

# WORKING P A P E R

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## Illinois Homeland Security Economic Development Initiative

### Scoping Study

D.J. PETERSON, JUSTIN ADAMS,  
BRIAN WEATHERFORD, BRIAN JACKSON

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INFRASTRUCTURE, SAFETY, AND ENVIRONMENT

## **Preface**

### **About This Document**

The Governor of Illinois seeks to promote economic development and job creation in Illinois by attracting and retaining businesses that develop and provide homeland security–related products and services. This Working Paper scopes out a range of issues, questions, opportunities, and policy planning activities and concrete steps to be addressed by State of Illinois decisionmakers, with the goal of implementing a comprehensive economic development and jobs creation program.

This work was pursued under a contract with the Office of the Governor, State of Illinois. The work was conducted between December 14, 2004 and January 21, 2005 and involved frequent interactions with the Office of the Governor and the Illinois Department of Commerce and Economic Opportunity. The authors invite comment on this paper by interested parties.

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Inquiries regarding RAND Infrastructure, Safety, and Environment may be directed to:

Debra Knopman, Director  
1200 S. Hayes Street  
Arlington, VA 22202-5050  
Phone: 703.413.1100 ext.5667  
Email: [ise@rand.org](mailto:ise@rand.org)  
Internet: [www.rand.org/ise](http://www.rand.org/ise)

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## Summary

The Governor of Illinois seeks to promote economic development and job creation in Illinois by capitalizing on the significant growth in spending and investment in homeland security in the United States. This effort entails attracting and retaining businesses that develop and provide homeland security-related products and services.

To this end, the RAND Corporation worked with the Office of the Governor and the Illinois Department of Commerce and Economic Opportunity (DCEO) to scope out issues around formulating and implementing a comprehensive economic development strategy for the homeland security industry. RAND conducted a preliminary survey of the homeland security market; performed a preliminary survey and critique of other states' efforts to implement similar initiatives; produced a summary of federally funded homeland security research and development (R&D) by Illinois entities; and evaluated DCEO documents regarding current and proposed State economic development programs, resources, assets, and homeland security activities and companies.

Key findings from the scoping effort include the following:

- Given the lack of competition in this area, the State of Illinois may have an opportunity to gain an advantage over other states by crafting a unique economic development initiative. Even a modest effort, if adequately conceived, could potentially have an appreciable impact on the State's visibility as a national leader in the homeland security realm and the State's desirability as a location for homeland security businesses.
- There are no generally accepted definitions of what constitutes the U.S. homeland security industry, its size, or its products and services. A rigorous effort to this end by the State of Illinois could be an important contribution to national policy discussions and a means by which Illinois distinguishes itself as an innovator in the homeland security sector.
- Through their discussions with RAND, the Governor's Office and DCEO chose to center the initiative around R&D and manufacturing—in essence, the development of new homeland security technologies that could then be manufactured in Illinois.
- There are few known homeland security business development models upon which Illinois may base its efforts. Although several states have programs directed at business development in the homeland security area, no states appear to provide targeted tax incentives for location, worker training, or R&D, and no states seem to have developed focused marketing campaigns aimed at promoting the industry.

- RAND's filtered search of homeland security-related R&D awards to Illinois institutions resulted in a subset of 248 awards totaling approximately \$69 million. Federal support comes from a range of agencies and goes to a diverse set of public institutions and private firms.
- The federal R&D awards cross a range of technology and functional areas such as biotechnology and information technology. The R&D clusters identified could provide opportunities to leverage current capabilities to promote development of the homeland security industry within Illinois.

Next steps in the initiative should build on the work completed during this initial scoping phase. These next steps would likely focus around three main elements: undertaking a more comprehensive survey of the homeland security industry; obtaining strategic intelligence on how Illinois can best attract homeland security companies; and developing a business plan and policy recommendations.

Recommendations regarding the State's next steps include the following:

- The State should not attempt to define the homeland security industry because organizations will likely present themselves to the State to be considered for announced programs, and this process of self-selection is likely to be informative.
- The State appears to have many existing tax incentives, relocation packages, and training programs, so at this point it does not appear imperative that the State develop new programs. Rather, DCEO might consider aggressively marketing its existing and relevant programs.
- The Governor's Office might consider organizing, cosponsoring, and participating in industry trade shows and meetings to facilitate networking and information gathering.
- Because of the decisions that must be made to focus any effort at attracting or expanding the homeland security industry in Illinois, the Governor should consider chartering a panel or directing the Illinois Coalition to gather the information needed to make these decisions over the next 12 months.
- DCEO likely will need a single office responsible for coordinating what are likely to be multiple components of the overall initiative.

