

## **Microsoft's Response to the Lambert Review**

### **Introduction**

Microsoft welcomes the opportunity to submit its views to the Lambert Review. The issues raised by this review and in the DTI's Innovation Review are of crucial importance to the UK because technological innovation is a key driving factor in delivering economic growth. Increasingly, the most robust economies are those where the private sector is especially effective in developing innovative products and services based on novel technologies. Governments can also play an important role. In many cases, the knowledge on which these innovations are based was initially generated with public funds. Indeed, many of the private sector's most successful products and technologies – in medicine, agriculture, manufacturing, communications and information technology – originated with state-sponsored research.

We believe that it is vitally important to establish strong links between business and the British Universities to get the best out of the technologies and skills developed in the university sector. If the Government wants to achieve real economic benefits from its investment, it must establish a framework that allows businesses to develop commercially viable products from government funded research and let private firms secure a return on their investment by being able to protect their intellectual property rights.

Our comments are focused on how best to encourage businesses to refine and use Government funded research in developing commercial viable computer software products and are specifically focused on question two of the consultation, looking at technology transfer and intellectual property.

### **Commercialisation of Publicly Funded Research**

For decades, governments, including that of the UK, have devoted substantial funds to scientific and technological research. In addition to enriching social and intellectual life, this research has generated important tangible benefits by providing the raw material for technological innovation by the private sector. In the UK, elsewhere in the EU and in the United States, the commercialisation of publicly funded research has been an important factor in economic growth, improved consumer welfare, higher standards of living, increased tax revenues, and new employment opportunities. These benefits will be lost to the UK, if it adopts policies that limit the economic incentives for such commercialisation.

**The Role of IP Protection:** The extent to which publicly funded research stimulates further innovation depends in large part on whether it is disseminated under terms that attract the private investment needed to commercialise the research. Private firms, however, are generally willing to commercialise publicly funded research only if they can protect the intellectual property they contribute to this process in a manner that allows them to secure a return on their investment.

The importance of intellectual property rights in driving new research and its commercialisation is perhaps best illustrated by the history of United States funding for university R&D activities. In the 1970s there was concern that too little federally funded research was being commercialised. Tight restrictions on licensing, varying patent protections among federal agencies, and the lack of exclusive manufacturing rights made product development a risky proposition for companies. Indeed, in 1980 only five percent of U.S. government-owned patents resulted in new or improved products.<sup>1</sup>

In response to this problem, the U.S. Congress in 1980 passed the Bayh-Dole Act. The Act established a uniform government patent policy and allowed universities and other nonprofit organizations to retain title to federally-funded inventions and to work with private-sector companies in bringing them to market. The Act thus created economic incentives for universities, university researchers, and product development firms to take the results of their research and turn them into products and services from which all sectors of society can benefit.

By almost all accounts, the Bayh-Dole Act has been remarkably successful. The federal government provides approximately 70%, of all university research funding (approximately \$14 billion). According to the latest survey by the U.S. Association of University Technology Managers, in 2000 alone this research spawned 347 new products, 13,032 invention disclosures, 6,375 U.S. patent applications, 3,764 U.S. patents issued from previous applications, 4,362 new licenses, and the creation of 454 new companies. Moreover, universities received \$1.26 billion in licensing revenue from these activities.

The importance of intellectual property protection in stimulating R&D investment and commercialisation is particularly well-reflected in the software industry. Intellectual property rights in software give developers the certainty that, for a limited period of time, they and no one else will have the right to exploit the economic value of their software in the market. By establishing this possibility of financial reward, intellectual property rights give software developers an economic incentive to develop innovative, useful products. IP protection also addresses the free-rider problem that would arise if second-comers were free to copy and sell software programs without the developer's consent.

### **The impact of Open Source Licensing**

It is essential that the Government ensures that business has the freedom and incentive to refine and use publicly funded research in developing commercially viable products. To maximize the benefits of publicly funded research, UK funding proposals should require that software developed with public funds be distributed under terms that promote its broadest possible use. To achieve this goal, the Government has to ensure that it doesn't introduce software licensing recommendations that end up detering development and licensing of such software by commercial firms. This would impede innovation by commercial software developers and places the UK software industry at a competitive disadvantage in global markets. It is the software licensing arrangements that are key to producing the right incentive for private firms to use government funded research.

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<sup>1</sup> See, e.g., Association of American Universities, *University Technology Transfer of Government-Funded Research has Wide Public Benefits* (2002).

Virtually all open source licenses allow users to review, modify and redistribute the human-readable form of software known as source code. Beyond these common features, however, most open source licenses fall into one of two distinct categories.

