



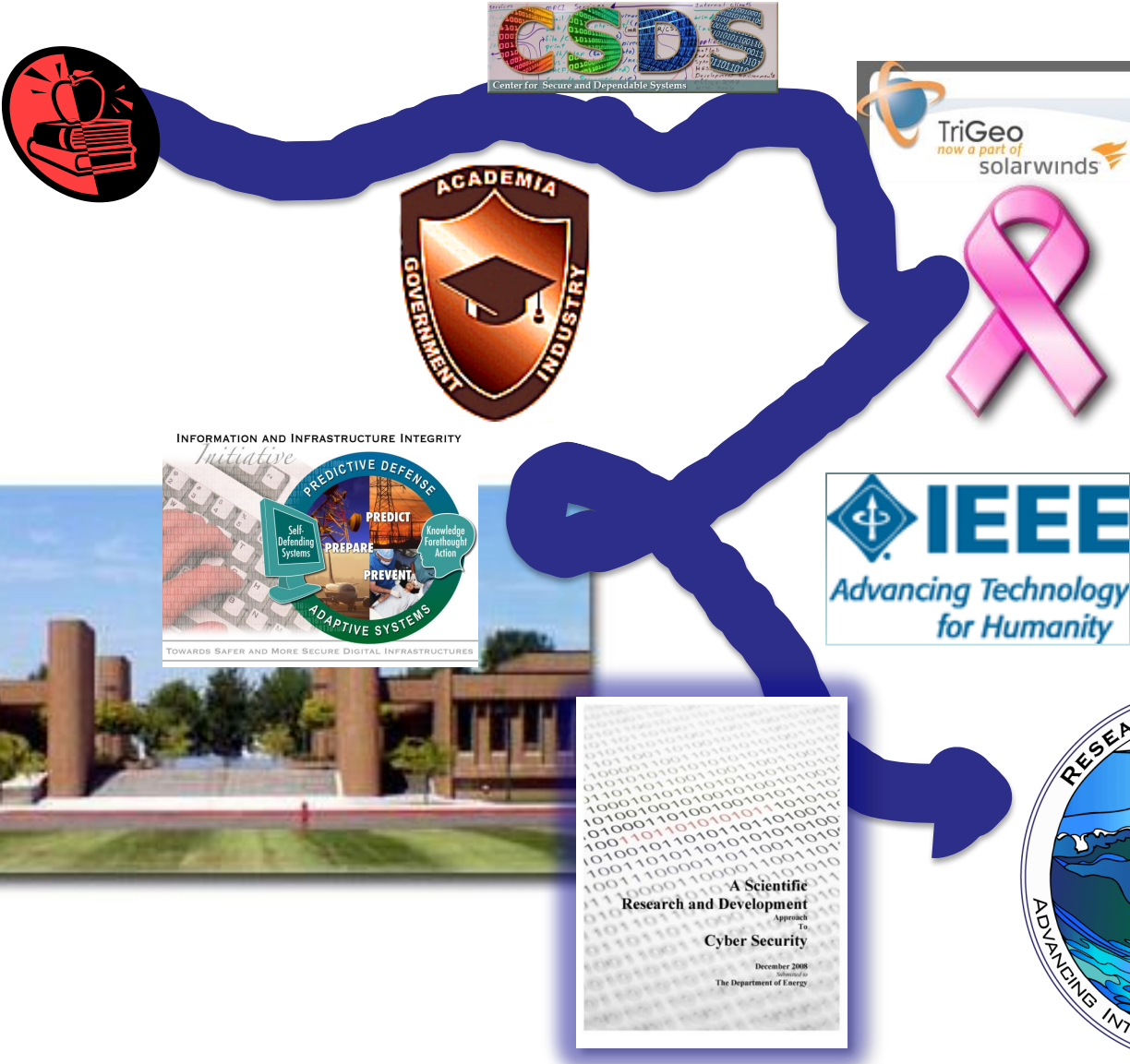
Leadership Challenges in Research – Academia, National Laboratory, Federal