# 1. Project Understanding

The Governor of Illinois seeks to capitalize on the significant growth in spending and investment in homeland security in the United States (by local, state, and federal agencies and the private sector) by attracting and retaining businesses that develop and provide homeland security-related products and services. The goal of the Governor's initiative is to promote economic development and job creation in Illinois.

In order for Illinois to assemble an effective plan for becoming a location of choice for the homeland security industry, the State of Illinois will need to gain an understanding of the status of and trends in the market for homeland security goods and services. The State of Illinois will also require specific strategic intelligence about its comparative advantages and the competitive landscape.

Working closely with the Office of the Governor and the Illinois Department of Commerce and Economic Opportunity (DCEO), the RAND Corporation

- Conducted a preliminary market survey based on existing industry and market reports and analyzed employment of Illinois-based entities broken out by standard classification codes. The results of this effort are presented in Section 2.
- Performed a preliminary survey and critique of efforts by other states to implement homeland security business development initiatives. The results of this effort are presented in Section 3.
- Produced a summary of federally funded research and development awards to Illinois entities in 2003 in fields of relevance to homeland security. The results of this analysis are presented in Section 4.
- Evaluated documents, memorandums, emails, and personal communications from DCEO officials regarding
  - o state economic development programs
  - o state resources and assets
  - o state homeland security activities
  - o military facility repurposing and redevelopment
  - o preliminary survey data gathered from Illinois companies in the homeland security industry
  - o proposals for new resources and strategies to help existing business and to attract new businesses to Illinois.

The results of this effort are presented in Section 5.

Based on these efforts, RAND, together with Governor's Office and DCEO officials, arrived at a set of policy and organizational actions the State of Illinois may undertake to move forward on its homeland security business development initiative. These next steps are outlined in Section 6.

## 2. Preliminary Survey of the Homeland Security Industry

### Background

Traditional industry classifications such as the North American Industrial Classification System (NAICS)—for which financial data are readily available—tend to group companies according to their production processes. That is, companies that produce products and services using similar processes (e.g., pharmaceutical manufacturing; data processing, hosting, and related services) are grouped together. However, the identifying characteristic of the homeland security industry is not the type of production process used, but the purpose to which products and services are put (e.g., surveillance, detection, protection). So some of the products and services from a conventionally defined industry may have homeland security applications while others may not, and the boundaries are not always clear.

Consequently, estimates of the size of the homeland security industry have been wide-ranging, as illustrated by the following examples.

- Miller and Washington estimated total expenditures on homeland security by federal, state, and local governments and the private sector in the United States to be \$100 billion in 2003.<sup>1</sup> Meanwhile, the Federal Reserve Bank of New York estimated expenditures for the public and private sectors at \$72 billion dollars for 2003.<sup>2</sup> Not all of these expenditures are for privately produced goods and services, however, because they include money for government functions such as providing border security.
- The Civitas Group attempted to capture only the money available to private industry; as a consequence, it forecasted that the homeland security market will reach only \$23.4 billion in the United States in 2005 (and \$42.4 billion globally).<sup>3</sup>
- In looking solely at homeland security technologies (e.g., tracking and identifying individuals and equipment; physical security technologies;

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<sup>1</sup> Richard K. Miller and Kelli D. Washington, *Market Opportunities in Homeland Security*, Richard K. Miller & Associates, Inc., Norcross, GA, 2003.

<sup>2</sup> Bart Hobijn, "What Will Homeland Security Cost?" Federal Reserve Bank of New York, *Economic Policy Review*, November 2002.

<sup>3</sup> The Civitas Group, LLC., *The Homeland Security Market*, Washington, D.C., 2004.

and risk mitigation), Morgan Keegan estimated the global market to be about \$22 billion in 2003.<sup>4</sup>

- The Freedonia Group recently reported that the U.S. market for “security products and systems” totaled \$12.6 billion in 2003 and will grow to \$26.2 billion by 2013.<sup>5</sup>

The State of Illinois asked RAND to conduct a preliminary assessment of the homeland security industry nationwide and in Illinois through a survey of economic data broken out by NAICS codes. This assessment consisted of two approaches. First, RAND compiled a list of NAICS codes for industries that appeared likely to produce homeland security-related goods and services pertaining to protection, detection, and response. The selection criteria were intentionally broad in order to capture industries tangentially tied to homeland security (e.g., credit bureaus) as well as those more directly involved. This initial scan resulted in a list of over 60 different NAICS industries. Second, RAND analyzed a dataset of company information provided by DCEO. DCEO derived the dataset first by extracting the NAICS codes from a core set of homeland security companies that DCEO tracks and then by obtaining sales, employment, and other information on all Illinois companies that fall under these codes. This dataset contained nearly 75 different NAICS industries. Together, all of the companies in the dataset accounted for over \$278 billion in U.S. sales and nearly 366,000 employees (outside of national security professions) in Illinois. (For reference, the dataset is presented in the Appendix).

