



Workforce Workshop

June 1, 2006

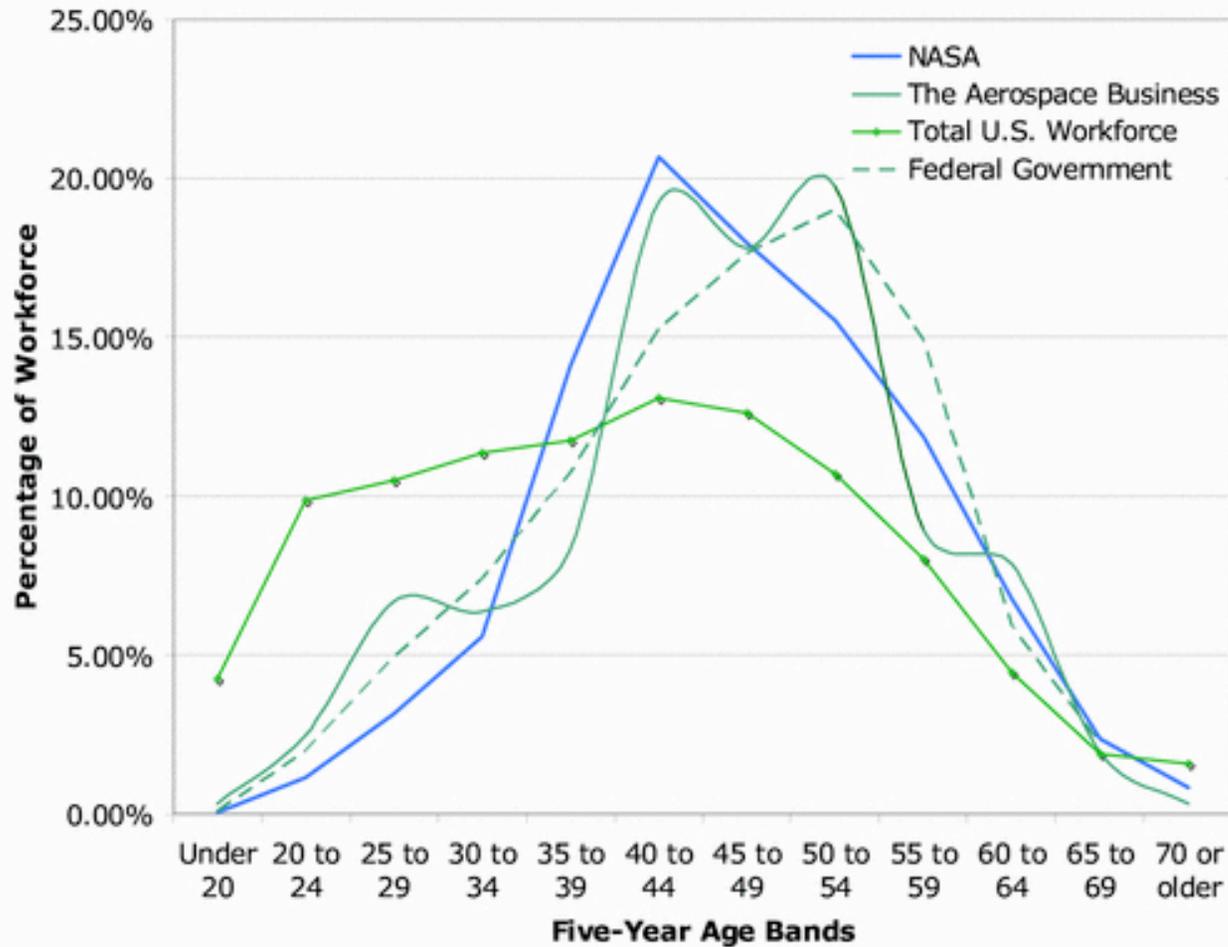


Agenda

- 8:30 am** **Welcome & Overview of ARMD (10 minutes)**
Lisa Porter, Associate Administrator, NASA Aeronautics Research Mission Directorate
- Overview of ESMD (15 minutes)**
Tom Cremis, Chief of Staff, NASA Exploration Systems Mission Directorate
- Overview of NASA Higher Education Programs (15minutes)**
Diane D. DeTroye, Director, Higher Education Division (Acting), NASA Office of Education
- Industry Workforce Needs (15 minutes)**
Jana Denning, Director Research and Development, Aerospace Industries Association
- University Needs (15 minutes)**
Prof Tafi Hamed, University of Cincinnati
- Setting the stage (10 minutes)**
Lisa Porter, Associate Administrator, NASA Aeronautics Research Mission Directorate
~ break ~
- 10:00 am** **Breakout Discussions**
- Noon (approx.)** **~ LUNCH ~**
- 1:00 pm** **Breakout Discussions (con't)**
3:30 pm **Group Discussion Plans and Actions**
4:30 pm **Closing Remarks from Lisa Porter**
5:00 pm **Adjourn**

