



# **The Future of Software and Software Research : Panel Comments**

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**Software New Visions Workshop, April 2001**

- **Future Software Trends**
- **Promising New/Existing Technologies**
- **Critical Success Factors for Research Programs**



# Future Software Trends

- **Increased complexity**
  - **Everything connected, maybe (mobility)**
  - **Opportunities for chaos (agents)**
  - **Systems of systems**
- **Decreased control of content**
  - **Infrastructure**
  - **COTS application components**
- **Faster change**
  - **Time-to-market pressures**
  - **Marry in haste; no leisure to repent**
  - **Adapt or die (e-commerce)**
- **Fantastic opportunities**
  - **Personal, corporate, national, global**



# Promising New/Existing Technologies

- **Software architectures**
- **Lightweight formal methods**
- **Mixed-initiative systems**
- **Collaboration technology**
- **Value-based methods**

# Critical Success Factors for SW Research Programs

- **Emphasize scientific foundations**
  - Clear hypotheses; careful measurements; repeatability
  - Evaluated w.r.t. alternatives and domain of applicability
- **Broaden empirical understanding of software phenomenology**
  - Enables focus on high-leverage problems and solutions
- **Skate to where the puck is going (Gretzky)**
  - Anticipate and address future problems
- **Maintain a balanced research portfolio**
  - Evolution/revolution; basic/applied; theory/systems
- **Expand horizons via Grand Challenges**
- **Stimulate “out of the box” ideas**
  - New metaphors: biology, sociology, economics
- **Stimulate university-industry collaboration; transition into practice**