Paradigm Shifts Revisited, One Year Later

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Overview

- What's happened since the New Design Paradigms Workshop 2001 ?
- What do these changes mean to the industry ?
- What new paradigms do they spawn ?

The world has experienced unprecedented paradigm shifts over the last year !

What's Happened ?

- **Award of last big ticket defense contracts**
  - ***JSF, DDX, FCS, Deepwater***
- **World Destabilization**
  - ***9/11attacks, Israeli/Palestinian conflict escalation, renewed India/ Pakistani tensions (renewed threat of nuclear war)***
- **New leadership and budgetary challenges at NASA**
- **Beginning of the loss of 30 to 50 % of aerospace workforce**

The world has become an unwilling participant in major paradigm shifts over the last year !

What's Do These New Paradigms Mean ?

- **Award of last big ticket defense contracts**
  - ***In a conservative defense industry, will awarded programs embrace technology infusion and the disruptive technologies characteristic of the changing design paradigms?***
  - ***Will smaller programs in the future stimulate enough competitive pressure for new tool and process paradigms ?***

What's Do These New Paradigms Mean ?

- **World destabilization**
  - ***Asymmetric threats must be addressed as well as the traditional ones***
    - Not a transition but an addition
    - Harsh economic impacts are a win for adversaries
  - ***Traditional schedules and approaches are not fast enough to respond to threats***

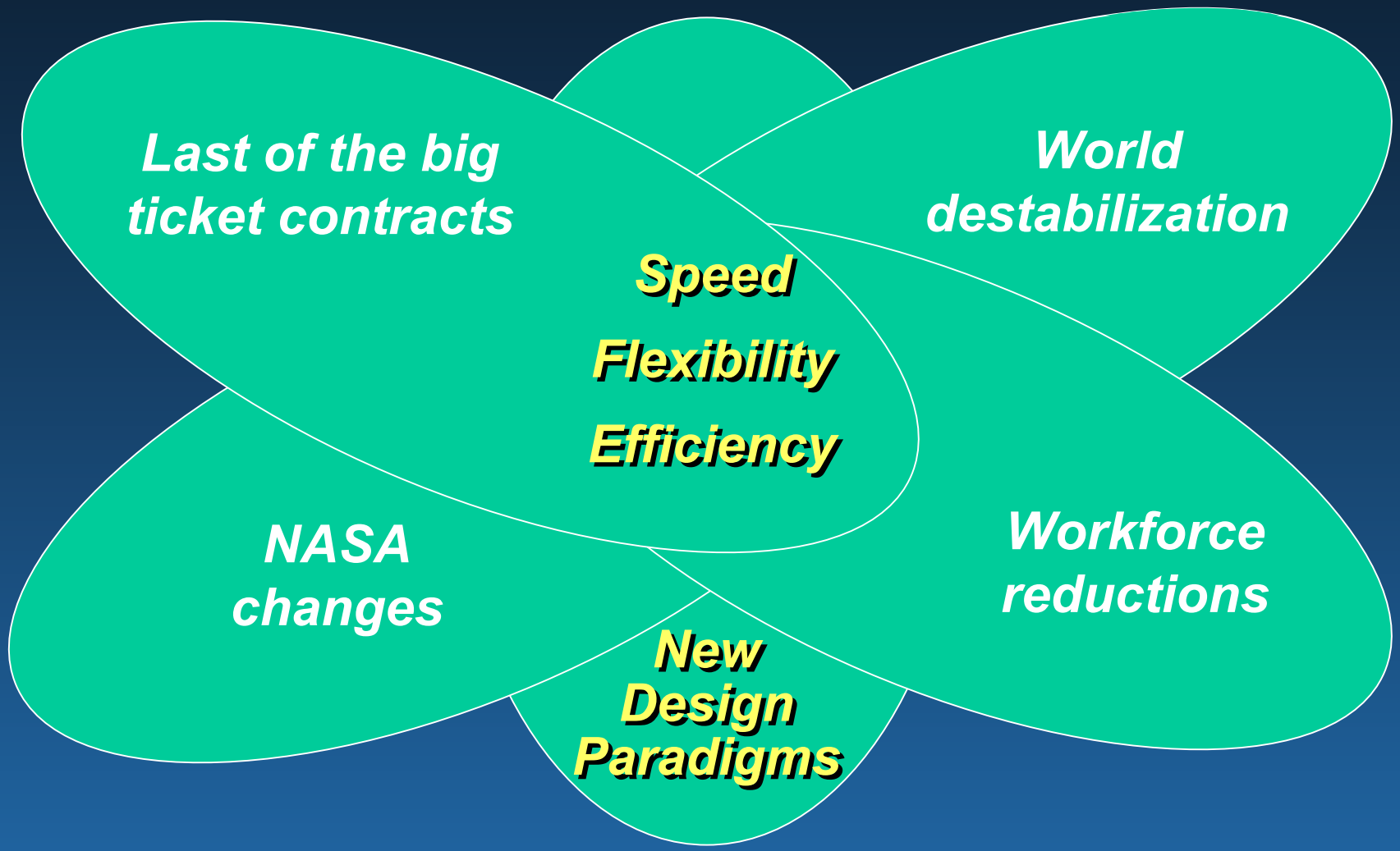
What's Do These New Paradigms Mean ?

- **New leadership and budgetary challenges at NASA**
  - ***Heavy pressure to do more with less***

What's Do These New Paradigms Mean ?

- **Beginning of the loss of 30 to 50 % of aerospace workforce**
  - ***Requires much more efficient utilization of scarce resources***
  - ***Loss of expertise & skills***
  - ***Opportunity to break from legacy baggage***

What New Paradigms Do They Spawn ?



New design paradigms are universal enablers for addressing these major world paradigm shifts !

What New Paradigms Do They Spawn ?

New Design Paradigms

- 3D Solid Modeling
- Digital Mockup
- Digital Simulation
- Design Reuse
- Direct Manufacturing
- Virtual Collaboration
- Group Virtual Reality

New design paradigms are available !
Can industry leverage them ?

Closing Questions

- **Have we made substantial progress in implementing the “new paradigms” we discussed last year?**
- **Considering the added importance of deploying a faster, more flexible, more efficient design paradigm due to the dramatic world changes of the last year, are we moving fast enough to make a real difference?**
- **What changes could we effect to better leverage the vision of New Design Paradigms?**