ORDE "KNOW YOUR AGENCY" SERIES:
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY (DARPA)

DARPA Site: https://www.darpa.mil/

OVERVIEW
The Advanced Research Projects Agency (ARPA) was created in February, 1958, in response to Soviet Union technological achievements including the Sputnik satellite. Later renamed the Defense Advanced Research Projects Agency (DARPA), it was authorized by President Dwight D. Eisenhower and tasked with "cultivating breakthrough technologies for national security." (Source: DARPA About Us web page)

Specific Interests
DARPA's strategic priorities are four-fold:
1. Rethink complex military systems
2. Master the information explosion
3. Harness biology as technology
4. Expand the technological frontier
(Source: DARPA 2015, pp. 4-9)
Innovative technologies in which DARPA has been involved include both military (e.g., precision weapons, stealth technology) and civilian (e.g., internet, voice recognition, GPS receivers for small consumer products). (Source: About DARPA web page)

Approach
DARPA invests in technologies that can make major differences in US national security, partnering with academic, corporate, and government entities – what DARPA terms their "innovation ecosystem." All research efforts are outsourced as DARPA has no research facilities; rather, the agency provides "thought leadership, community building frameworks, technology challenges, research management, funding, and other support elements" to meet their mission (Source: About DARPA web page). The agency refers to its "culture of innovation" and is known for "executing rapidly and effectively" (Source: DARPA 2015, p. 9). Identifying cutting-edge objectives translates to investing in risk-taking research, a concept with which this agency is very familiar and comfortable. Every DARPA funding announcement carries the admonition that the agency seeks transformational versus evolutionary or incremental results in the projects they support.

AGENCY ORGANIZATION
Reporting to the Secretary of Defense, DARPA works independently from other defense research and development activities. DARPA's Director and Deputy Director are responsible for setting agency-wide goals/ priorities, insuring a balanced investment portfolio, approving new programs, and reviewing ongoing ones. With about 220 employees, this is likely the only federal agency where almost half of the employees are hired with the understanding they will be part of the agency for only three to five years. These "temporary" workers are the approximately 100 Program Managers (PMs) who are charged with overseeing some 250 R&D programs at the agency (Source: About DARPA web page). DARPA PMs are recruited from academia, industry, and government agencies, and are discipline experts. PMs define their programs, set appropriate milestones, meet with their researchers, and track progress. They report to DARPA's Technical Office Directors and Deputies who are responsible for setting directions for their offices, hiring PMs, and overseeing program execution. DARPA's six Technical Offices are:

- Biological Technologies Office (BTO)
- Defense Sciences Office (DSO)
- Information Innovation Office (I2O)
- Microsystems Technology Office (MTO)
- Strategic Technology Office (STO)
- Tactical Technology Office (TTO)

GRANTS PROCESS
DARPA Technical Offices and Research Programs release information about research interests and funding opportunities in the form of Broad Agency Announcements (BAAs) and Research Announcements. Depending on the opportunity, investigators are encouraged or required to submit pre-proposals for agency review prior to full proposal submission. Following this, PIs receive brief feedback and encouragement to submit (or not) a full proposal for agency consideration.

Contact with DARPA Staff:
DARPA recommends communication with their Program Managers (PMs) early in the process, whether you are

