Highlights from ATP's Economic Studies

Economic Assessment Office

Bringing Benefits of Digital Mammography and Radiography to More People[1]

Digital mammography and radiography systems are innovative technology solutions to the diagnostic and productivity limitations of conventional X-ray

- Between 1995 and 2000, ATP co-funded a joint venture project with General Electric Corporate R&D and PerkinElmer, Inc.[2]
- The ATP provided $1.6 million and the companies provided an additional $1.9 million in cost share.
- The companies developed a low-cost manufacturing process for fabricating amorphous silicon detector panels for digital mammography and radiography systems.

Project Performance

- The new process, expected to be implemented by 2004, will reduce fabrication costs by approximately 25% without compromising performance:
  - Less complex fabrication with fewer mask steps: 7 vs. 11
  - Fewer total process steps: 200 vs. 300

- The ATP-funded low-cost manufacturing process is expected to deliver:
  - Additional digital mammography and radiography systems are expected to be sold.
  - More patients will likely experience the benefits of digital mammography and radiography.
  - More health-care facilities will likely experience improved productivity and patient throughput.

- Total Net Public Benefit to the Nation (excludes benefits to funded companies):
  - Net Present Value of ATP Investment: $219 million to $339 million ($2002)

- Public Return on ATP investment
  - Internal rate of return on ATP Investment: 69 percent to 77 percent

- Public Benefit per ATP dollar invested
  - Benefit-to-cost ratio for ATP Investment: 125:1 to 193:1

[1] An ATP contractor study -- Dr. Thomas Pelsoci, Delta Research Company, *Low-Cost Manufacturing Process Technology for Amorphous Silicon Detectors: Applications in Digital Mammography and Radiography*, (NIST GCR 03-844), 2003.
[2] Formerly EG&G Reticon.

Broad Societal Benefits

- Benefits of digital mammography and radiography to medical facility users and patients are much greater than the benefits to the companies that produce them.

- Societal benefits include:
  - Increased throughput, reduced patient examination time, and reduced waiting time
  - Lower false positive rates, and therefore fewer unnecessary biopsies
  - Lower call-back rates for mammogram under- and over exposure, and therefore avoidance of unnecessary procedures
  - Reduced radiation exposure
  - Simplified record retrieval and record management of past mammograms
  - Assistance in use of computer-aided detection (CAD) for improved cancer detection
  - Reduced health disparities across population groups with greater use of telemammography and teleradiology networks.

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