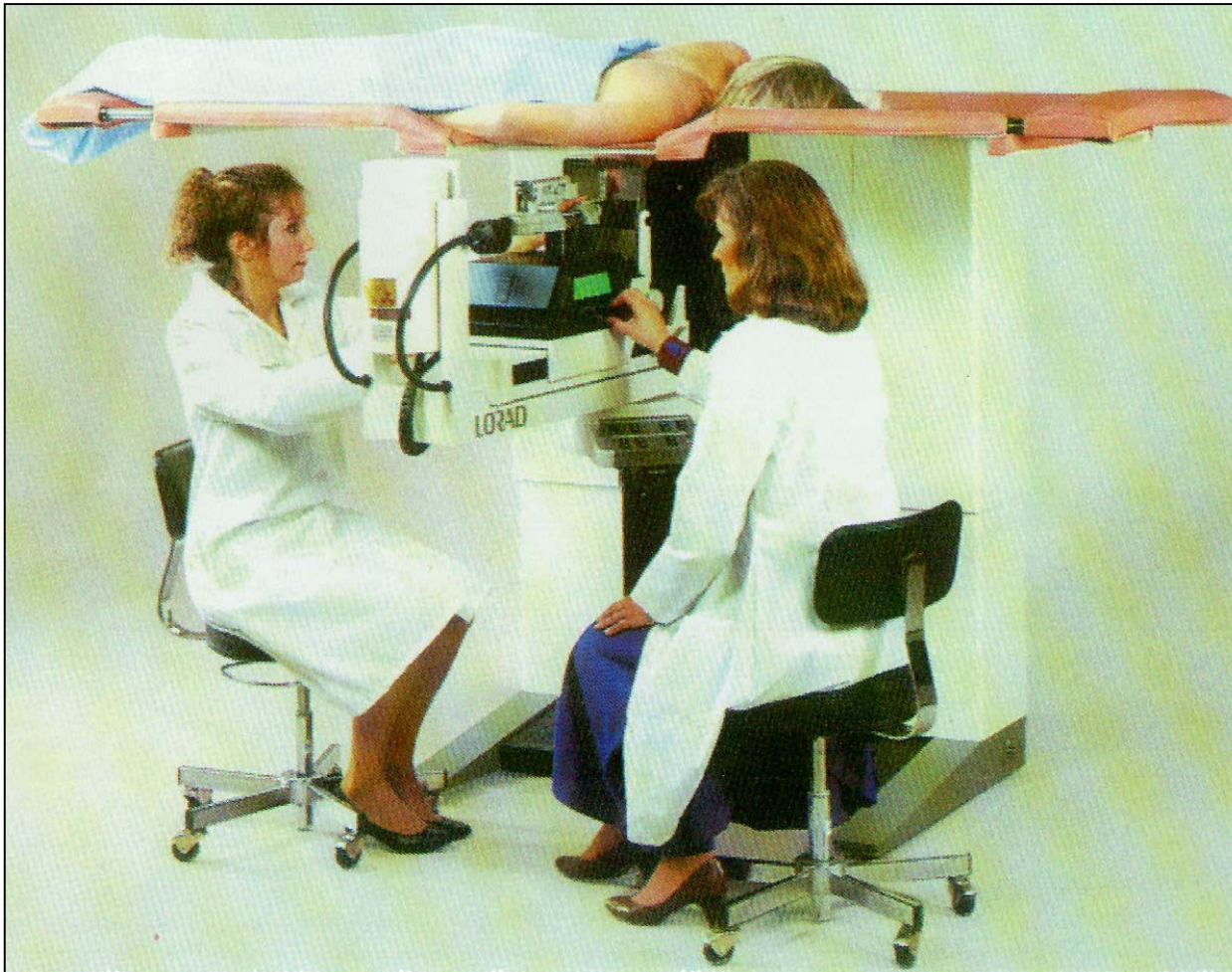




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## One Example of Socio-Economic Benefits



Digital imaging technology from HST's next-generation instrument, the Space Telescope Imaging Spectrograph (STIS), was adapted to a new, non-surgical breast biopsy technique two years before STIS was installed on HST.

This technique saves patients time, pain, scarring, radiation exposure, and money.

