

**Innovation and Technology
for Special Operations**
Innovate or Die

SOFIC 2010

Robert G. Spulak, Jr., Ph.D.
Manager, SOF Program Office

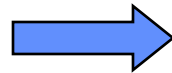
Associate Fellow
Joint Special Operations University, USSOCOM

Operational Innovation

Change

New:

- Technology
- Organization
- Op Concepts

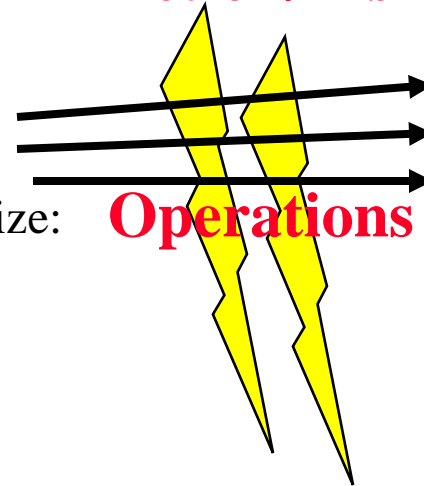


GPF

Institutionalize:

- TTPs
- Training
- Doctrine
- Discipline

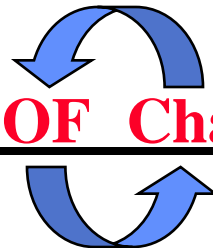
Friction/Risk



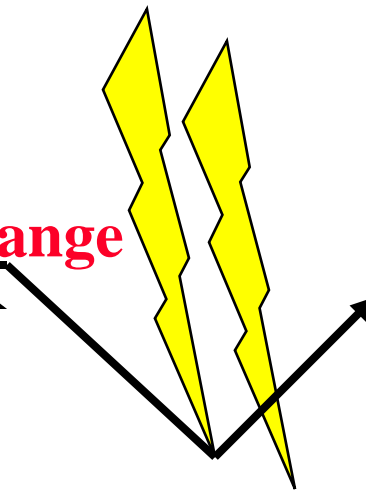
Objective

Operations

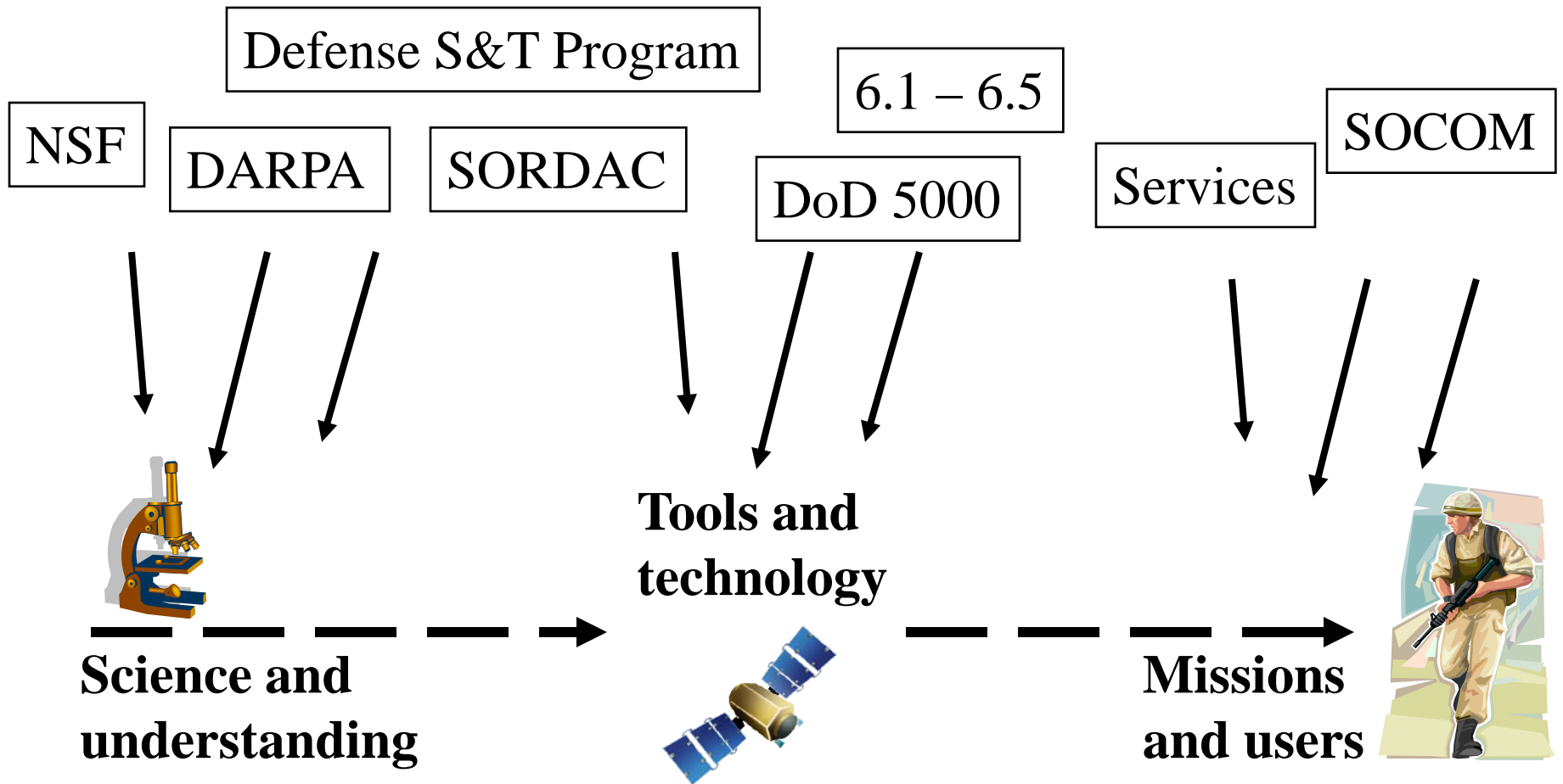
SOF Change



Objective



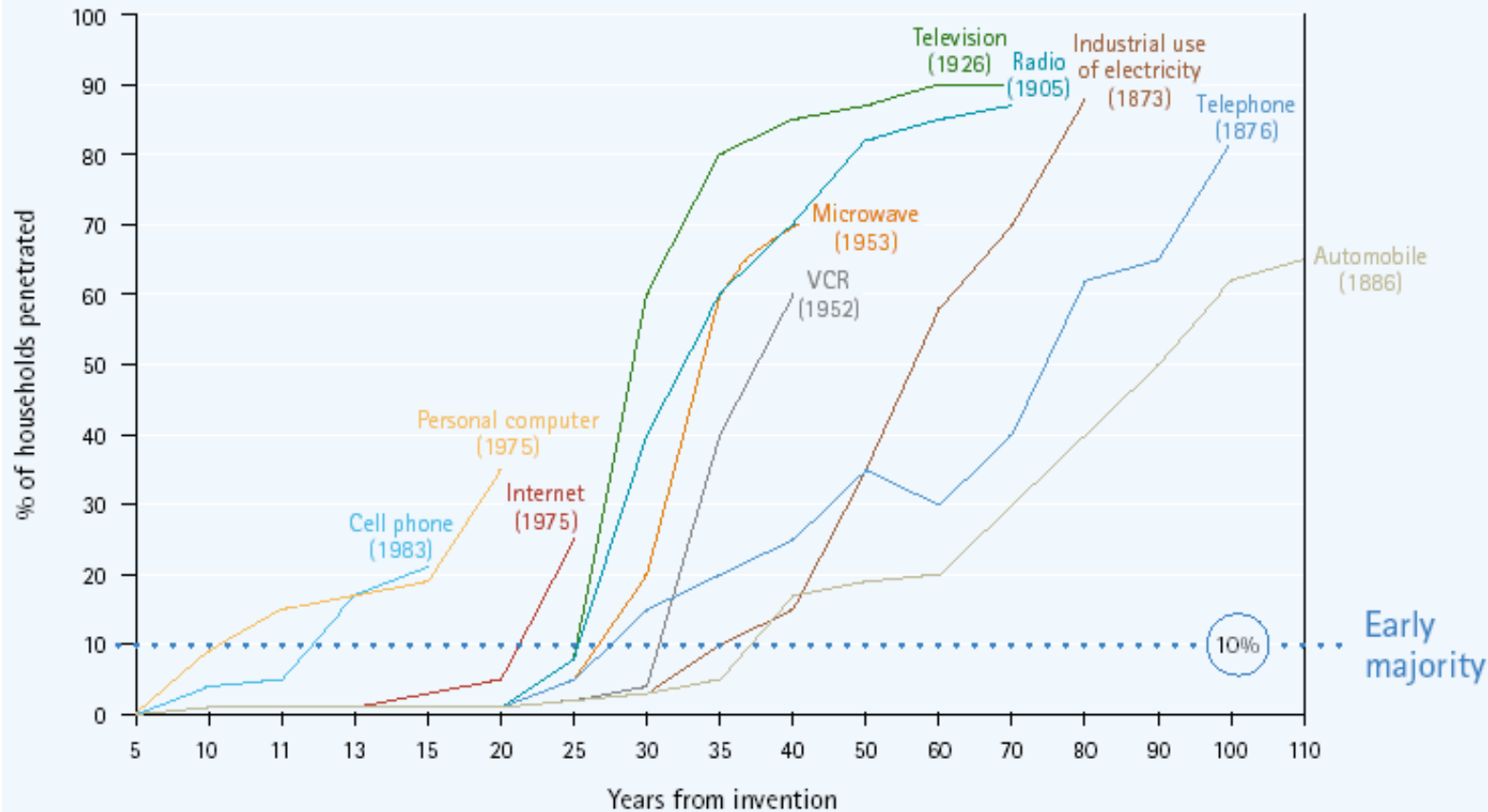
The Existing Paradigm: Top-Down Linear Innovation