The Governor’s Office and DCEO also proposed that RAND consider two alternative approaches to defining the industry that focused on the *users* of homeland security goods and services rather than on the *providers* of these goods and services. One approach entailed cataloging individual technologies and services that first responders and other users might require in their jobs. The second approach relied on the Authorized Equipment List produced annually by the U. S. Department of Homeland Security. This list specifies the approved equipment that states and localities can purchase under the different Homeland Security Grant programs. The most recent version contains 21 equipment categories ranging from personal protective equipment to operational and search and rescue equipment pertaining to chemical, biological, radiological, nuclear, and high-yield explosive events.

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<sup>4</sup> Morgan Keegan & Co., *Homeland Security Technologies: Industry Overview*, Memphis, TN, 2004.

<sup>5</sup> Tim Starks, “Market for Security Goods Exploding, Report Says,” *CQ Homeland Security*, January 5, 2005.

## Key Findings

- There are no generally accepted definitions in the United States of what constitutes the homeland security industry, its size, or its products and services. A rigorous effort to this end by the State of Illinois could, in and of itself, be an important contribution to national policy discussions as well as a means by which Illinois distinguishes itself as an innovator in the homeland security sector.
- The lists of NAICS industries developed separately by RAND and DCEO matched very closely. However, in consultation with DCEO, it was agreed that these lists were not sufficiently specific for developing a meaningful definition of the homeland security industry in Illinois given time constraints of the present scoping effort.
- The sales and employment numbers arrived at in the second NAICS approach suggest that these firms produce far more than just homeland security products and services. Again, in consultation with DCEO, it was agreed that this screening was too coarse to allow for a meaningful examination of specific industries given time constraints, and it was agreed that any further investigation of NAICS codes should be put off until the next phase of the State's initiative.
- Through the discussions of the NAICS codes with RAND, the Governor's Office and DCEO substantially refined the proposed priorities for homeland security economic development to center around R&D and manufacturing—in essence the development of new homeland security technologies that could then be manufactured in Illinois.
- Accordingly, DCEO's proposed approach for defining the homeland security industry using the DHS Authorized Equipment List is promising. Because the List represents a compilation of homeland security products that are in demand nationwide, it could provide DCEO a useful starting point for identifying important manufacturers of these products to attract to the State. Other methods might be needed, however, to uncover the additional layers of companies, universities, and institutions involved in the research and development of the enabling components and technologies behind these products. In any case, sizing the market, as well as assessing the types of companies involved and their geographical distribution, would still need to occur in the next phase of research.

### 3. Survey and Critique of Efforts by Other States to Implement Homeland Security Business Development Initiatives

#### Background

RAND conducted an Internet search of major industrial states outside of Illinois identified by RAND as leaders in various aspects of homeland security. States examined were Texas, California, New York, New Jersey, Florida, Virginia, Ohio, Michigan, Wisconsin, Rhode Island, Pennsylvania, Georgia, Colorado, Arizona, North Carolina, Massachusetts, and Indiana. The objective was to find what economic development programs other states are using to specifically develop their homeland security markets and what useful strategic information and policy guidance Illinois decisionmakers can derive from such efforts.

#### Key Findings

- Given the lack of competition in this area, the State of Illinois may have an opportunity to gain an advantage over other states by crafting a unique economic development initiative that defines the salient market and determines appropriate business development actions. Even a modest effort, if adequately conceived, could potentially have an appreciable impact on the State's visibility as a national leader in the homeland security realm and the State's desirability as a location for homeland security businesses.
- There exist few known homeland security business development models upon which Illinois may draw or programs against which Illinois decisionmakers can benchmark their efforts.
- Prior to engaging RAND, DCEO identified several states with programs directed at business development in the homeland security area: Florida,<sup>6</sup> New York,<sup>7</sup> Michigan,<sup>8</sup> and Rhode Island.<sup>9</sup> Of these, New York's appears to be the most comprehensive whereas the others appear to be more declarative. Aside from these states, RAND found no evidence of other state programs.

