

M&S LEADERSHIP SUMMIT PANEL

Bernard P. Zeigler, Ph. D

Hessam Sarjoughian, Ph. D

Arizona Center for Integrative Modeling and
Simulation

www.acims.arizona.edu

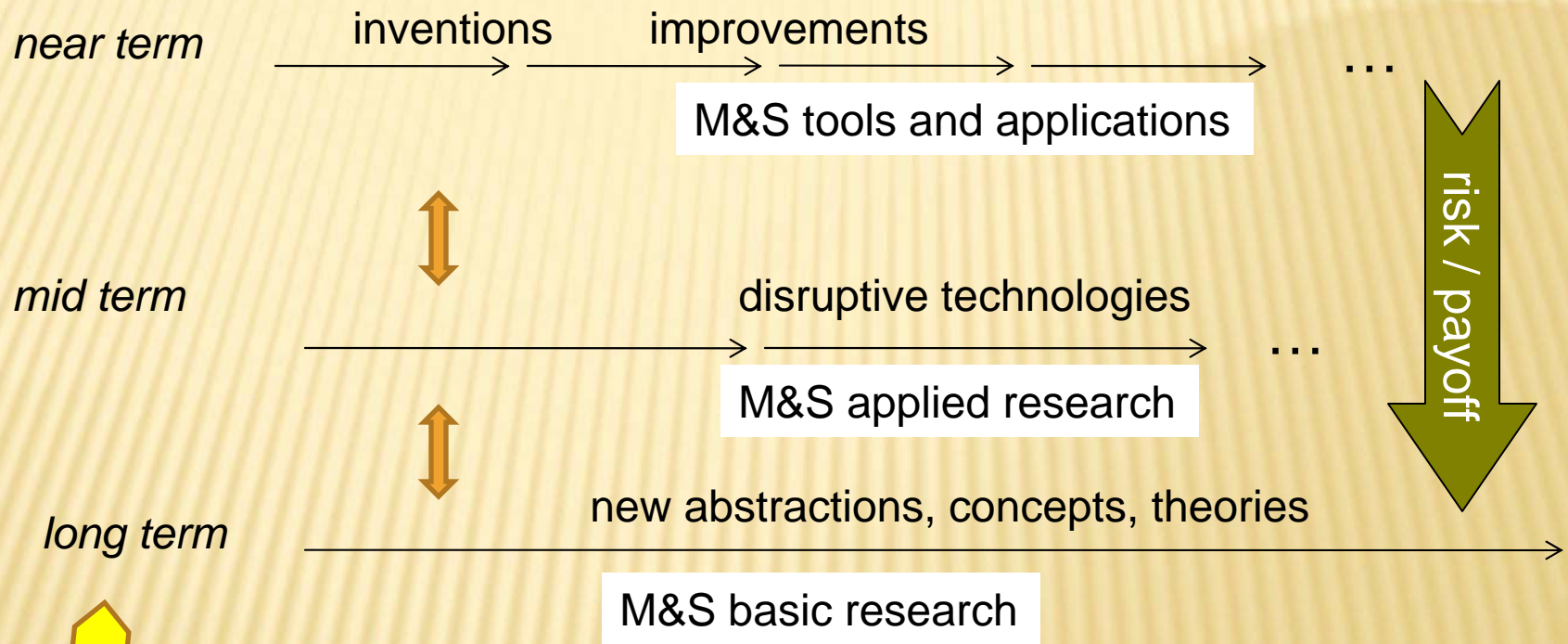
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Innovation Nation: How America Is Losing Its Innovation Edge, Why It Matters, And What We Can Do To Get It Back

.John Kao

- ✘ “We continue to behave as if we will always be number one in innovation.”
- ✘ We are:
 - + not educating our students in science and technology (S&T)
 - + discouraging foreign talent from coming and restricting them from staying”
 - + not developing a national strategy for innovation
- ✘ WHILE other nations are :
 - + Intensifying their training of students in S&T and
 - + attracting back those trained in the US
 - + investing in infrastructure to support innovation
- ✘ “The US is like a company that hasn’t yet recruited enough new talent; let alone trained it, even though its best and brightest managers ... are saying farewell. If the nation were a company, the human resources director would be fired”.

Innovation horizons and M&S research



M&S accelerates development at each level

M&S Capability Maturity To Drive Innovation

We need a Modeling and Simulation Capability Maturity Model

- + Software Engineering Capability Maturity Model
- + Systems Engineering Capability Maturity Model
- + Simulation Validation Process Maturity Levels (Harmon and Youngblood)

Level	Description	Purpose (M&S Assets)
0	No capability	None
1	Limited capability for selective system components & specific development phases	Inadequate and incomplete M&S concepts, techniques, or tools
2	Limited capability for whole system & across all development phases	Non-M&S standards and process management
3	Full capability for selective system components & specific development phases	Full range of M&S concepts, techniques, and tools
4	Full capability for whole system & across all development phases	M&S standards and disciplined process management

M&S Adoption/Education To Drive Innovation

We need a Modeling and Simulation Adoption Maturity Model

Level	Description	M&S Education
0	M&S absent from most project considerations	none
1	M&S as ancillary to other disciplines	other discipline-based
2	M&S at the core of all projects	M&S course(s) at BS level
3	M&S Integral to Knowledge Innovation Management	M&S MS, Ph. D
4	M&S prime driver of Innovation	in-depth coverage in all disciplines

Congressional Initiatives

- × **Rep. Scott Introduces Bill to Enhance the Study of Modeling and Simulation**
 - 1) The establishment of a task force at the Department of Education to raise awareness of and further define the study of M&S.
 - 2) Create grants for higher education institutions to develop new M&S degree programs.
 - 3) Create grants for higher education institutions to further develop existing M&S degree programs.
- × **More needed:**
 - Shift more funding to basic research in general and in M&S in particular
 - Establish M&S specific funding and development organization (e.g., NIH)
 - Expand *Global* M&S funding in multi-disciplinary projects to lead the way to tackling of “wicked “ global problems
 - **“Rather than seeking to dominate the world economy, we must seek to lead it as a visionary and progressive problem solver.”**