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18 July 2011

The overall briefing is unclassified

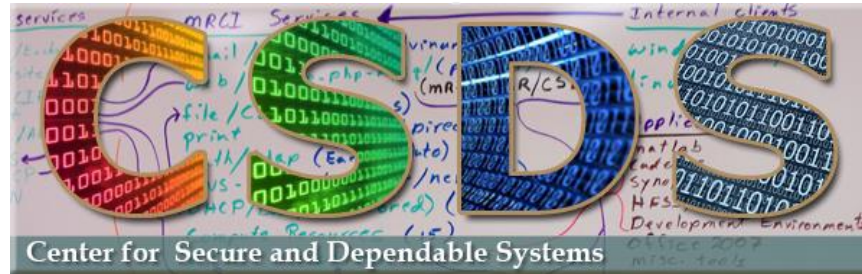
Evolving Purpose: Individual



Academia: “The Student Is The Reason We Are Here”



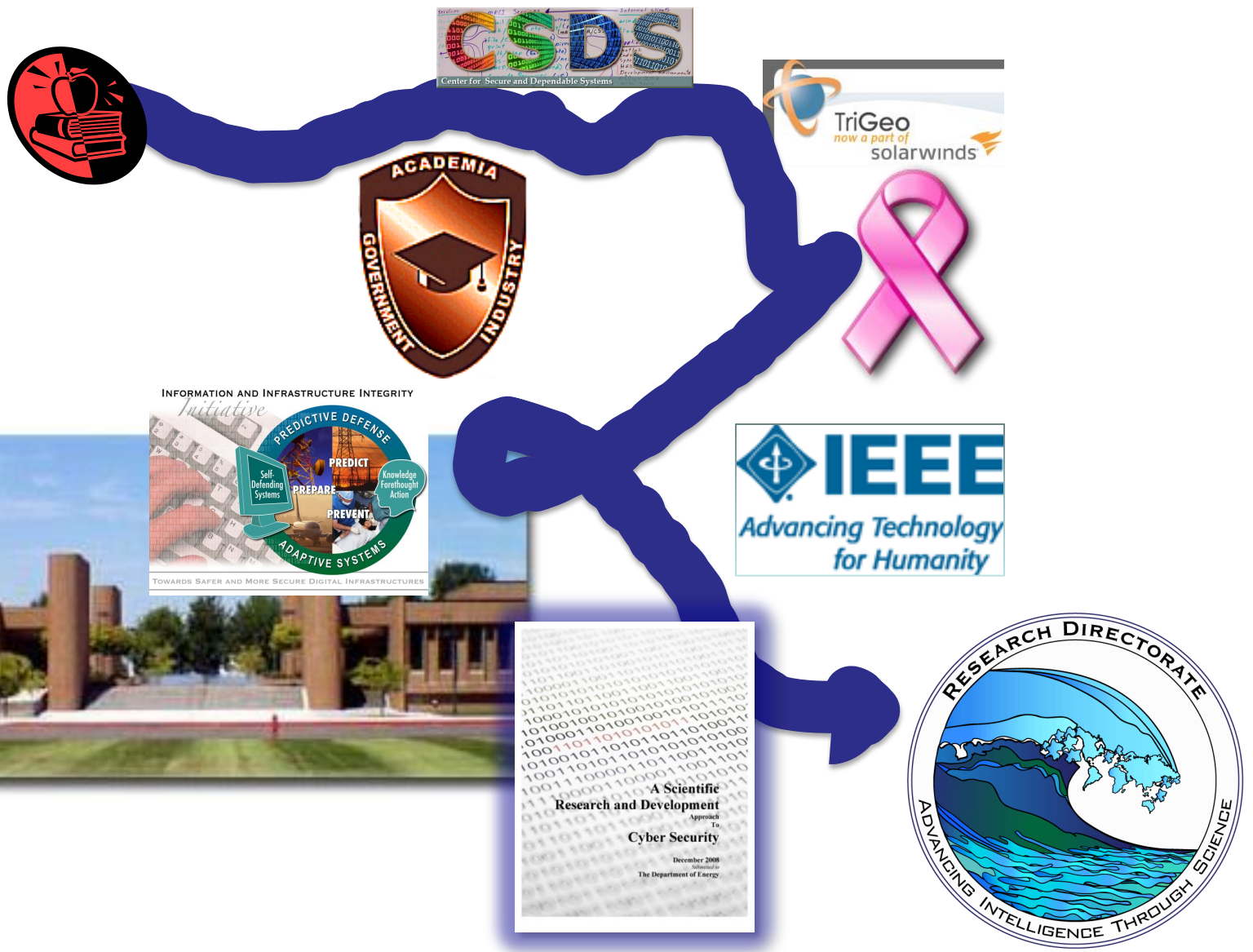
University of Idaho



Federal Cyber Service: Scholarship For Service

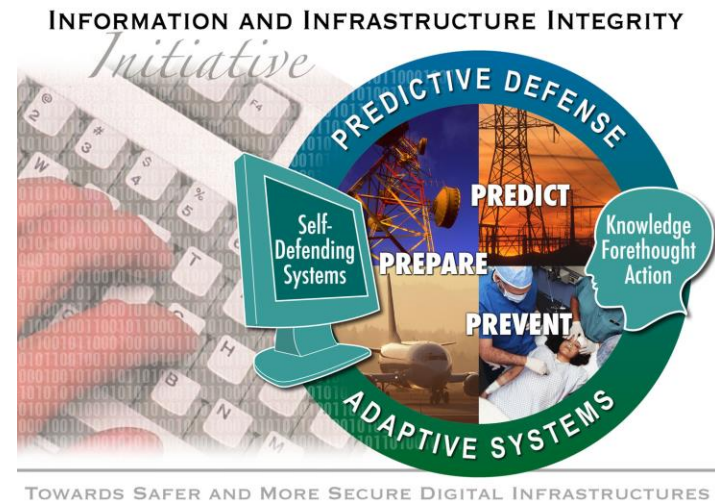
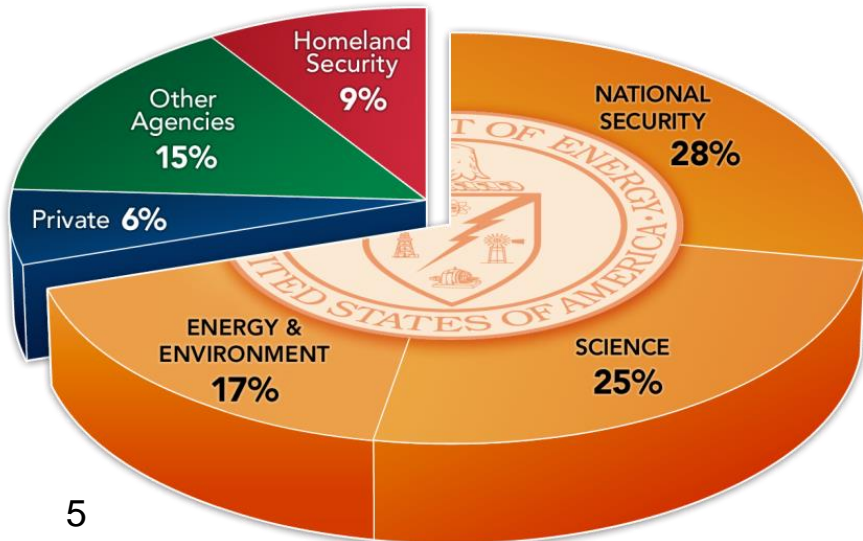
DEFENDING AMERICA'S CYBERSPACE

