Emerging Directions for the Science of Team Science and Science Policy

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Comments are personal and do not reflect the government's position

Underlying Justification for Public Investment in Science

- Vannever Bush's 1945 "Science The Endless Frontier"
  - Scientific progress is essential for war against disease, national security, public welfare-including employment, & public role to assure development of scientific talent.
- President Obama's FY11 Science Budget- Science essential for prosperity, security, health, environment and quality of life
  - "Scientific discovery and technological innovation are indispensable for promoting economic growth and jobs, protecting the environment, advancing toward a clean energy future, improving the health of the population and safeguarding our national security in the technologically-driven 21st century."

Public View of Science

Science & Technology Enterpris

Health

Security

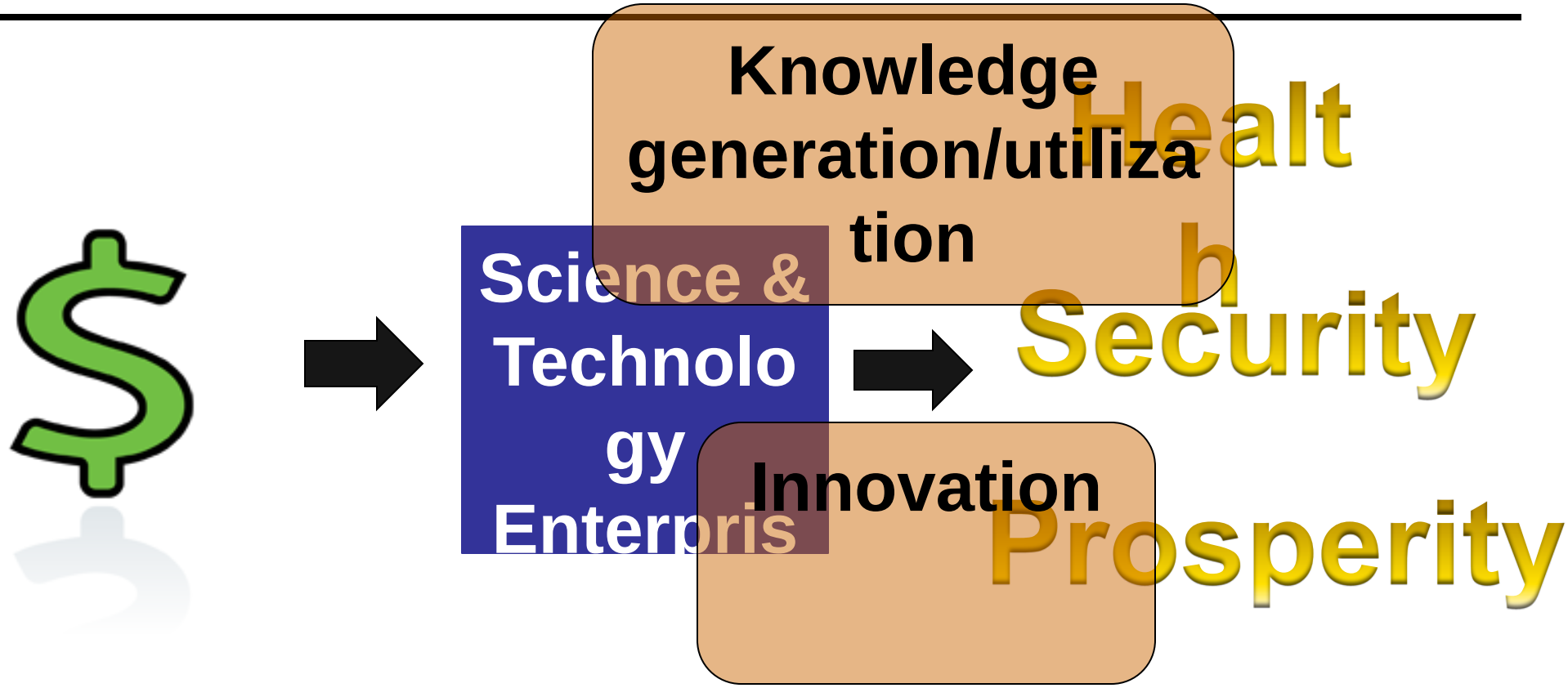
Prosperity

1. **Can we justify the investment?**
2. **Can we improve the practice to increase the outcome?**

Science of Science Policy

- October 2008- NIH Science of Science Management Meeting
  - Stimulate research to improve NIH decision-making in planning, implementing and disseminating biomedical research by assessing current state of knowledge, knowledge generation/advancement, knowledge utilization, public health impact
- December 2008- OSTP Science of Science Policy Workshop
  - Stimulate research through discussing key federal roadmap themes of understanding science and innovation, investing in science innovation, using science of science policy to address national priorities

Evaluation/Research Questions



1. Can we justify the investment?

2. Can we improve the practice to increase the

Science of...