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<sup>6</sup> See <http://www.eflorida.com/keysectors/homelandsecurity/hls.asp>.

<sup>7</sup> See <http://www.nylovesbiz.com/HomelandSecurity/default.asp>.

<sup>8</sup> See <http://medc.michigan.org/ttc/sbir.asp>.

<sup>9</sup> See [http://www.riedc.com/riedc/industry\\_clusters/24/](http://www.riedc.com/riedc/industry_clusters/24/).

- It is possible that other states, including those listed above, may have determined after preliminary efforts to abandon homeland security business development initiatives because they were deemed unproductive and that this decision is not reflected in state websites.
- No states appear to provide targeted tax incentives for location, worker training, or R&D to homeland security firms. Two state websites—Michigan and Rhode Island—reference existing, more general economic development tax incentives or programs that may be of interest to specific sectors, such as technology.
- Some large states—Texas,<sup>10</sup> California, and Florida in particular—have economic development programs focusing specifically on defense and border/port protection and disaster management but not on homeland security as an industry. Nevertheless, they may serve as models warranting closer study, given the similar nature of the industries involved.
- No states seem to have developed focused marketing campaigns aimed at promoting homeland security business development either regionally or nationally. New York has information available for homeland security firms about business opportunities in the state.<sup>11</sup> New York, Michigan, and Florida<sup>12</sup> provide directories of businesses in the homeland security industry. However, providing information online is a passive means of communication and is only the first step in a marketing effort.
- Virginia does not appear to have developed a specific and coordinated strategy to develop its homeland security industry but it seems to have achieved a measure of homeland security economic development success. This may be due to the fact that Virginia is close to Washington, D.C. and is already home to a number of large federal national security-related installations and businesses.
- Rhode Island<sup>13</sup> and Florida<sup>14</sup> have held state-level conferences for homeland security businesses in the past, but these seem to have been single events.
- State homeland security websites, which industry representatives are likely to visit, tend to put forth an unwelcoming face regarding vendor information.<sup>15</sup> This may be due to the fact that homeland security officials have reported that they have limited capacity for managing and evaluating unsolicited approaches by vendors marketing goods and

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<sup>10</sup> See <http://www.governor.state.tx.us/divisions/tmpe>.

<sup>11</sup> See <http://www.nylovesbiz.com/HomelandSecurity/default.asp>.

<sup>12</sup> See <http://www.floridatechmart.com/portal/simplesearch.asp>.

<sup>13</sup> See <http://www.publicforuminstitute.org/activities/2004/ri/>.

<sup>14</sup> See <http://www.eflorida.com/keysectors/homelandsecurity/hls.asp?level1=22&level2=142&level3=369&region=tb#forum>.

<sup>15</sup> See, for example, <http://www.homelandsecurity.ohio.gov/vendorform.html>.

services.<sup>16</sup> Nonetheless, a welcoming greeting, with contact information for the DCEO Homeland Security Bureau, presents an opportunity for Illinois to make a favorable first impression on homeland security businesses.

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<sup>16</sup> Tom LaTourrette et al., *Protecting Emergency Responders Volume 2: Community Views of Safety and Health Risks and Personal Protection Needs*, MR-1646-NIOSH, RAND Corporation, Santa Monica, California, 2003, available at <http://www.rand.org/publications/MR/MR1646/>.

## **4. Preliminary Survey and Evaluation of Federal R&D in Illinois in the Area of Homeland Security**

### **Introduction**

RaDiUS<sup>®</sup> is a database developed and maintained by RAND that provides a crosscutting view of federal research and development (R&D) activities. RaDiUS is constructed by integrating data from a range of federal sources into a single common database that can be searched for federal R&D awards of interest. The analysis reported here is based on the most recent time period for which complete data are available, currently federal fiscal year 2003.

In 2003, the total number of R&D awards (in RaDiUS<sup>®</sup> and using information that is publicly releasable) given to institutions or companies in Illinois was 6287.<sup>17</sup> The funding for these projects totaled approximately \$1.3 billion.<sup>18</sup>

To reduce the overall list of R&D awards to a manageable list for examination of technology areas of interest, this total listing of awards to Illinois institutions was searched to identify those most relevant to the homeland security industry—i.e., projects aimed at homeland security applications such as sensing or information technology. In an effort to focus most closely on projects of greatest interest, an effort was made to eliminate projects from the dataset whose goals were not applied in nature. For example, all molecular biology or nanotechnology research projects were not retained—only those projects that were relevant to homeland security applications. Although many R&D sponsors do provide complete abstracts for each award included in RaDiUS<sup>®</sup>, some do not—particularly certain types of awards funded by the U.S. Department of Transportation and the U.S. Department of Defense. When such awards appeared to be in a general area relevant to homeland security (e.g., communications or transportation), RAND

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<sup>17</sup> An additional number of awards are provided to institutions in Illinois whose descriptions and details are restricted by the federal organizations providing the research and development support for security and other reasons.

