

About Emergency Managers and Their Tools: What Emergency Managers Want from a Business Perspective

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ABSTRACT

This paper presents findings emerging from the National Science Foundation (NSF) Innovation Corps (I-Corps) program. The aim of I-Corps is to aid in transitioning academic research into commercialized technology. Through this program, the authors developed and tested hypotheses in search of a sustainable and scalable business model for a potential future company. An element of the rigorous I-Corps curriculum included 133 interviews with emergency manager practitioners from around the country to determine the root of their immediate problems. The unbiased feedback from the industry professionals determined the outcome of our hypotheses, while validating our proposed business model.

KEYWORDS

(CIMS), Action Research, Business Model Canvas, Crisis Information Management System, I-Corps, Training, Virtual EOC

BACKGROUND

After Hurricanes Katrina and Rita, the Inspector General (IG) of the United States made 38 recommendations to the Director of FEMA. These recommendations highlighted the need for better disaster preparedness, improved emergency information management systems, and enhanced multi-agency coordination. The March 2006 report also emphasized the valuable role a robust training and evaluation program plays in an enhanced emergency preparedness posture (U.S. Department of Homeland Security Office of Inspector General, 2006). Emergency Managers embraced the recommendations and aimed to improve performance through enhanced training and exercises. Training, however, comes with several challenges centered around cost, manpower, and resources. A single full-scale exercise can cost upwards of \$100,000 (T. Johnson, personal communication,

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February 4, 2016) and requires the extraction of representatives from their daily jobs; overtime and substitute staffing required for 24/7 Emergency Operations Center (EOC) operations increases the cost even further. Through prior research, two of these authors identified a need for a virtual training EOC, which allows Emergency Managers to participate in exercises and manage crises from any computer, in any location (Nikolai et al., 2009; Nikolai et al., 2010; Nikolai, 2014; Nikolai et al., 2015; SimEOC, 2016). The product of this research is called SimEOC, which is derived from simulated EOC.

Over the course of seven years, we received two funding grants from the National Science Foundation to design and develop SimEOC, a virtual EOC (Award Numbers CNS-0855164 and CNS-1405912). The next step was to test the commercialization viability of SimEOC through the NSF I-Corps program (Award number IIP-1550535).

National Science Foundation Innovation-Corps (I-Corps) Program

In 2010, the National Science Foundation identified that there was a gap in academic technological research and the application of that technology in industry. During this discovery, the NSF became aware of a critical component shared in scientific research and a successful commercial technology: customer validation. Leading with customer validation as a baseline model, the NSF created the I-Corps program in 2011 to facilitate the transition of research from academia into industry.

One main outcome of the I-Corps program is to aid potential startups in searching for a sustainable and scalable business model. The concepts used in this course are based on Steve Blank's lean startup model, which consists of rapid development of a minimum viable product and constant communication with the customer (Blank, 2010). The idea behind the concept is that startups do not spend a lot of money up front to develop a system that nobody will want or find useful to solve their problems. Rather, through customer discovery, customers' needs are assessed to determine if the proposed solution fulfills a strong need in the community (Blank, 2015).

The I-Corps program focuses on the first stage of a two-stage process of search and execution. First, customer discovery is conducted. In this stage, startups interview customers to ascertain their current problems and needs. The next step consists of developing a minimum viable product (MVP). The next is to validate the MVP with the customer. Later in the execution stage, startups execute the business model to create customers and start building the company (Blank & Dorf, 2012).

At the end of the I-Corps customer discovery process, based on customer feedback and a business model, our team was to make a decision about whether to create a company based on their business model or to scrap the product altogether.

The authors of this paper were selected to participate in the rigorous 2015 I-Corps summer program alongside 19 additional teams from across the United States. The team consisted of an entrepreneurial lead (Cynthia Nikolai), a business mentor (Page Heller), a co-mentor and co-entrepreneurial lead (Chelsea Treboniak), and a Principle Investigator (Greg Madey). NSF awarded \$50,000 to fund a 7-week program consisting of the following elements: a 3-day introductory conference, 5-weeks of virtual presentations and instruction, a minimum of 15 interviews with industry professionals each week, and a 2-day final presentation of findings.

Launchpad, a software-as-a-service platform, was used to help organize our business model hypotheses, analyze and document interviews, correspond with other cohort teams, and receive instructor feedback on our team's progress (Launchpad, 2016). The holistic nature of the program fueled the creation of a minimum viable product (MVP). An MVP is a simplified product that can be used to help validate that a proposed solution addresses customers' actual problems (Blank & Dorf, 2012).

It was essential to begin the process two weeks prior to the start of the actual program. During this time, the team identified and contacted a number of potential customers and other interested parties with related work or expertise in our team's subject area. Meetings were pre-arranged for an expedited on-site testing and analysis of hypotheses created to support the baseline business model. Most were in the vicinity of the Virginia, the location for the launch of the program. Other contacts

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