Faculty Virtual Town Hall

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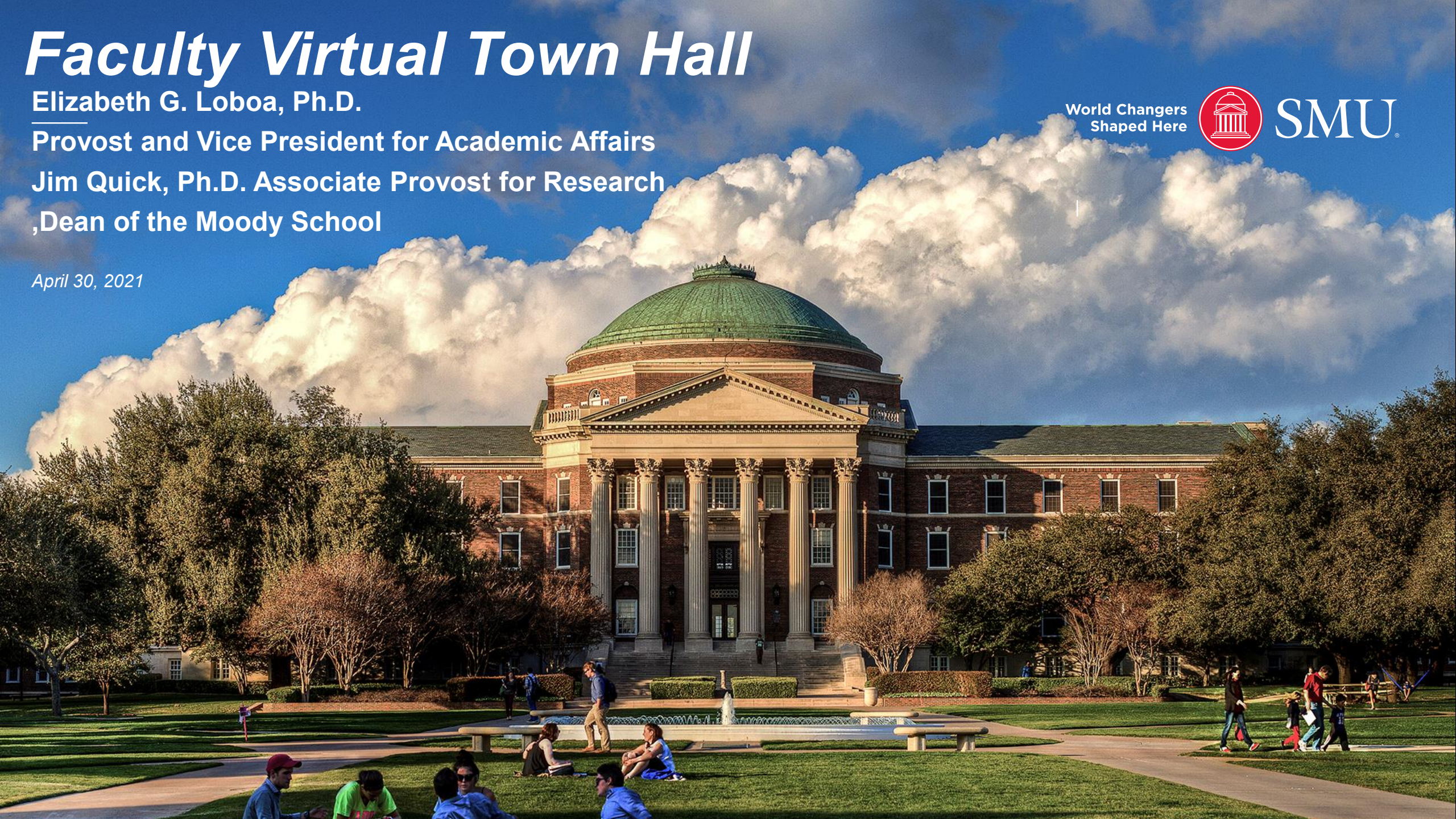
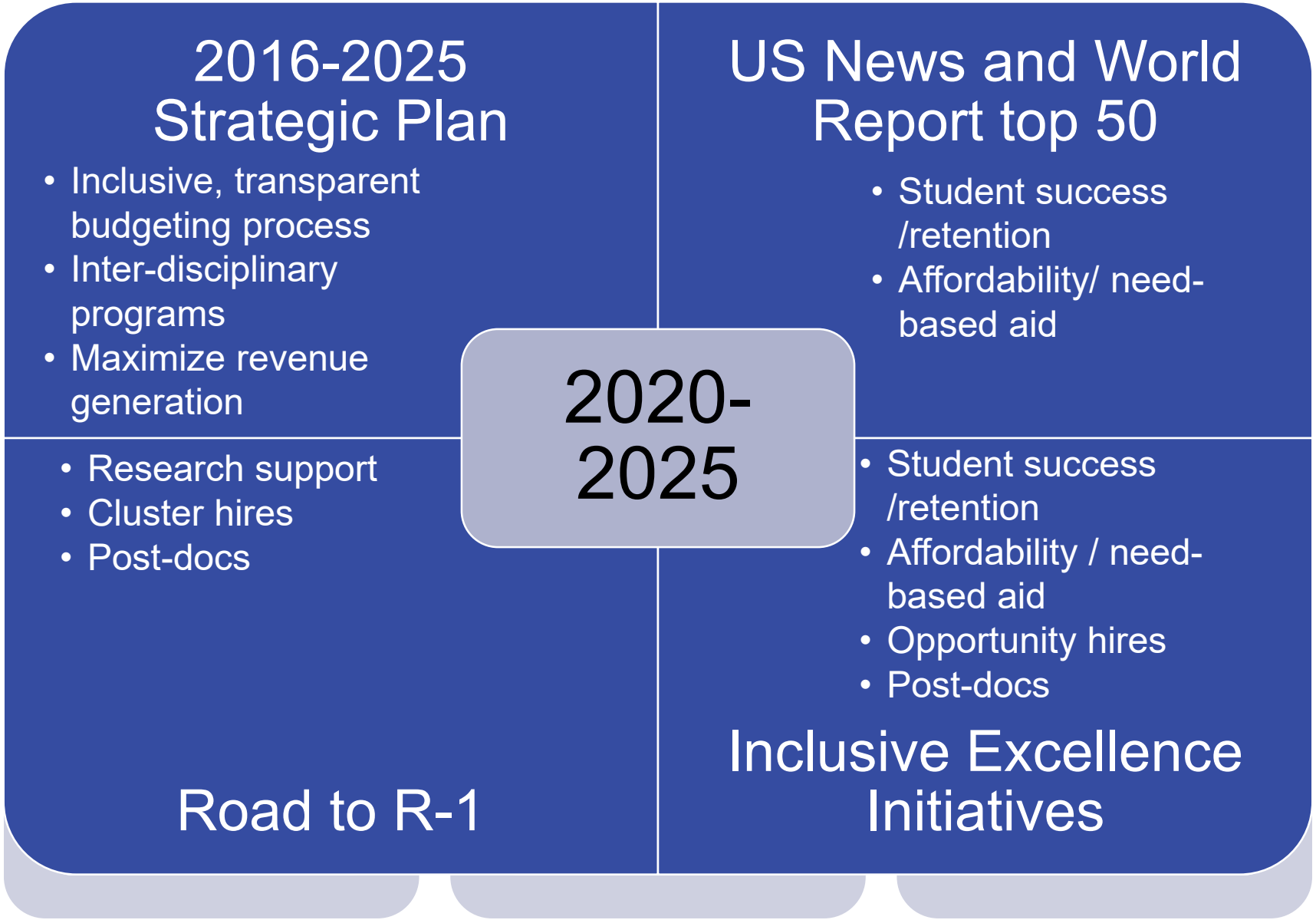
April 30, 2021