Need for Early Adoption

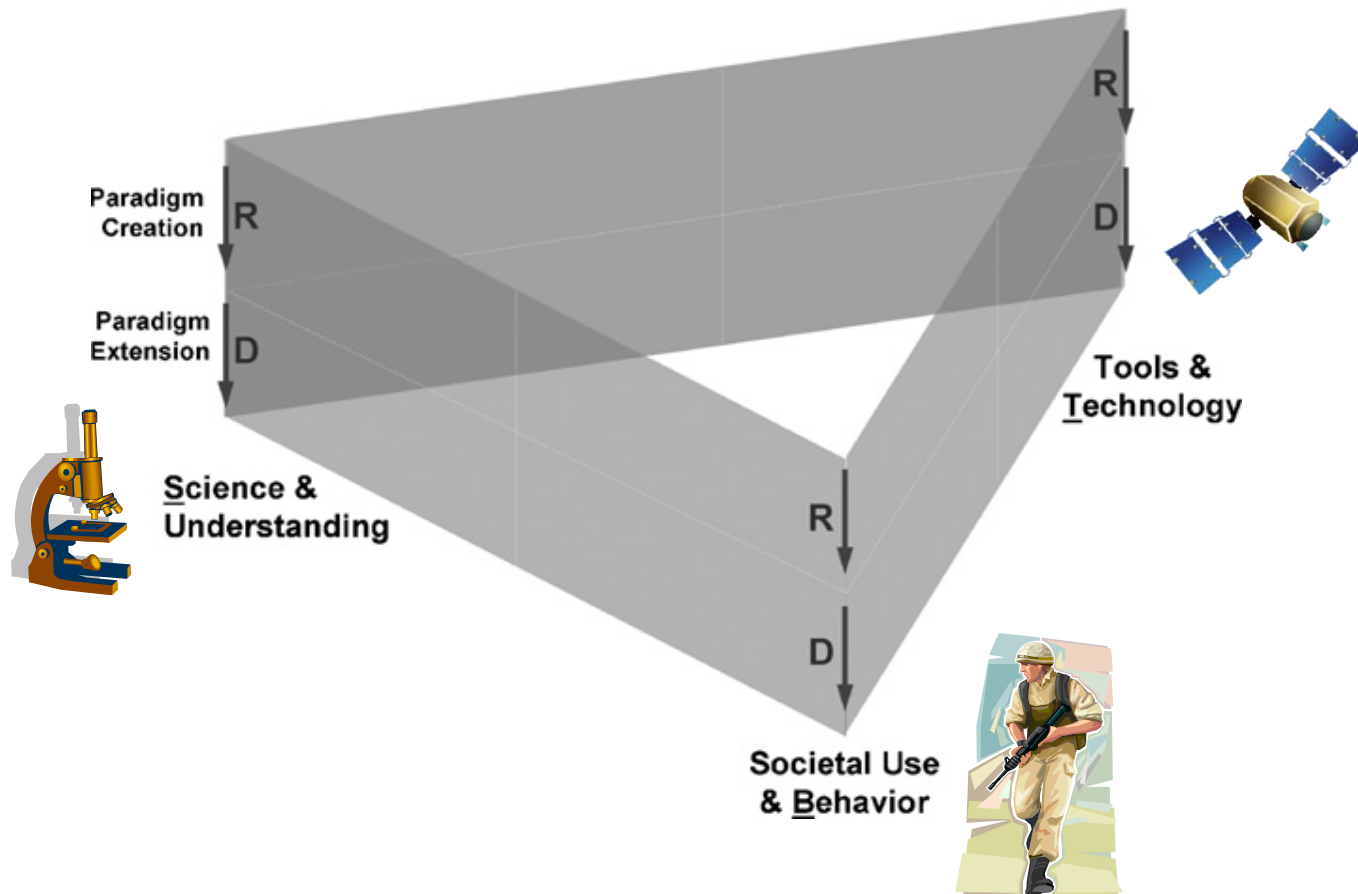
The S-curve of innovation

Most successful historic innovations show similar adoption curves. At about 10 percent, they seem to take off.




SOURCE: Frances Cairncross, *The Death of Distance*, Harvard Business School Press, Boston, 1997, 2001, p.37.

A Realistic View of Innovation




J.Y. Tsao, K.W. Boyack, M.E. Coltrin, J.G. Turnley, and W.B. Gauster, "Galileo's stream: A framework for understanding knowledge production," *Research Policy*, 2008

Interactive Innovation

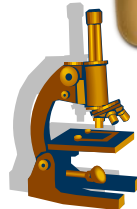
Enables 	<u>Science and Understanding</u>	<u>Tools and Technology</u>	<u>Missions and Users</u>
<u>Science and Understanding</u>	<i>Isolated science</i>	<i>Invention of the transistor due to solid state physics</i>	<i>Changes in counterinsurgency operations from cultural knowledge</i>
<u>Tools and Technology</u>	<i>Neuroscience because of the ability to measure electrical potentials (EEGs)</i>	<i>Isolated technology</i>	<i>Changes in operations because of digital technology</i>
<u>Missions and Users</u>	<i>Creation of the scientific method</i>	<i>Creation of SEMATECH by industry for semiconductor research</i>	<i>Isolated operations</i>

Interactive Innovation

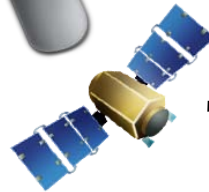
Inspires 	<u>Science and Understanding</u>	<u>Tools and Technology</u>	<u>Missions and Users</u>
<u>Science and Understanding</u>	<i>Isolated science</i>	<i>Advances in supercomputers to study complex scientific problems</i>	<i>Behavior guided by understanding: SOF Values, SOF selection</i>
<u>Tools and Technology</u>	<i>Combustion research to understand internal combustion engines</i>	<i>Isolated technology</i>	<i>New missions to address technology-related national security issues: counterproliferation</i>
<u>Missions and Users</u>	<i>JSOU Strategic Studies to understand SOF roles and missions</i>	<i>Advances in night vision to enhance operator effectiveness</i>	<i>Isolated operations</i>

Rapid Innovation Braid

Missions
and Users



Science and
Understanding



Tools and
Technology

Innovation as Part of Operations