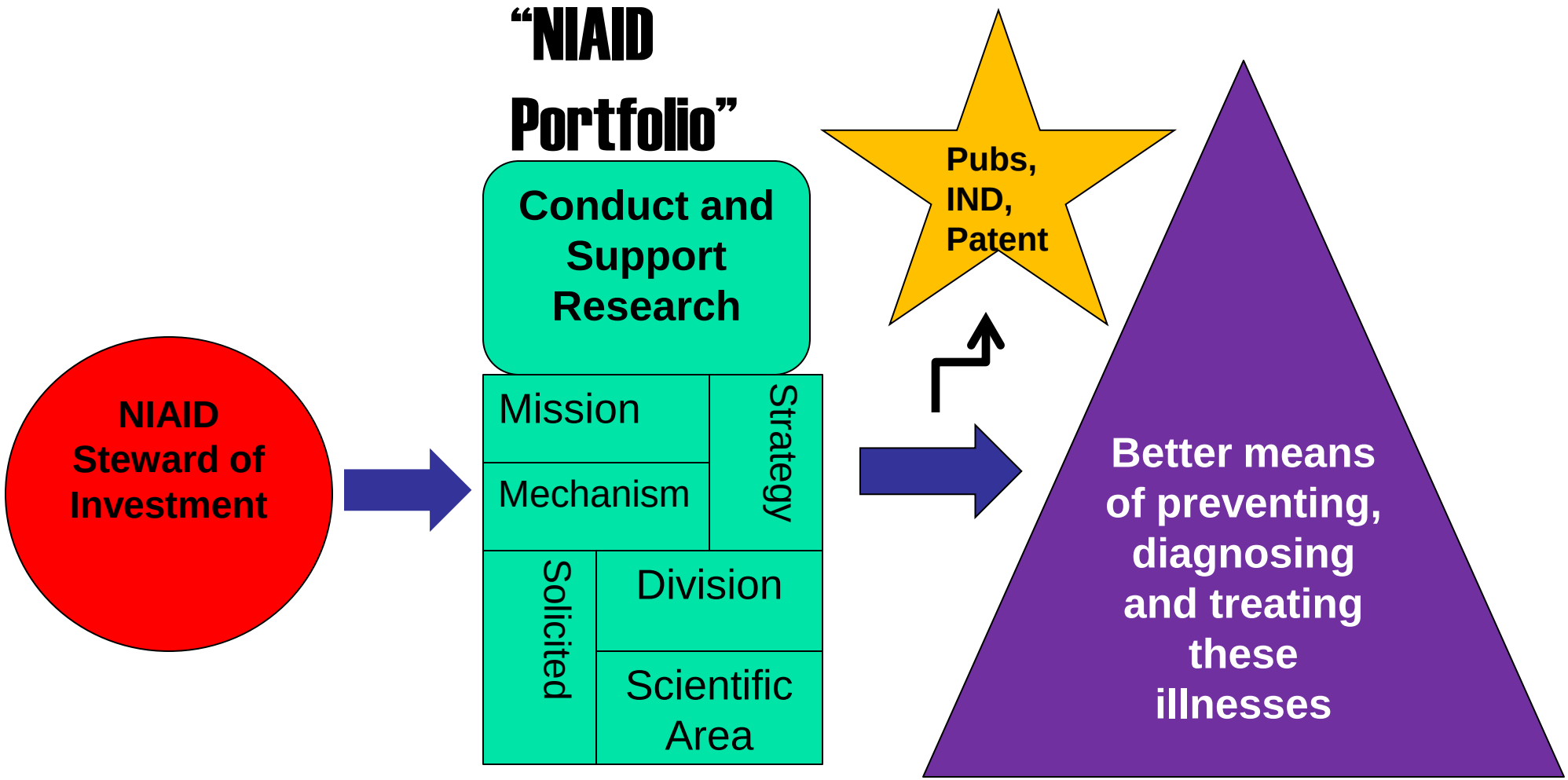
Science Management

- **Mission-specific science framework**
- Are public investments in biomedical science improving health?
- Needs- linkage between product of research investment (research knowledge) and public health, how to improve output/outcome, etc.
- Justify investment

Science Policy

- **Macro-science policy framework**
- Are public investments in science spurring innovation and increasing US competitiveness?
- Needs- ways to improve innovation, invest between agencies, policy instruments- patenting, intellectual property, tax polices, etc.
- Justify investment

What NIH does... versus Research Community versus interaction with Healthcare and Public Health systems



NIH

- Justifying investment by showing research improves health-
  - Publications, patents, FDA INDs, IDEs, stories of discovery
  - Need better conceptual models how research output improves health
- How to improve science management?
  - Multiple PIs, Centers versus single investigators, etc.
  - How research investment/policies interacts with the conduct of research

Stakeholders & Diverse Needs

Stakeholders	Needs
Congress	Justify investment, show outcomes, make laws
Public	Better health, security, jobs, increased well-being, etc.
Administration	Justify total investment, ways to make decisions between agencies, what macro policies to implement, increase outcome
Agency	Mission specific - justify investment; show mission specific outcomes, accountability for investment, how to enable research, capitalize on opportunities-address gaps, mission-specific policies
Science Community	Improve practice, show outcomes

What piece of the complex system are you addressing?

- Frameworks and logic models, interactive systems –
- Developing evaluation tools/frameworks for research programs