responding to an agency-issued BAA or you would like to pitch a unique idea. Contact can be made by telephone, email, or in-person (Source: Doing Business with DARPA, March 2017). Some DARPA offices hold Proposer Days or other types of events that bring current and potential research collaborators to DARPA for a day or two. Attendees are provided information about the agency and specific office, the particular solicitation, how best to engage with DARPA, upcoming priorities, and one-on-one meetings (called "sidebars") with relevant PMs.
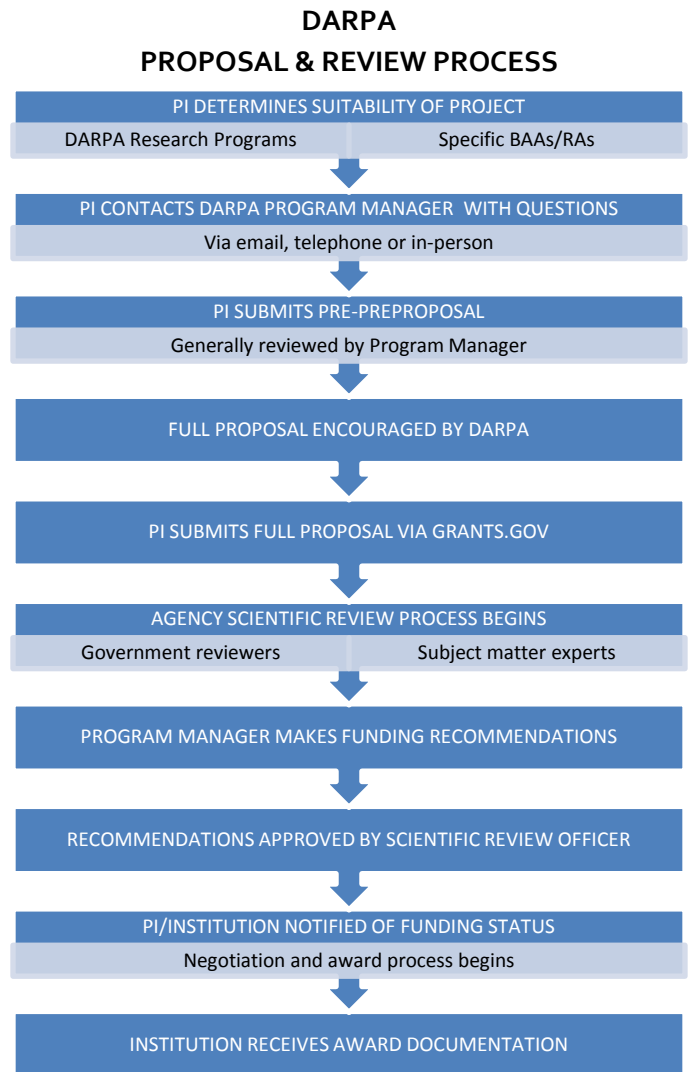
Typical DARPA Proposal Process:
1) PI determines suitability of proposed project in relation to DARPA Research Programs.
2) PI contacts DARPA Program Manager with questions concerning program priorities and application process.
3) PI submits pre-proposal, if required.
4) Brief feedback along with an invitation to submit a full proposal is provided by the PM.
5) PI submits full proposal via grants.gov.
6) Proposals go through the scientific/technical review process conducted by government personnel and subject matter experts, as needed.
7) Program Managers make final funding recommendations to Scientific Review Officers (typically the DARPA Technical Office Director).
8) Notification is provided to PI and institution concerning proposal status.
9) The DARPA Contracting Officer conducts the negotiation and award process with PI/institution for approved project.

Proposal Review Process:
The DARPA Scientific Review Process is governed by general review criteria (overall scientific and technical merit, potential contribution/relevance to the agency's mission, and cost realism), and is run by the Program Manager. Pre-proposal review primarily takes place at the PM level although the PM may elect to include others in the decision process. PMs also control the review process for full proposals – determining proposals to be reviewed, selecting the reviewers, often acting as a reviewer, and recommending proposals for award. Review Teams consist of the Program Manager, selected reviewers, subject matter experts, and the Scientific Review Officer (SRO) who is usually the DARPA Technical Office Director (to whom the PM reports). Reviewers must be

government employees; subject matter experts are not required to be. When the Review Team completes their tasks, the Program Manager's funding recommendations go to the SRO for concurrence and funding availability determination. PMs then notify proposers of funding decisions. (Source: DARPA Guide to Broad Agency Announcements and Research Announcements, Nov 2016, p. 12).

DARPA PROPOSAL & REVIEW PROCESS

PI DETERMINES SUITABILITY OF PROJECT
DARPA Research Programs | Specific BAAs/RAs

PI CONTACTS DARPA PROGRAM MANAGER WITH QUESTIONS
Via email, telephone or in-person

PI SUBMITS PRE-PREPROPOSAL
Generally reviewed by Program Manager

FULL PROPOSAL ENCOURAGED BY DARPA

PI SUBMITS FULL PROPOSAL VIA GRANTS.GOV

AGENCY SCIENTIFIC REVIEW PROCESS BEGINS
Government reviewers | Subject matter experts

PROGRAM MANAGER MAKES FUNDING RECOMMENDATIONS

RECOMMENDATIONS APPROVED BY SCIENTIFIC REVIEW OFFICER

PI/INSTITUTION NOTIFIED OF FUNDING STATUS
Negotiation and award process begins

INSTITUTION RECEIVES AWARD DOCUMENTATION

What Happens Next?
DARPA issues grants, cooperative agreements, and contracts – depending on the nature of the project. A negotiation process between the receiving institution and DARPA precedes award; the DARPA Contracting Officer conducts these negotiations. Those who are turned down may request informal feedback sessions with the PM to discuss strengths and weaknesses of the proposed project. (Source: DARPA Guide to Broad Agency Announcements and Research Announcements, Nov 2016, p. 12).