**Stereotactic Breast Biopsy System replaces surgery**



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# Robotic Surgery



**Many believe that computer-assisted technology will propel minimally invasive surgery forward and is expected to revolutionize within five years the way health care is delivered.**



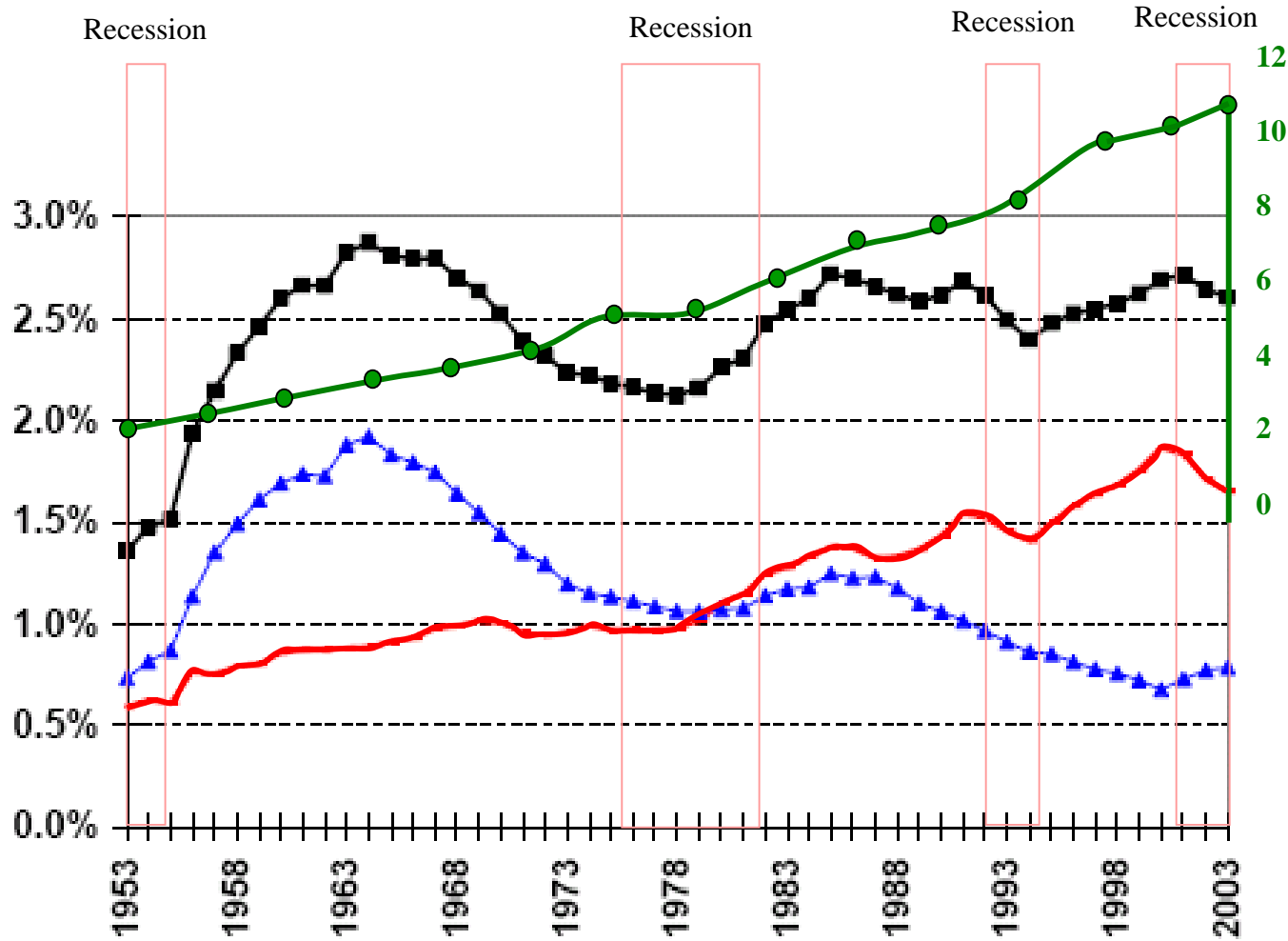
**Surgeons used a robot in an intricate laparoscopic procedure on an infant.**





