

THE 7 QUESTIONS

A guide to solidifying the commercial value of an invention

When a researcher believes a discovery could be turned into a commercial product or service, the first step is report of invention to the university. In this process, Johns Hopkins Technology Ventures seeks all perspectives of the researcher in order to determine whether the technology is a good candidate for licensing. Therefore, before making report of invention, researchers are asked to consider the following **7 Questions of Commercial Value** in order to assist JHTV's licensing team.

PROBLEM STATEMENT AND UNMET NEED

- 1. What problem does this invention solve?**
- 2. What is the size of the unmet need?**

VALUE PROPOSITION OF THE ADVANCE

- 3. What product do you envision as a result of this technology, and would this be a marginal or groundbreaking improvement to current technology?**

CUSTOMER

- 4. What type of company might license this technology? (Provide any specific companies.)**
- 5. Who would be the end-user of a product using this invention?**

CAPITAL

- 6. How much funding has been invested in the invention to-date?**

MILESTONES

- 7. What is the current stage of development and what further work is required, if any, to make this technology a candidate for commercialization or industry collaboration?**

OTHER ASPECTS OF COMMERCIALIZATION TO CONSIDER

- **Invest-ability:** How much capital will be required to take the product to market? What evidence exists about the invest-ability of this technology?
- **Competition:** With what would this technology – or company – be competing? What will make the product/service resulting from this technology unique?

THE 7 QUESTIONS OF COMMERCIAL VALUE EXAMPLE: The implantable cardiac defibrillator (ICD)

PROBLEM STATEMENT AND UNMET NEED

What problem does this invention solve? What is the size of the unmet need?

Approximately 325,000 people in the United States - and 7 million worldwide - die from sudden cardiac death each year. The condition usually results from an electrical disturbance in the heart and is often undiagnosed.

VALUE PROPOSITION OF THE ADVANCE

What product do you envision as a result of this technology, and would this be a marginal or groundbreaking improvement to current technology?

A small, implantable device will shock patients when they experience tachycardia (abnormally fast heart rhythm), preventing cardiac arrest. External defibrillators, by contrast, are bulky and carry the risk of infection at the entry point; drugs exist that control heart rhythm but are not of use in acute or previously diagnosed situations.

CUSTOMER

What type of company might license this technology? Who would be the end-user of a product using this invention?

Major medical device companies would see huge value in developing and selling this product. The patient is the ultimate end-user. Hospitals would purchase the ICDs for implantation and cardiologists will perform the procedure.

CAPITAL

How much funding has been invested in the invention?

Research into the ICD began in 1969 but the first patent related to the device was not issued until 1980. After years of development, testing and investment in intellectual property, the device was first implanted in a human in 1980 at The Johns Hopkins Hospital.

MILESTONES

What is the current stage of development and what further work is required, if any, to make this technology a candidate for commercialization or industry collaboration?

The ICD itself had to be tested for battery life, software compatibility and wire function in humans. It also underwent multiple clinical trials, most notably the Multicenter Automatic Defibrillator Implantation Trial, which involved 1,200 patients at hospitals around the world.

The FDA approved the device in 1985. Today, more than 250,000 ICDs are implanted each year, and the devices have proven to be 99 percent effective. The devices sell for \$30,000 each.

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