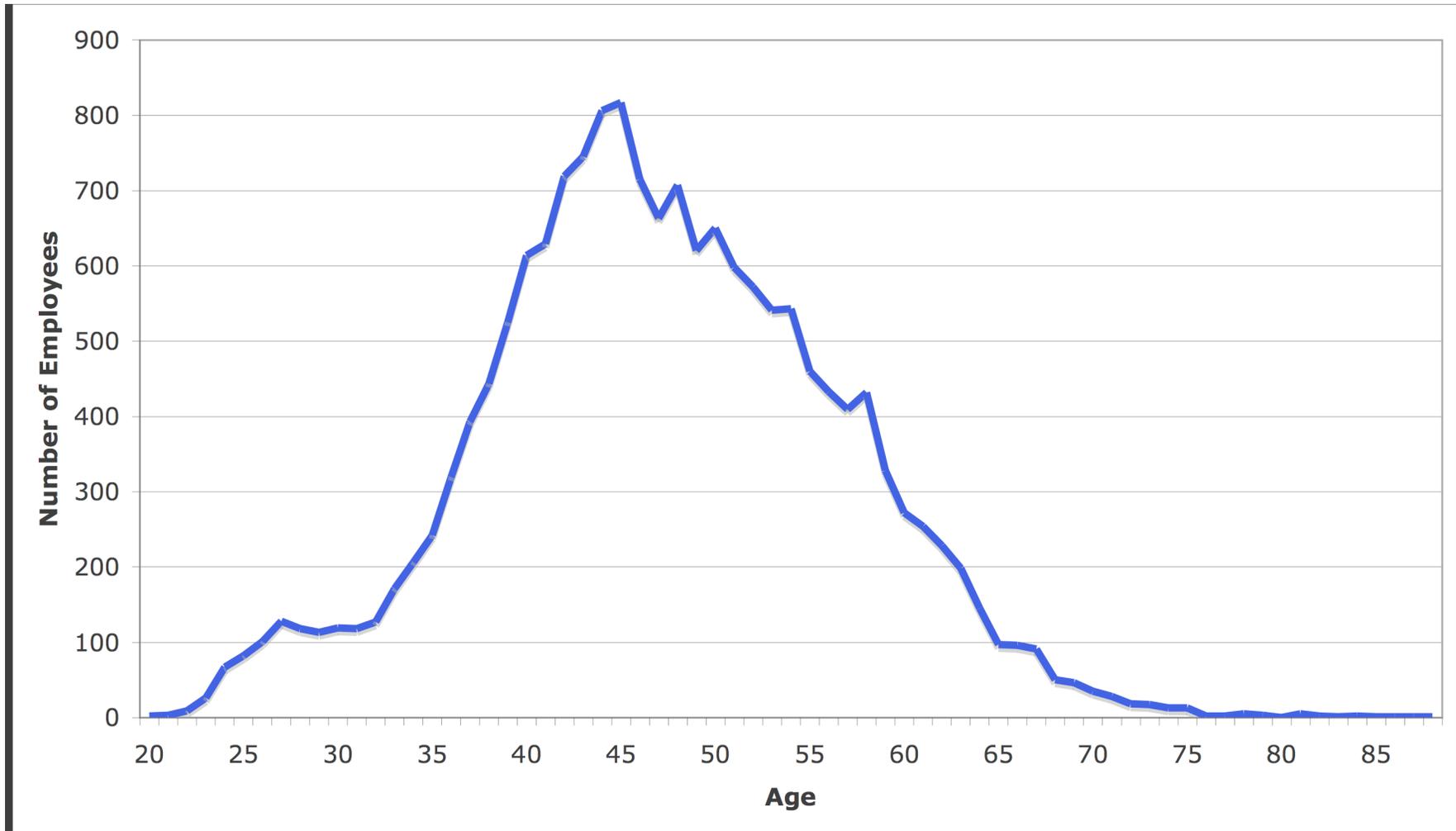


Issues Affecting the Future of the U.S. Space Science and Engineering Workforce: Interim Report





NASA Civil Servant Full-time Permanent Workforce, By Age





The Three Principles

- We will dedicate ourselves to the mastery and intellectual stewardship of the core competencies of Aeronautics for the Nation in all flight regimes.
- We will focus our research in areas that are appropriate to NASA's unique capabilities.
- We will directly address the fundamental research needs of the Next Generation Air Transportation System (NGATS) in partnership with the member agencies of the Joint Planning and Development Office (JPDO).



The New Aeronautics Programs

- **Fundamental Aeronautics Program**
 - Subsonics Fixed Wing
 - Subsonics Rotary Wing
 - Supersonics
 - Hypersonics
- **Aviation Safety Program**
 - Integrated Vehicle Health Management
 - Integrated Resilient Aircraft Control
 - Integrated Intelligent Flight Deck
 - Aircraft Aging & Durability
- **Airspace Systems Program**
 - NGATS Air Traffic Management: Airspace
 - NGATS Air Traffic Management: Airportal
- **Aeronautics Test Program**
 - Operational Support, Facility Maintenance, Test Technologies, University Research, Outreach to DoD



Break



Big Questions

- How do we attract students to aerospace engineering and related engineering disciplines?
- How do we encourage them to stay in the field, replenishing the workforce?
- How do we ensure that they get the right education/training?



Bringing the “real world” to the students

- How do we introduce “real world” challenges to the students?
 - Integrate real problems into curricula?
 - NASA/Industry participation?
 - Guest lectures?
 - Lectures/projects that can be downloaded?
 - Summer courses?
 - Advanced specialty courses taught by Industry/NASA/Academic teams?