<sup>18</sup> Funding estimates drawn from RaDiUS<sup>®</sup> are based on those awards for which funding values are reported by their sponsors, averaged over all fiscal years the award is active. Some R&D supporting organizations do not provide funding values for their awards. Of the 6287 awards, 679 (approximately 11 percent) do not report funding values.

elected to count them, even though many may not be directly relevant to homeland security applications.

## Key Findings

RAND findings from this effort are as follows:

- The RAND search and filtering of all R&D awards to Illinois institutions to obtain those most relevant to homeland security resulted in a subset of 248 awards totaling approximately \$69 million.<sup>19</sup>
- Federal support to Illinois relevant to the homeland security industry comes from a range of federal agencies:
  - o Department of Defense (83 awards)
  - o National Science Foundation (69)
  - o Department of Transportation (23)
  - o Department of Health and Human Services (22)
  - o Department of Energy (21)
  - o Department of Agriculture (17)
  - o Department of Commerce (6)
  - o National Aeronautics and Space Administration (5)
  - o Environmental Protection Agency (2).
- Illinois awards relevant to the homeland security industry cross a range of technology and functional areas, such as biotechnology and information technology. Awards also were made for economic development and industrial innovation program design. Major categories of awards and some details on their activities for illustration are provided below.<sup>20</sup>
  - o Biotechnology (19 awards). This includes a cluster of grants supporting interstate biotechnology research and the development of alliances with a focus on agricultural biotechnology.
  - o Communications Technology (28) . This includes significant R&D support in a variety of private-sector organizations and

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<sup>19</sup> Summary information on these awards were delivered to DCEO in an electronic file on January 10, 2005.

<sup>20</sup> It should be noted that this categorization should be considered rough and preliminary as the selected categories are neither comprehensive nor fully distinct and were assigned for the primary purpose of facilitating discussion. In a number of cases, awards could be assigned to one or more categories (for example, biotechnology and detection/sensor technologies). Awards were assigned to only one category based on the apparent overall thrust of the R&D activity.

- clusters of work at University of Illinois at Urbana-Champaign and Northwestern University.
- o Detection and Sensor Technologies (50). Awards include R&D support for a variety of sensor technologies with some focus on DNA detection and sequencing and sensor networks.
  - o Homeland Security-Specific Planning and Functionality (5). This category includes a number of homeland security R&D activities provided by the Department of Agriculture to local governments.
  - o Infrastructure Monitoring and Protection (34). Awards in this cluster include support by the Department of Transportation and the National Science Foundation to a number of private companies, the University of Illinois at Chicago, and the University of Illinois at Urbana-Champaign addressing pipeline safety and monitoring of the health of physical infrastructures.
  - o Information Technology (29). Awards in the category include support to a variety of Illinois educational institutions to address information technology applications, cryptography, and networking relevant to homeland security applications and data processing requirements.
  - o Nanotechnology (5). A small number of highly relevant nanotechnology awards were identified that focused on activities such as improving armor capabilities for protective applications and more down-stream capabilities such as nano-enabled sensing devices.
  - o Policy Design and Evaluation (7). A set of research awards supported by the National Science Foundation in this category addresses recovery after disasters and terrorist attacks and evaluation applications relevant to homeland security industry policies.
  - o Risk Analysis and Assessment (5). This cluster includes a set of R&D activities, predominantly at the University of Illinois at Urbana-Champaign, addressing risk analysis and assessment applications and technologies.
- The research and development clusters identified above could provide opportunities to leverage current capabilities to promote development of the homeland security industry within Illinois. For example, organizations such as the Illinois Coalition, which advocates for more federal money for Illinois, could work to strengthen targeted clusters in the State by encouraging Illinois firms to pursue federal research grants in these areas and by providing guidance with funding applications and project management.