Evolving Purpose: Organizational

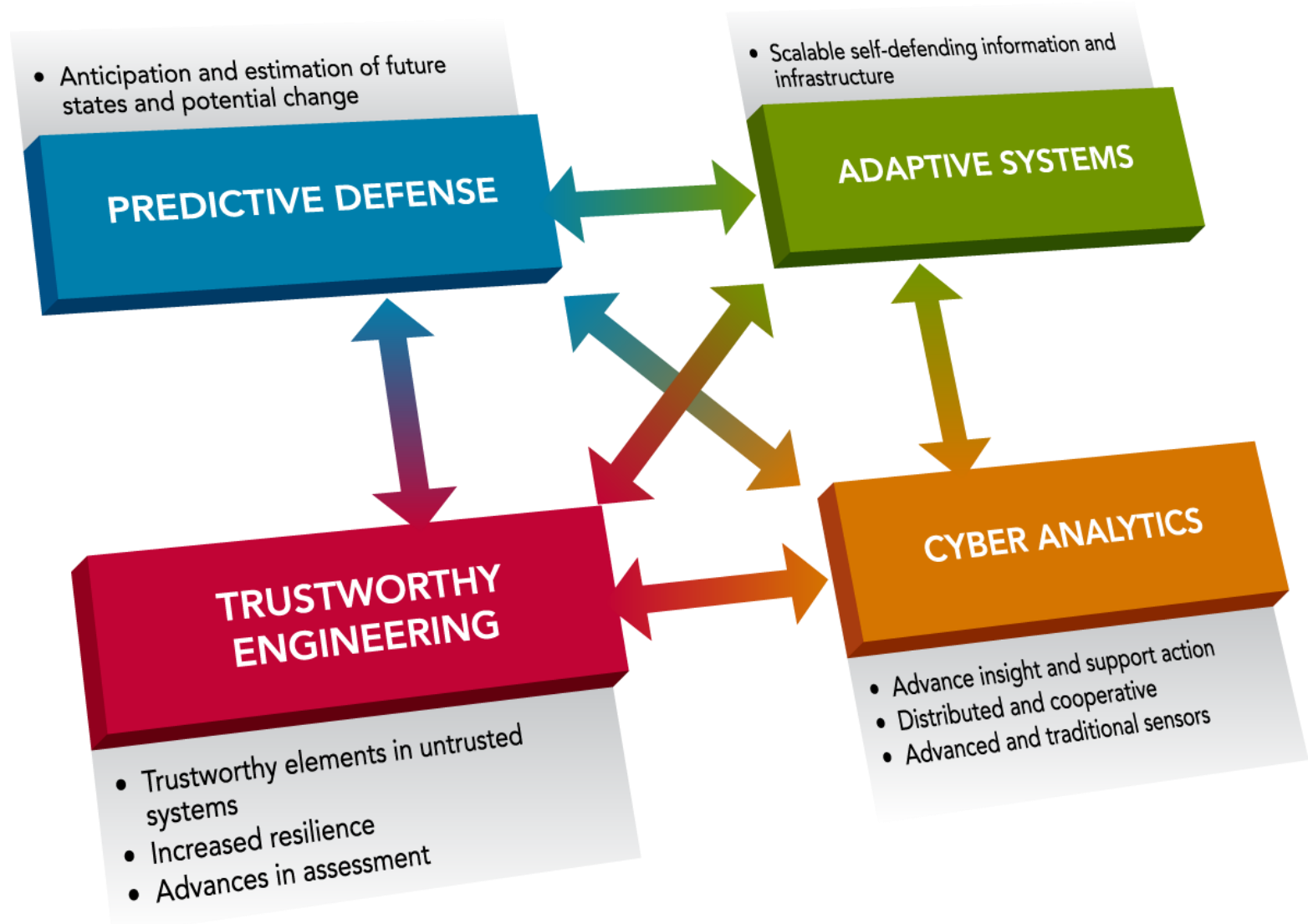


Time At PNNL: “Doing Well by Doing Science”

- \$1.1 B R&D budget
- Nearly 5000 staff, including 3,000 technical staff
- 46 patents issued
- 930 peer-reviewed publications



PNNL's Information & Infrastructure Integrity Initiative



DOE's Grass Roots Challenge circa 2006: Move towards a Science-Based Approach

Near term: 1-3 years

Mid term: 3-7 years

Long Term: 7+ years

Bucket brigade....

Install sprinklers ...

Intrinsically fireproof buildings

- **Practical and Fast**

- Largely reactive
- Continual “safer” short term investments in engineered point solutions
- Catch-n-patch
- Policy->audit->find->fix->repeat
- Need driven/incremental

- **Big Dreams Take Longer**

- Proactive
- Visionary, transformational
- Higher risk investments that don't all pay off

Provable, Quantifiable

Culture Challenge

“Classified Journal”

“Apprenticeships”

Bridging the gaps

Users, Protectors, Builders

???

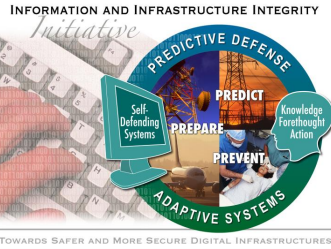
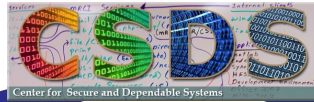
Measuring Research – PNNL

direct/indirect measurements

Goal: build capacity to sustain national S&T leadership through sustainable programs.