Using Design Competitions

- What kinds of design competitions should we be conducting?
 - Would it be motivating to have winning designs tested in a NASA facility such as a wind tunnel?
 - Would it help to offer a summer internship at NASA as an award?



Fellowships / Internships

- Summer internships at NASA/Industry
 - Most companies do some of this already, as do NASA centers. Is there more we should be doing?
 - Set up a website that provides info on all available internships across the country?
- Undergrad/Grad fellowships
 - NASA currently has programs through our Office of Education.
 - What can be improved?



Updating Course Content

- Are the aerospace curricula aligned well with national needs? E.g.,
 - Aeronautics Enterprise/System of Systems
 - Systems Engineering for Space Exploration
 - Supersonics & Hypersonics
 - Safety-related research
 - Advanced, highly specialized graduate courses
- What can NASA and industry do to help ensure that the right things are being taught?
 - Are there nontraditional support materials that can be provided by NASA and/or industry that can be used in the classroom?
 - E.g., space shuttle tiles could be provided to support studies of thermal protection systems (TPS).
 - Are there real-world relevant problems that can be defined by NASA and Industry that can be investigated by the students?



Metrics to Assess Progress

- What data should we collect to assess our effectiveness?
 - E.g., how do we poll students to learn what matters most to them, what drives them to choose aeronautics, other engineering, or non-engineering disciplines?
 - How do we gather data from industry and from NASA to determine gaps in skill sets?
 - Are we making good enough use of professional societies, including the student chapters?