World Changers Shaped Here

SMU



Areas of strategic investment over the next 3-5 years



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Draft Timeline: Academic priorities for the next 3-5 years

Area	Year One (2020 – 2021)	Year Two (2021 – 2022)	Year Three (2022 – 2023)	Year Four (2023 – 2024)	Year Five (2024-2025)
Strategic Plan	Budget Process/Revenue				
	*Collaboration		*College/School models	*Online/Digital Ed	
	Centers/Institutes				
		*National search, Directors			
US News & World Report	Enrollment Management				
		*Enhanced recruiting		*Need-based aid	
	SMU in Four				
BUF Action Plan	Workload Policies	Postdocs		*Need-based aid	
Road to R-1	3-5 Initial cluster hires with R-1 focus				
	*Discuss priority areas	*Recruiting		*Onboarding	

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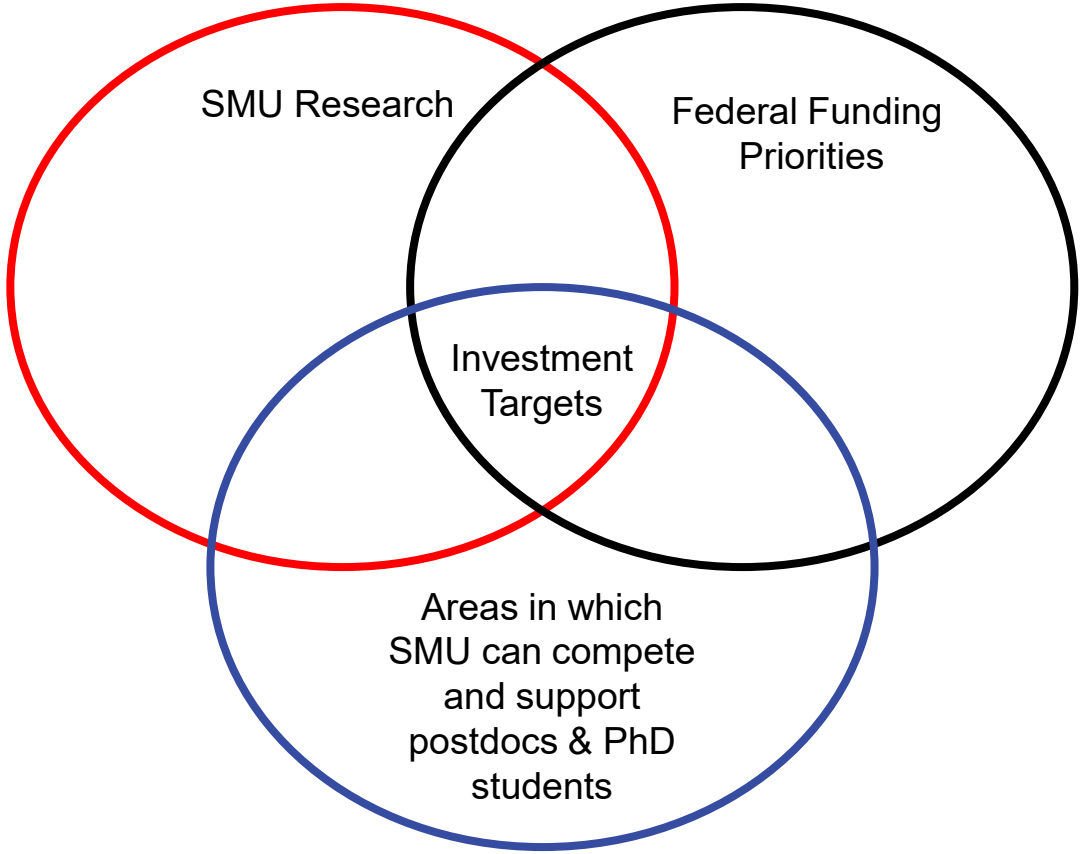
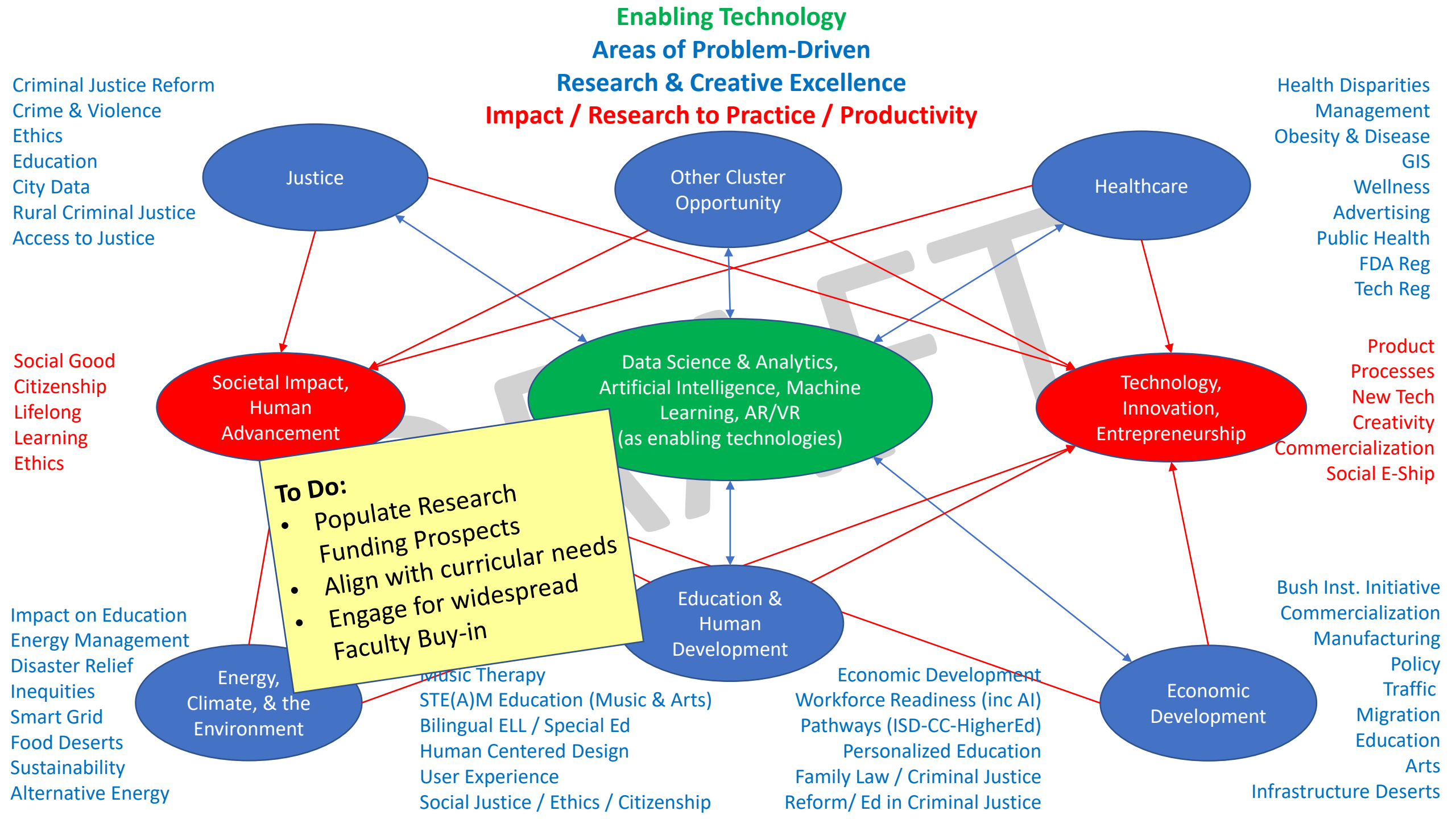
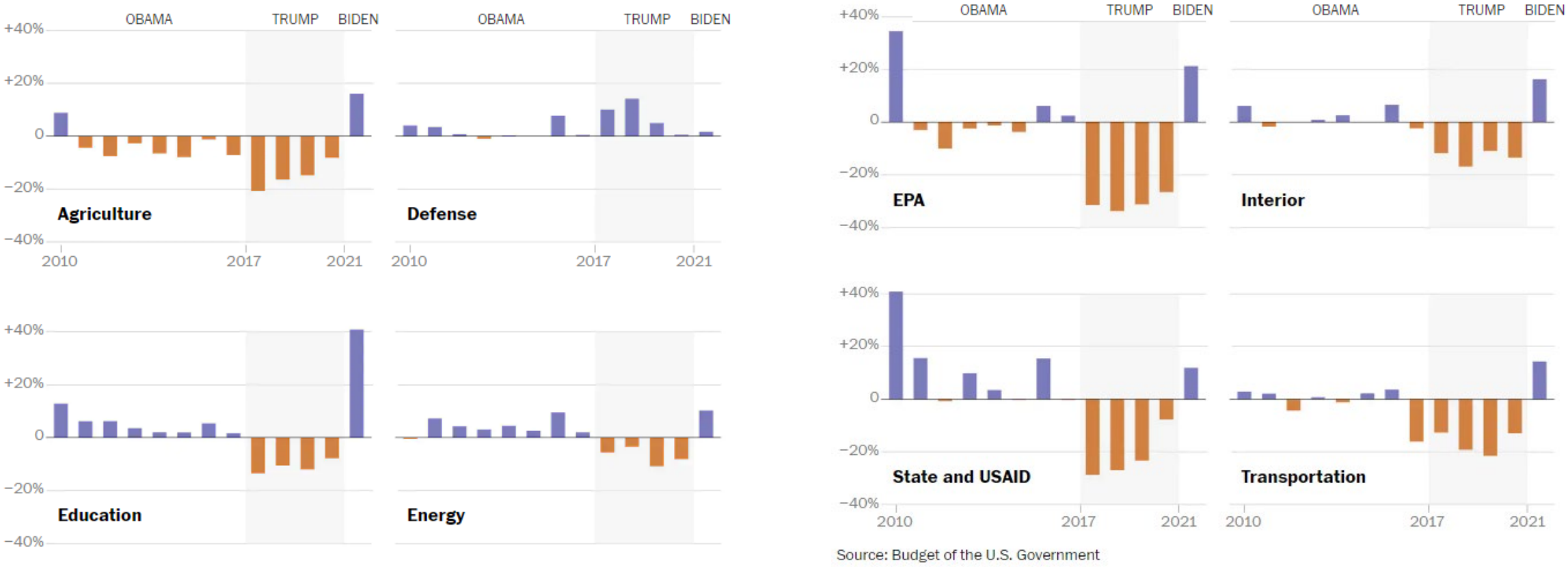
Faculty input is needed to identify investment targets for the Road to R1 that will create research efforts that compete nationally for significant and sustainable external funding, and that will support postdoctoral researchers and PhD students.