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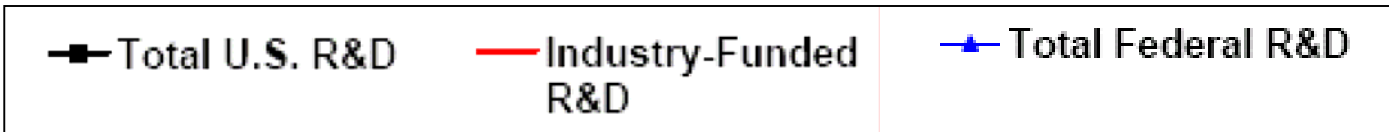
# U.S. R&D as Percent of Gross Domestic Product Total, Industrial, and Federal R&D - 1953-2003



GDP \$ in Trillions

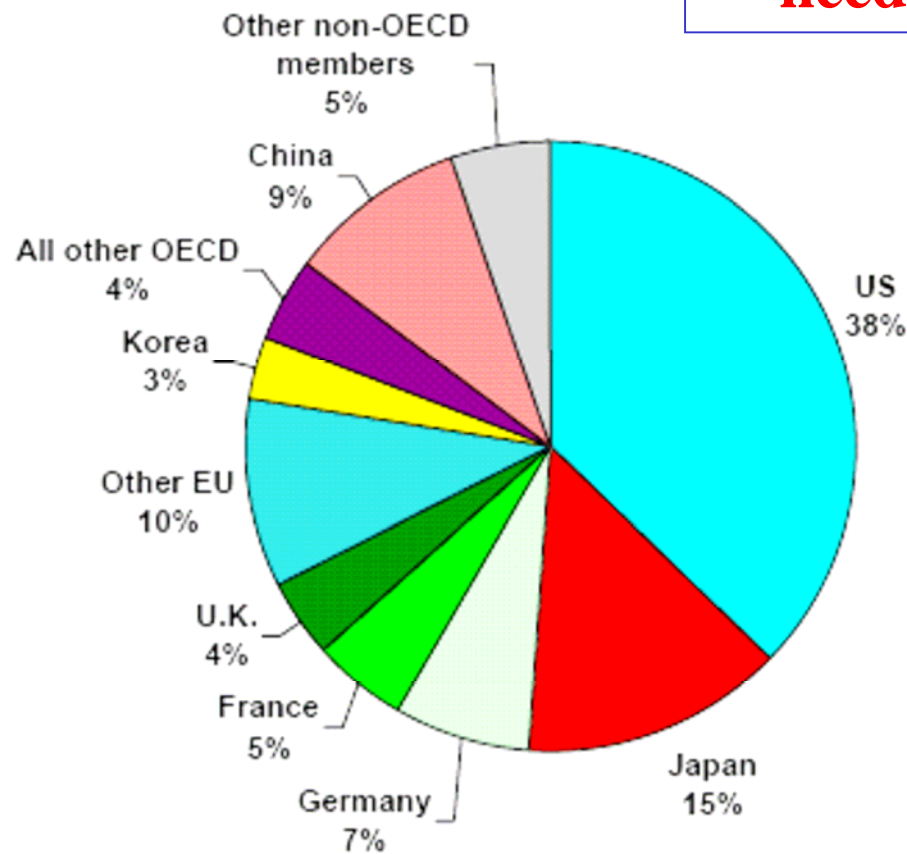
U.S. GDP

Source: NSF, Division of Science Resources Statistics. 2002 and 2003 data are preliminary. R&D funded by other sources (universities, nonprofits, etc.) included in Total U.S. R&D. Includes defense and nondefense R&D. FEB. '04 © 2004 AAAS



## Shares of Total World\* R&D, 2003

**The world recognizes the  
need for National R&D**



Total World\* R&D =  
U.S. \$764 billion\*\*

\* World = OECD members  
plus Argentina, China,  
Romania, Israel, Russia,  
Singapore, Slovenia, Taiwan

Organization for Economic Co-operation and Development (OECD)

