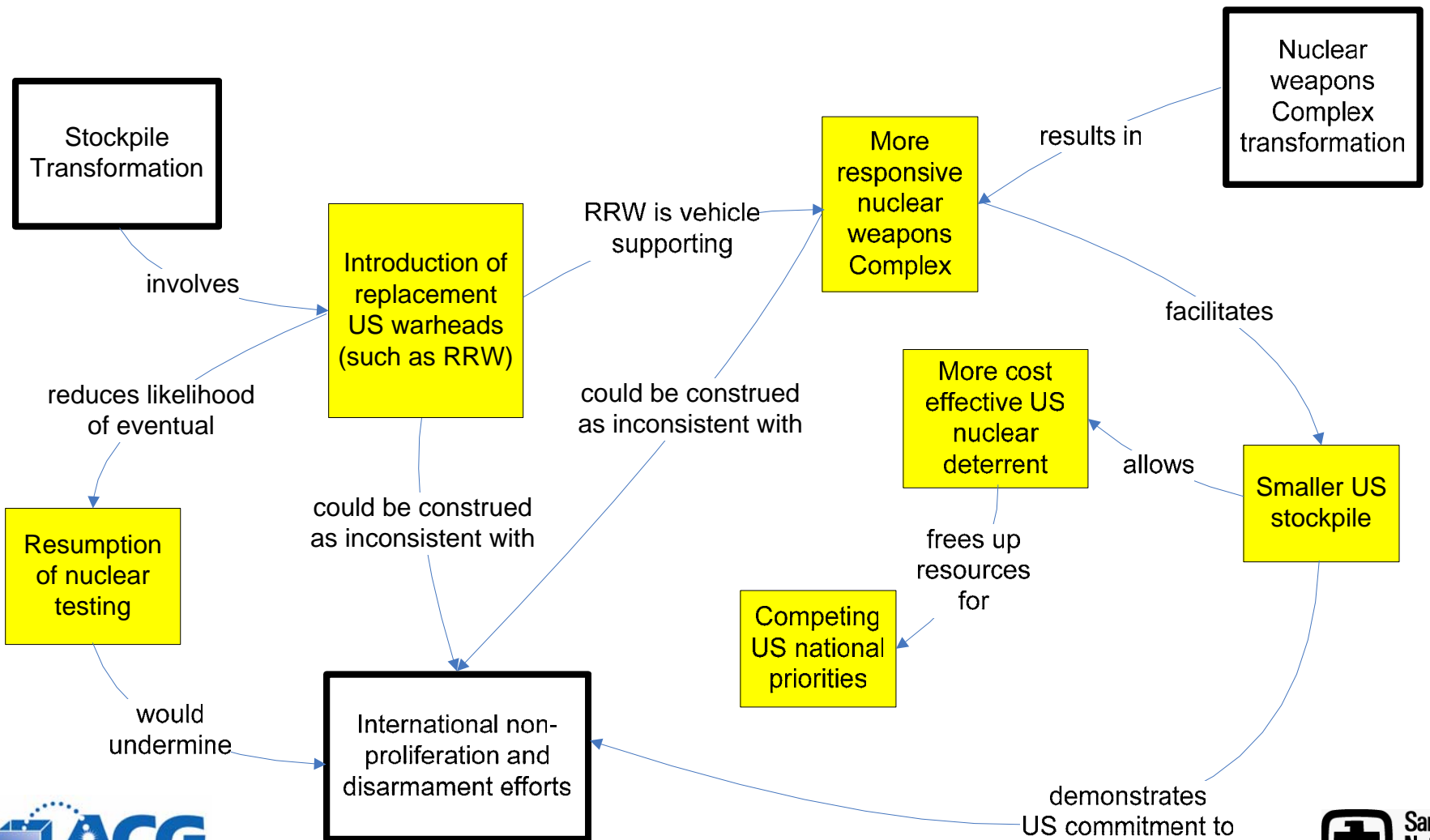
What are Some Important Linkages Involving RRW and Transformation? (4)



What are Some Important Linkages Involving RRW and Transformation? (5)



What are Some Important Linkages Involving RRW and Transformation? (6)



Conclusions

- **In both RRW and Complex transformation, NNSA faces “wicked problems” that are complex and adaptive, and that have strong technological, social, economic, and political elements.**
 - **There is no definitive problem formulation**
 - **Potential paths forward will have degrees of good-or-bad**
 - **Potential paths forward have no immediate and no ultimate tests for success**
 - **These are certainly unique challenges**
 - **RRW and Complex transformation are elements of other wicked problems of international scope**