Key Assets	Successful FY11 Outcomes
<ul style="list-style-type: none"> ▪ Science and Technologies <ul style="list-style-type: none"> • Cyber security intellectual capital • Invention reports, publications 	<ul style="list-style-type: none"> ▪ Growth of focused capabilities ▪ Maintaining focused intellectual capital ▪ Citation and reference
<ul style="list-style-type: none"> • Leadership and Reputation <ul style="list-style-type: none"> • Clients • Cybersecurity Scientific community 	<ul style="list-style-type: none"> ▪ Transition to programmatic funding ▪ Continue PNNL recognition and thought leadership
<ul style="list-style-type: none"> • Staff, Facilities and Equipment <ul style="list-style-type: none"> • Key personnel • Recruitment pipeline • Cyber lab, equipment 	<ul style="list-style-type: none"> ▪ Growth in programmatic funding to retain new hires and key scientific personnel ▪ Increase visitors and external talks ▪ Hiring outcomes from intern program

Evolving Purpose: National



“A DOD Agency”

NSA/CSS Mission, Vision, Values

- The National Security Agency/Central Security Service (NSA/CSS) leads the U.S. Government in cryptology that encompasses both Signals Intelligence (SIGINT) and Information Assurance (IA) products and services, and enables Computer Network Operations (CNO) in order to gain a decision advantage for the Nation and our allies under all circumstances.

Our Vision

- Global Cryptologic Dominance through Responsive Presence and Network Advantage.

Our Values

- We will protect national security interests by adhering to the highest standards of behavior.

“A DOD Agency”

*We will protect national security interests
by adhering to the highest standards of behavior*

Research Thrusts Critical to NSA/CSS Strategy 2010:

Goal #2: Preparing for the Future

Research Strategy

Create research breakthroughs in mathematics, science, and engineering that enable NSA/CSS to achieve and sustain intelligence advances against immediate, emerging, and future threats to our national security.

Research Thrusts

ANALYSIS

Create tools, technology, and science to improve workflow, tradecraft, and the processing of large data sets.

CRYPTO-SCIENCE

Maintain scientific superiority in disciplines that advance NSA's mission.

CYBER

Provide situational awareness, dynamic network defense, and full-spectrum operations.

INFORMATION ASSURANCE

Protect and secure the information systems of the future.

TELECOMMUNICATIONS

Create technologies for analyzing state-of-the-art communications networks.

RAPID RESPONSE SUPPORT

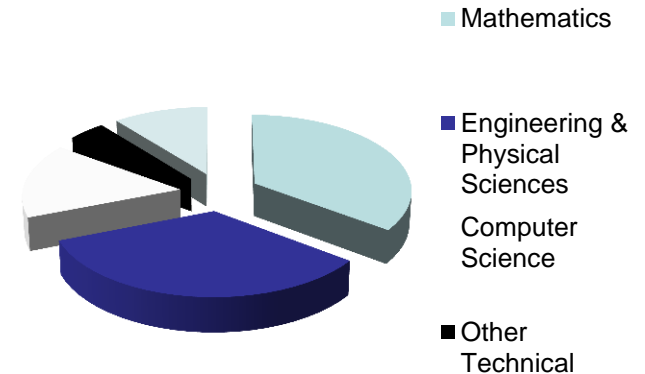
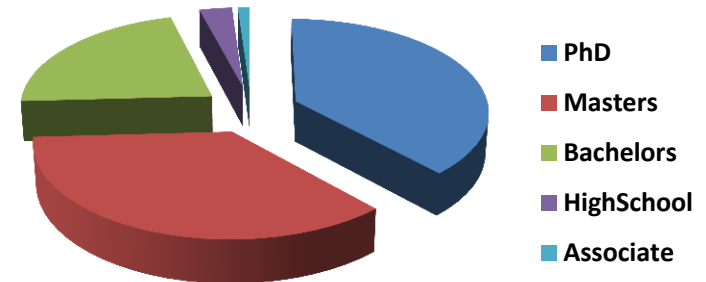
Employ research breakthroughs quickly to solve unique operational problems.

TECHNICAL HEALTH

Develop the people and missions critical to the Agency's current and future success.

Strategic Goal: Preparing for the Future

Deliver next generation capabilities and solutions that meet the challenges of tomorrow and drive solutions from invention to operation in support of national security and USG missions.





Any Questions?

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