Enabling Technology
Areas of Problem-Driven
Research & Creative Excellence
Impact / Research to Practice / Productivity



Proposed Changes in the Past 13 Presidential Budgets



Graph from Washington Post: www.washingtonpost.com/politics/interactive/2021/biden-2022-budget-department-breakdown/

2020 Federal R&D Priorities

www.whitehouse.gov/wp-content/uploads/2020/08/M-20-29.pdf

Democratic Platform R&D Priorities

https://democrats.org/where-we-stand/party -platform/

Health

Health:
- Diagnosis, vaccine & therapies
- Rapid detection, containment and treatment
- *Datamining epidemiological, clinical & genomic data is emphasized*

National Security

Resilience:
- Natural disasters
- Biological threats
- Cyber/EM attacks

Earth System Predictability:
- Weather, climate, hydrology, ocean, and other environmental systems

Military Preparedness:
- Advanced military capabilities
- *Increased responsiveness to emerging threats in all domains emphasized*

Education

STEM Ecosystem:
- Provide all Americans access to STEM education and advanced workforce pathways
- Tools for remote & in-person learning
- Expand broadband access
- Improve remote learning
- Ensure a pipeline for capable student to graduate education in STEM fields

Democratic Themes:
- Pandemic Recovery
- Infrastructure
- Social, Environmental & Economic Justice
- Ethical & Civil Liberty Considerations related to technological advances

Stated Commitment to:
- Health Science
- Artificial Intelligence
- Advanced Materials
- Biotechnology
- Aerospace

Climate Change:
- Resilient grids
- Sustainable agriculture
- Efficient energy
- Emission reduction
- NASA/NOAA Earth Observation

World-Class Education in every ZIP code, *K-12 & STEM emphasized*

Technology

Technology:
- Artificial Intelligence
- Communication
- Advanced computing
- Advanced manufacturing
- Biotech
- *Creation of consortia and centers of excellence emphasized*

"Regional" Foci

Space:
- Maintain US leadership
- Return to Moon by 2024
- Enable longer human missions in space
- Study in-situ utilization of lunar & Martian resources
- Advanced materials and manufacturing processes

