PART 2

Gains in Technical Knowledge

A major goal of ATP is to build the nation's scientific and technical knowledge base. Each of the 50 completed ATP projects targeted a number of specific technical goals designed to achieve a new or better way of doing things. The knowledge created by each project is the source of its future economic benefit, both for the innovator and for others who acquire the knowledge. It is a good starting place for assessing completed projects.

A Host of New Technologies and Knowledge Gains

Knowledge gains by the 50 projects range from mathematical algorithms underlying new software tools, to the science of growing human tissue, to new techniques for fabricating high-temperature superconducting devices, to new chemical formulations. Advances were made in each of the five technology areas.

The technologies developed in the 50 projects are listed in Tables A1-A5 of Appendix A, column B. The set of tables provides the reader with a convenient, quick reference to the entire range of technologies.

The entries are arranged according to the five technology areas shown in Figure 1.1 and used to divide Chapters 2 through 6. It should be noted, however, that most of these projects and the knowledge developed in them are not easy to classify. Most projects entail a mixture of technologies and interdisciplinary know-how.

Even those projects that were not fully successful in achieving all of their research goals, or those that have not been followed by strong progress in commercialization, have achieved knowledge gains. Moreover, some of the projects carried out by companies that have since ceased operations or stopped work in the technology area yielded knowledge, as indicated by the presence of publications and patents. In these cases the direct market routes of diffusion of knowledge gains by the innovators are likely lost, but the indirect routes remain.

Of What Significance are the Technical Advances?

Apart from looking downstream at long-term outcomes, measuring the significance of technical advances is challenging. A short-run approach taken here is to look at awards presented by other organizations in recognition of technical achievements.

A total of 15 awards for technical accomplishments were made to participants for achievements related to the ATP-funded projects. Participants in 9 of the 50 projects received awards for their technical achievements. Participants in 4 of the projects received multiple awards. Table 3 lists the awards granted recognizing technical accomplishments.

Table 3. Outside Recognition of Technical Achievements of the First 50 Completed Projects

Project Awardee	Year	Awarding Organization	Award
American Superconductor	1996	*R&D* Magazine	One of the 100 most important innovations of the year.
American Superconductor	*1996*	*Industry Week* magazine	Technology of the Year award.
Communication Intelligence #1	1997	Arthritis Foundation	"Ease-of-Use Seal of Commendation" for the develop ment of natural handwriting technology, for use by disabled people who have trouble with keyboard entry.
DuPont	1993	*Microwave & Rf* magazine	One of the Top Products of 1993, for high-temperature superconductivity component technology.
Engineering Animation	1994	*Computerworld* magazine	Smithsonian Award, for the use of information technology in the field of medicine.
Engineering Animation	1995	Association of Medical Illustrators	Association of Medical Illustrators Award of Excellence in Animation
Engineering Animation	1995	International ANNIE Awards	Finalist, received together with Walk Disney, for best animations in the film industry.
Engineering Animation	1996	*Industry Week* magazine	One of the 25 Technologies of the Year, for interactive 3D visualization and dynamics software used for product development.
HelpMate Robotics	1996	*Discover* magazine	One of 36 finalists for Technology of the Year, for the HelpMate robot used in hospitals.
HelpMate Robotics	1997	Science Technology Foundation of Japan	Japan Prize, to CEO Joseph Engelberger, for "systems engineering for an artifactual environment."
Illinois Superconductor	1996	*Microwave & RF* magazine	One of the Top Products of 1996, for cellular phone site filters and superconducting ceramics.
Illinois Superconductor	1997	American Ceramic Society	Corporate Technical Achievement Award.
Integra LifeSciences[10]	1999	New Jersey Research and Development Council	Thomas Alvin Edison Award
Molecular Simulations	1996	*Computerworld* magazine	Finalist for Smithsonian Award, the 1996 Innovator Medal.
NCMS	1994	Institute for Interconnecting & Packaging Electronic Circuits	Best Paper of Conference Awards

[10] The award went to Dr. Kohn of Rutgers University for his collaborative work with Integra on the project.