**Permissive Licenses:** The first category comprises what can be called “permissive” licenses. Permissive open source licenses allow users to copy, re-distribute, and modify the software at no charge, whether in source code or machine-readable object code, and do not seek to restrict these rights in any meaningful way. Thus, users are free to distribute modified versions of the software under whatever terms they wish – including as part of a commercial product subject to standard commercial licensing terms. The Berkeley Software Development (BSD) is a widely used permissive open source license. Apache, a well-known Web server software package, is distributed under a variant of the BSD license, as is the popular FreeBSD operating system.

**Restrictive Licenses:** The second category comprises what can be called “restrictive” open source licenses. The GNU General Public License, or “GPL”, which is a widely used restrictive license, but there are several others. Unlike permissive licenses, restrictive licenses prohibit users from distributing the software, or any program derived from or based in whole or part on the software, under different license terms.<sup>2</sup> Because this restriction attaches itself to all subsequent versions of the software for which code was originally provided, these licenses are sometimes referred to as “viral.”

Although often described as “free” licenses, the GPL and similar licenses actually limit the freedom of developers whose programs utilize, are derived from, or in some cases even link to or interoperate with, GPL code. This is because the GPL prohibits such developers from placing their software in the public domain, distributing their software under less restrictive licensing terms (such as the BSD license), or licensing their software under standard commercial licensing terms. And because commercial software firms typically generate revenue by charging licensing royalties, use of the GPL may significantly constrain these firms’ ability to compete effectively in the marketplace.

**GPL Impact:** There are strong grounds to believe that licensing software developed with public funds under the GPL will inhibit, not promote, the overall rate of innovation. As noted above, restrictive licenses such as the GPL forbid the commercial licensing of software that incorporates or is derived from code covered by the license.<sup>3</sup> Thus, if code developed in a publicly funded research project is licensed under the GPL, commercial software firms will effectively be foreclosed from using or building upon this code to develop commercial products. And because ownership interests in any given programme licensed under the GPL may be dispersed among hundreds or even

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<sup>2</sup> Section 2(b) of the GPL imposes this restriction as follows: “You [the licensee] must cause any work that you distribute or publish, that in whole or in part contains or is derived from [a] Program [subject to the GPL] or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this license.”

<sup>3</sup> In fact, the very purpose of the GPL is to prevent commercialisation of software, as the GPL’s proponents, including the Free Software Foundation (FSF), have made clear. As FSF President Richard Stallman has stated in regard to the GPL, “discrimination against proprietary software is not just a policy — it’s the principle and the purpose. Proprietary software is fundamentally unjust and wrong, so when we have the opportunity to place it at a disadvantage, that is a good thing.”

thousands of individual programmers, it might well prove cumbersome if not impossible for governments to re-license publicly funded research under less restrictive terms after it is initially licensed under the GPL.

Any restriction on commercialisation of software research would raise particular difficulties because of the piecemeal nature of the software research and development process. Often, publicly-funded research yields an innovative solution to a narrow programming problem encountered in many different programs. For example, such research might uncover a solution for a security-related problem encountered in many different types of software.

Ideally, such research should receive the widest possible application, so that all affected software products can thus be made more secure and the maximum possible social benefit can be achieved. If the research is licensed on BSD terms, this is generally possible. If, however, the research is licensed on GPL terms, existing software providers who have elected to license their products on commercial terms cannot incorporate the research and must solve the problem independently. This creates unnecessary inefficiencies and curtails the social benefits otherwise associated with publicly-funded research.

**The Solution:** In effect, the GPL diminishes the social and economic returns that policy makers can expect from their investments in software research. To avoid this result the UK Government should adopt research licensing policies that ensure that code developed in the course of Government-funded software research is made available to the public as broadly as possible under terms that do not restrict its commercialisation by industry. Such a policy would not preclude the use of open source licenses. On the contrary, it would encourage use of the BSD open source license and other permissive open source licenses that ensure unfettered public access to such code while enabling commercial software firms to refine and build upon this code in developing and licensing innovative products.

It is sometimes suggested that the BSD license permits commercial companies to “charge” for works created by publicly funded research. This is not correct. Under the BSD license, everyone has the unfettered right to use the results of publicly funded research. As a result, no one enjoys a unique or competitive advantage from it. As a practical matter, companies can only charge for the value they add, by taking publicly funded research and finding new and innovative applications for it. This is precisely what public policy should encourage.

More broadly, the use of permissive open source licenses such as the BSD will promote a virtuous cycle of innovation in which public funding for basic research advances the body of knowledge available to the public while spurring innovation and product development in the commercial sphere. Commercial advances, in turn, will generate the economic growth and tax revenues necessary to fund future rounds of public research.

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Microsoft appreciates this opportunity to respond to the Lambert Review. If you have any questions about this response, please contact Paul Morris at paulmor@microsoft.com