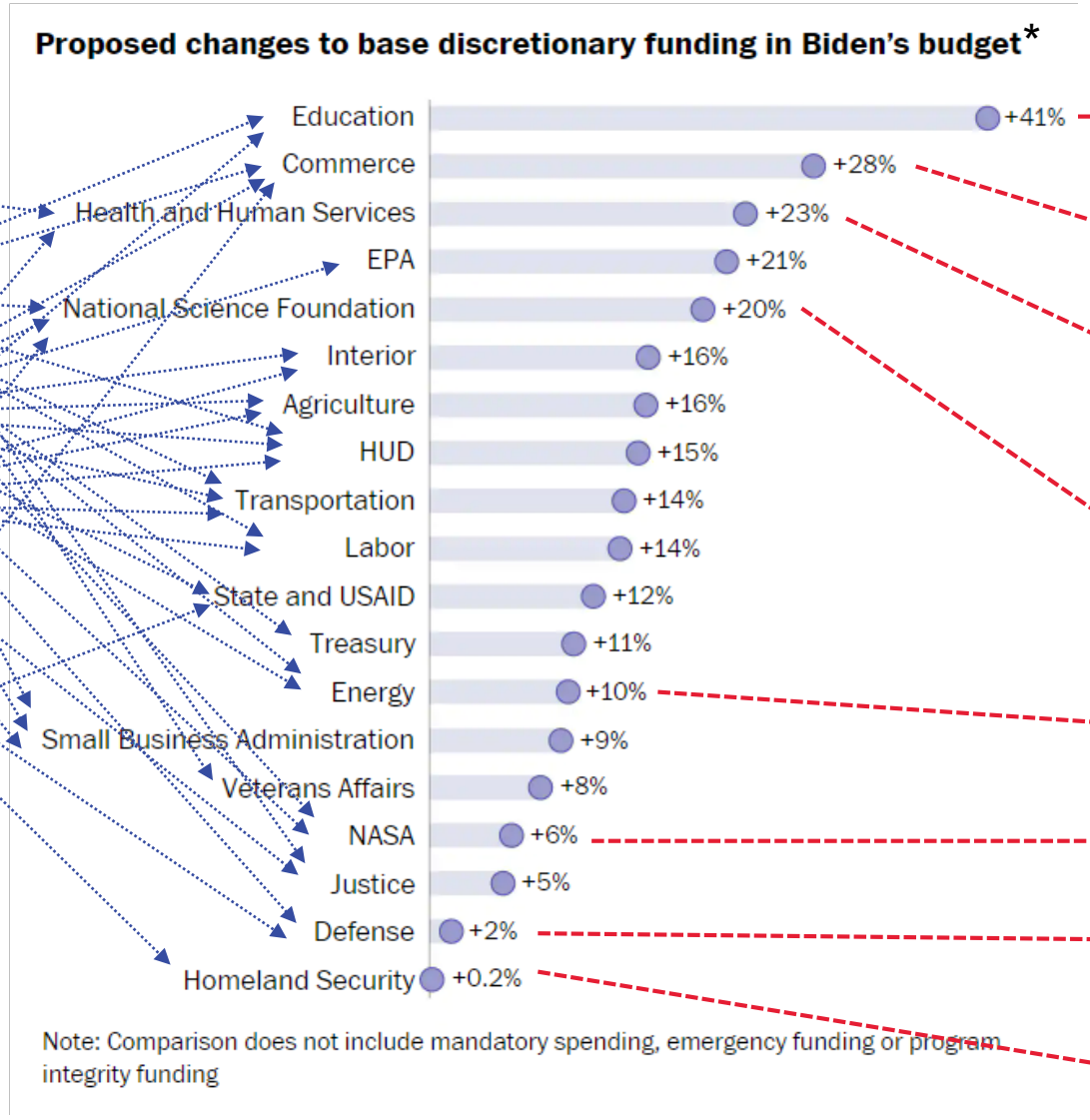
Ocean Mapping:
- Explore & characterize resources
- *R&D that improves response to changes in ocean systems emphasized.*

Arctic:
- Predict Arctic physical, biological and socio-economic processes to advance US interests

Selecting Priority Areas for the Road to R1

Overarching Themes

- Investing in Public Health
- Creating an Economy that Works for All
- Tackling the Climate Crisis
- Advancing Equity
- Confronting 21st Century Security Challenges
- Restoring America's Global Standing



Highlights

- $20B increase to Title 1 to create new learning opportunities.
- $6.9B to NOAA for climate observation, forecasting, and impacts of climate change.
- NIST doubled ($442M) for climate, 5G tech, cybersecurity, advanced materials.
- $6.5B to establish ARPA-H; initial research foci include cancer, diabetes, Alzheimer's
- $1.6B increase for basic research across sciences and engineering.
- $1.2B for climate/clean energy research.
- New Directorate focused technology development in AI, HPC, cybersecurity, disaster response & resilience, biotech, and other areas.
- $7.4B for climate, novel materials, clean energy, AI & HPC.
- $2.3B for earth observation systems to track effects of climate change.
- Highlights R&D, biological threat reduction, climate resilience, energy efficiency.
- $2.1B to CISA includes support to acquire fools & services to improve cybersecurity
- $600M for research including R&D on climate resilience, cybersecurity.

* www.whitehouse.gov/wp-content/uploads/2021/04/FY2022-Discretionary-Request.pdf

Graph from Washington Post: www.washingtonpost.com/politics/interactive/2021/biden-2022-budget-department-breakdown/

Based on OMB/OSTP R&D priorities overlaid with the democratic platform and considered in light of SMU research strengths, the following major areas emerge for consideration for research investment.

1. **National Security:** resilience, earth-system predictability and climate, military preparedness
2. **Education:** STEM ecosystem & world-class education in every zip code
3. **Technology:** application of Data Science, AI, ML, HPC to health, national security, education, economic development

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