4.2.2 Second-Generation Technologies

Over the decade of experience with ERIP spinoffs, second-generation technologies have been less prevalent than alternative market applications. Where they have emerged, altered or enhanced, technologies have typically occurred after the original technology was found to be technically or economically impractical.

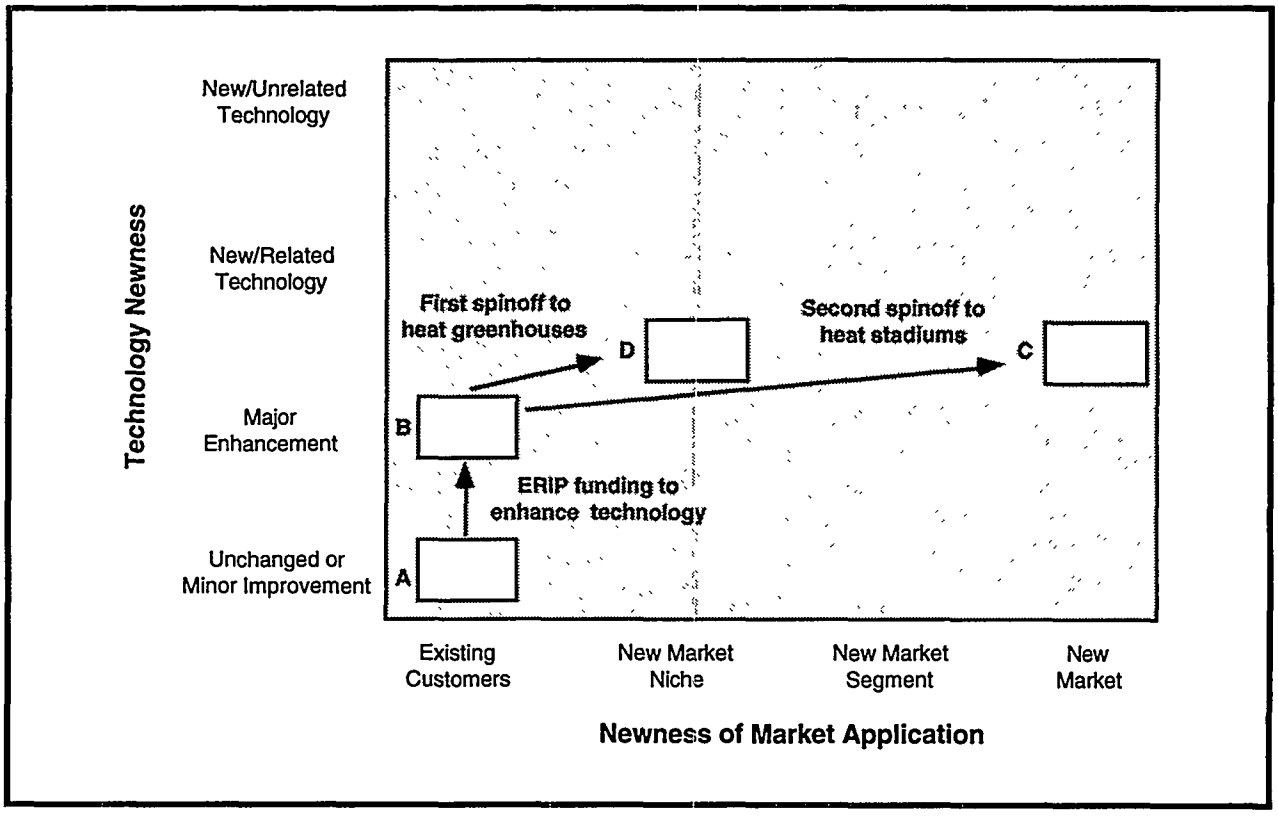

Fig. 4.1 A Market Application Spinoff of an ERIP Technology

For instance, one ERIP inventor received a grant to develop a polymerizing process for thermosetting resins that used pulsed xenon arc discharge lamps. With DOE funds in hand, the inventor imbedded the polymerization process within an electromagnetic field, significantly accelerating the curing process. This was an unanticipated technological breakthrough which significantly altered (and improved) the nature of the product, making it economically viable. Figure 4.2 illustrates the transition between first and second-generation technologies for the polymerization system described above. The ERIP grant supported the development of the initial key technology, the A-B transition illustrated in Fig. 4.2. Embedding the system in a magnetic field represented a significant technological shift that enabled the inventor to establish a new product family (Meyer and Utterback, 1993). Since this technological shift enabled the inventor to more effectively address the