

Multi-state initiative to enhance pollution prevention technology diffusion using the ADOP²T model

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Abstract

Accelerated Diffusion of Pollution Prevention Technologies (ADOP²T) is a stepwise model designed to improve the implementation rate of pollution prevention technologies. It focuses on reducing the uncertainty associated with new technologies by providing demonstrations and “how-to” knowledge through pilot testing. Three university-based technical assistance programs collaborated to promote implementation of pollution prevention technologies using the ADOP²T model. This paper briefly describes the model, and discusses the experiences, observations, and results obtained by the technical assistance programs that used the model.

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1. Background

In 1995 the Illinois Waste Management Research Center (WMRC) initiated a project to determine if time-tested principles of innovation diffusion apply to pollution prevention technologies. The project aimed to identify the level of technical assistance needed to successfully implement innovative technologies. WMRC had previously introduced 76 companies to membrane filtration as a way of purifying industrial fluids. Examination of this technical assistance work revealed that “hands-on” assistance with on-site evaluation of this technology was generally required before companies adopted it [1].

Results of this research were presented at several National Pollution Prevention Roundtable (NPPR) meetings in the late 1990s and early 2000s. At these meetings people from multiple states shared similar experiences. A special NPPR workgroup on technology diffusion was formed in 1998. The group produced a white paper that described the experiences

of many states and contained recommendations for future initiatives. This led to a technology diffusion training session for over 30 participants from multiple states and countries at the 2001 NPPR meeting. The NPPR technology diffusion workgroup then developed a proposal for a multi-state initiative to expand pollution prevention technology diffusion efforts.

This paper describes the experiences, observations, and results of a multi-state technology diffusion initiative funded by the US Environmental Protection Agency from January 2004 through December 2005. Three university-based technical assistance programs conducted this initiative: The Kentucky Pollution Prevention Center (KPPC) at the University of Louisville, the Minnesota Technical Assistance Program (MnTAP) at the University of Minnesota, and the WMRC at the University of Illinois.

2. Introduction

Traditionally, organizations promoting pollution prevention develop and distribute information to raise awareness about a given technology. The working premise has been that if

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the advantages of a technology are documented and distributed to clients they will take it upon themselves to implement the technology. While this approach has yielded some success, research done by WMRC indicated that the adoption rate for pollution prevention technologies was low when awareness information was the only form of technical assistance provided to companies [1]. The WMRC study showed that implementation rates improved when companies were able to observe technologies demonstrations and participate in pilot tests of the technology.

Demonstrations are events that allow potential technology users to directly observe a technology in action. Often, a demonstration is simply one company, experienced with a technology, showing it to another interested company. A demonstration can be considered an extension of “awareness information”, such as fact-sheets, that is provided by technical assistance programs.

Pilot tests allow the interested company to trial the technology in their facility with their specific application. During a pilot test, the technical assistance provider delivers the hands-on, “how-to” information a company needs to successfully implement the technology.

The improved implementation rate observed when demonstrations and pilot tests were performed led the WMRC to develop the Accelerated Diffusion of Pollution Prevention Technologies (ADOP²T) model to improve delivery of pollution prevention assistance to business and industry.

2.1. ADOP²T model overview

The ADOP²T model is designed to improve the implementation rate of pollution prevention technology by reducing the

uncertainty perceived by the industrial end-users of the technology [2]. The premise is that technology end-users, such as businesses and industries, base their decision to adopt a technology on how their peers evaluated that technology. By providing demonstrations and facilitating pilots of technologies, technical assistance providers help end-users work through the bumps and kinks associated with real-world application of a technology. This helps build a base of end-users who are satisfied with the technology and can be consulted for their opinions by potential adopters. At some point the process becomes self-sustaining, market forces take over, and the technology diffuses without further effort by the technical assistance provider.

ADOP²T is a stepwise process that technical assistance providers can use to organize their efforts in technology diffusion. The process is broken down into seven steps as shown in Fig. 1 [2].

The model is typically applied to a specific industrial sector to narrow the scope. After choosing a sector to target, the next step of the process is to work with stakeholders from the sector to identify pollution prevention opportunities. Once opportunities have been identified, the stakeholders identify opinion leaders in their sector. Opinion leaders are those people and businesses that frequently influence the overall behavior of the sector. They tend to be technically competent, socially accessible, and well connected to the others in the sector. Opinion leaders can be peer businesses, vendors, suppliers, or consultants in a sector. Leveraging this group of opinion leaders, the technical assistance provider works to recruit mentor companies who have experience with the technologies identified as opportunities.

The core of the ADOP²T process is the demonstration to pilot test sequence that helps to convince potential end-users

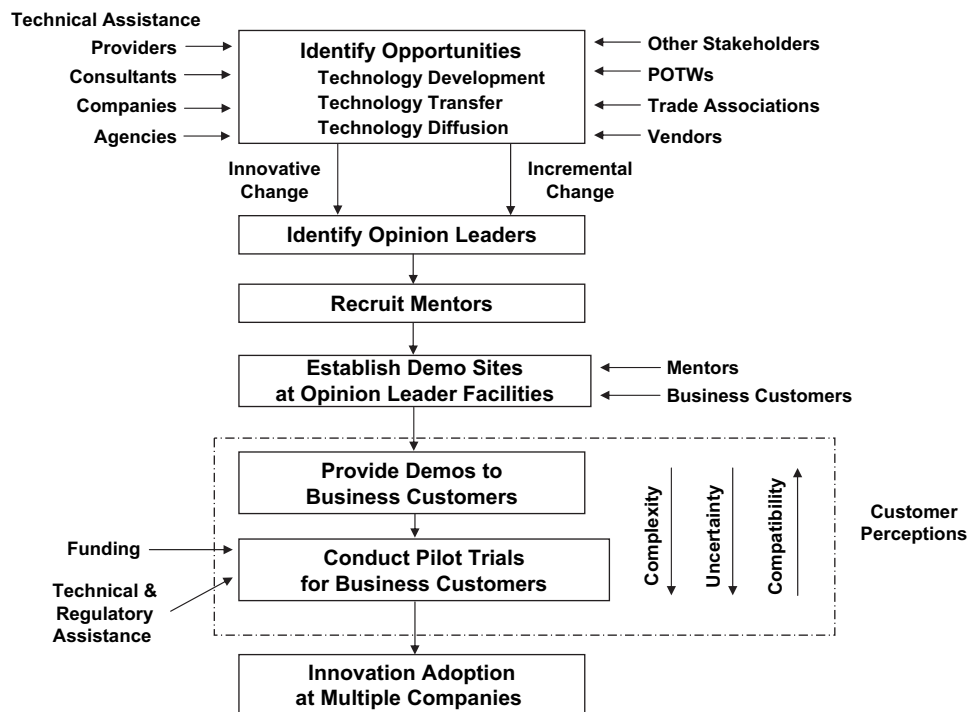


Fig. 1. ADOP²T model.

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