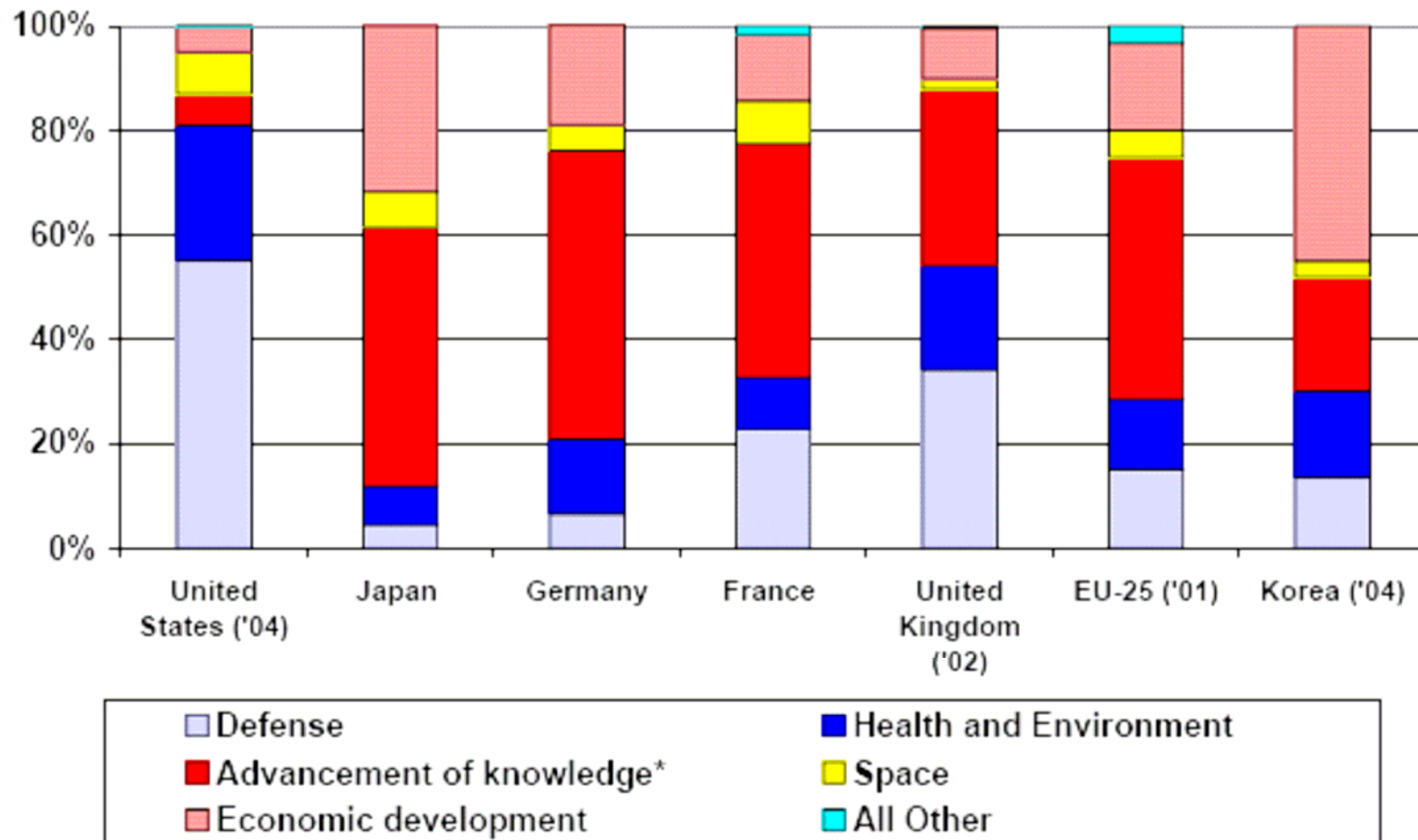
Source: OECD, Main Science and Technology Indicators,  
2004. 2003 data or latest year available.

\*\* - calculated using purchasing power parities.

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## Government R&D Expenditures by Country and socioeconomic objective, 2003 (% of gov't R&D)



\* - includes general university funds.

Source: OECD Main Science and Technology Indicators, 2004.

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## ULTIMATE BOTTOM LINE:

**As a nation,  
we are critically dependent  
on the  
*ability to innovate*  
for maintaining our  
economic advancement  
and  
our quality of life.**