pean universities tended to appoint their own graduates to faculty positions, and rarely recruited from outside. Conversely, American universities recruited faculty from numerous sources and maintained a competitive marketplace.[21] This increased mobility motivated researchers to seek commercial applications for inventions and allowed for the diffusion of new ideas and novel research approaches.[22]

2. The Growth of Federal Funding on Academic Research

The priorities of the federal government with respect to general R&D shifted once the U.S. entered into World War II, and these expenditures increased fifteen-fold between 1940 and 1945.[23]

The renewed interest in R&D during the war incentivized the government to augment its focus on university grants, since university researchers included some of the brightest and most innovative minds in the country. Between 1935 and 1960, the overall academic research enterprise increased nearly six-fold.[24] The federal grant money was used to support broad explorations of uncertain technologies and growth areas, which ultimately led to major breakthroughs in previously under-researched areas, including biomedical and aeronautical engineering.[25]

3. University Patenting and Patent Policy Trends Prior to Bayh-Dole

While some universities began to patent faculty inventions as early as the 1920s, formal patent policies were mostly a product of the post World War II era.[26] Considerable and steady growth of patenting by universities was seen in the 1970s and in the years leading to the passing of Bayh-Dole.

A sea change in invention management occurred in the two decades leading to Bayh-Dole.[27] Pursuant to this transformation, many U.S. universities began not only to seek patents for faculty inventions, but also to manage their patent and licensing activities.[28] Since the government retained title to federally-funded in-

21 *See* Hugh Davis Graham and Nancy Diamond, The Rise of American Research Universities, (Baltimore: Johns Hopkins University Press, 1997) at 20.
22 *See* Mowery, *supra* note 5 at 13.
23 *See id.* at 22.
24 *Id.* at 23.
25 *Id.* at 26.
26 *Id.* at 35.
27 *Id.* at 44. This change was led by the creation of the Research Corporation, which administered inventions for over 200 institutions in 1970. The corporation encouraged and assisted universities in managing early stage technology transfer. *See id.*
28 *Id.*, *citing* C. Weiner, *Universities, Professors and Patents: A Continuing Controversy,* Tech. Rev. 83 at 33-43.

ventions prior to the passing of the BDA, newly motivated universities began to petition the government for title. In the 1970s, the government would hear these petitions only on a case-by-case basis.[29]

Though universities engaged in technology transfer on a limited scale in the 1970s, the process was complex and confusing.[30] Each government agency had its own policies and procedural requirements with respect to technology transfer, and the vast majority of patents went unlicensed.[31]

4. Birth of Bayh-Dole

Prior to the BDA, the government owned the title to any federally funded invention. Ownership included the exclusive right to develop, market, and license the invention.[32] The agencies that maintained title over these inventions often were unable to fully commercialize the invention, which led to underutilized patents and suboptimal public benefit.[33] Furthermore, the government often made it difficult for companies to gain an exclusive license to the invention, which hampered the ability to fully explore and market the idea.[34]

The 95th Congress had been wrestling with the recommendation that legislation to develop a reliable and uniform technology transfer mechanism should be created.[35] Congress and President Jimmy Carter advocated a change to ensure that those receiving federal funds had a greater ability to commercialize inventions and contribute more to society.[36] Senators Bayh and Dole created a bill to be a compromise

29 *See* David C. Mowery and Bhaven Sampat, *University Patents and Policy Debates: 1925-1980*, prepared for Conference at Columbia University, October 13-15, 2000, *available at* professor-murmann.net/nelsonfest/moweryp.doc.

30 *See* The Bayh-Dole Act at 25: BayhDole25, Inc., April 17, 2006, at 2.

31 *See id.* at 2.

32 *See* Office of Technology and Transfer and Economic Development. What is the Bayh-Dole Act, What Prompted it, and Why is it important to University Technology Transfer? University of Hawaii., *available at* http://www.otted.hawaii.edu/what-bayh-dole-act.

33 *See* Marcia Boumil and Harris Berman. Revisiting the Physician/Industry Alliance: The Bayh-Dole Act and Conflict of Interest Management at Academic Medical Centers. 15 Mich. State Univ. of Medicine & Law 1 (2010). The government agencies often lacked the resources, expertise and relationships with industry necessary to commercialize the inventions created under governmental funding.

34 *See* Innovation's golden goose, *supra* note 4. Additionally, the difficulty in acquiring exclusive rights made it uneconomical for a company to invest their own money in bringing an idea from general invention to commercial success.

35 *See* Boumil and Berman, *supra* note 33, at 2.

36 *See* Ralph C. Nash and Leonard Rawicz, Intellectual Property in Government Contracts 238 (The George Washington University 6 ed.) (2008). President Carter originally wanted title to stay with the government, but exclusive licenses to be granted to the Contractor. He changed his stance upon noting that if small businesses and nonprofits (including universities) retained title to their inventions, this would not stymie commercialization. *See id*.