## Discussion

From its preliminary survey of federal R&D, RAND found the following:

- The University of Illinois at Urbana-Champaign accounted for the largest number of grants and the greatest dollar value of R&D support relevant to the homeland security industry.
- Federal R&D support relevant to the homeland security industry goes to a significant number of firms operating within the state, although some of these organizations (e.g., the Boeing Company) may perform the R&D activities outside the state.
- Of the total funding relevant to the homeland security industry in Illinois, the approximate breakdown among types and major institutions is as follows:
  - o Individual businesses (approximately \$27 million)
  - o University of Illinois at Urbana-Champaign (approximately \$21 million)
  - o Northwestern University (approximately \$7 million)
  - o Illinois Institute of Technology (approximately \$4 million)
  - o University of Chicago (approximately \$3 million)
  - o State and local government organizations (approximately \$2 million)
  - o University of Illinois at Chicago (approximately \$2 million)
  - o Others (approximately \$6 million).
- Going forward, the results of this or more comprehensive searches of research and development or other related technology activities within the State (e.g., identification of firms with specific homeland security-related product lines) could provide the basis for a more in-depth examination of those firms' needs for growth and employment expansion within the State. Such activities could include, for example, contacting representatives of key firms and interviewing researchers active in particular areas of interest.

## 5. Review and Commentary on DCEO's Efforts to Identify New Resources and Strategies for Homeland Security Business Development

### Background

For some time, the DCEO has been developing and evaluating the concept of a homeland security business development initiative to help existing businesses in Illinois and to attract new homeland security businesses to the State. The Governor's Office asked RAND to review and comment on DCEO's efforts to identify what new resources and strategies the State should employ to attain this goal. In a memo to RAND, DCEO outlined a wide array of assets and opportunities and a number of policy options.<sup>21</sup> The memo also contained additional questions for RAND to address. These recommendations, opportunities, and questions can be grouped into six categories:

- Providing tax credits and other economic incentives
- Streamlining homeland security-related procurement
- Utilizing Illinois' military infrastructure
- Developing homeland security-related education and training
- Enhancing R&D at institutions in the state
- Creating a new office (or bureau) within DCEO to coordinate homeland security business development.

### Discussion

RAND's comments and responses to the questions in the memo are provided below. We note that these comments do not represent the results of a comprehensive or formal investigation and are intended only to stimulate further discussion.

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<sup>21</sup> Illinois Department of Commerce and Economic Opportunity, "Homeland Security Initiative," memorandum to the RAND Corporation, December 30, 2004.

### ***Tax Credits and Other Economic Incentives***

- If a new tax incentive is to be implemented, DCEO will want to consider what homeland security industry segments it is trying to attract or retain before deciding on what tax incentives to use or how to structure them. For example, a cursory look at the NAICS data provided by DCEO shows that the top homeland security industries by employment (after colleges, universities and professional schools; national security; and direct property and casualty insurance carriers) are custom computer programming services; computer system design services; other management consulting services; pharmaceutical preparation manufacturing; and data processing, hosting, and related services. So if the goal is to attract and retain these high-emplying industries, tax incentives targeted at these high-tech companies might be more effective.
- Although the homeland security industry can include a wide range of firms, incentives that attempt to attract firms across the entire range may be less effective than those that focus on specific components. For example, firms that differ from each other as much as computer programming services and pharmaceutical manufacturing do have very different workforce and infrastructure requirements. As a result, attracting one or two firms from each of the disparate components of the homeland security industry may be less valuable than gathering a larger number of firms from a few segments of the industry. This strategy could take advantage of the benefits of “clustering,” where like firms that are colocated benefit from their proximity to one another because the larger “critical mass” of economic activity reinforces development of an appropriately skilled labor pool, attention and interest of private investment capital, the ability for cooperation and strategic alliances, and so on. Other aspects DCEO would want to determine in the second phase of this effort are:
  - o Are the firms to be targeted large or small? Does the firm size matter? The homeland security industry is made up of firms of different sizes—from large “systems integrators and producers” (e.g., Raytheon, SAIC) to small technology firms (e.g., small biotechnology or information technology firms).
  - o Are there necessary combinations of different firm sizes in different parts of the industry? For example, are large firms needed to bring innovative new technologies to maturity and into saleable products?
  - o What are the local benefits of firms of different sizes?
  - o If the intent of this incentive program is to attract new firms, where are these firms now? What guides relocation decisions?
  - o If the intent is to develop wholly new businesses, where is the most benefit for the State’s investment (e.g., credits for investment in R&D or workforce training)?
  - o If the intent of this incentive program is to retain existing firms, which states or countries are courting them and how?
- Such issues and decisions will drive the design of any incentive program. For example, they affect the required size of any set of incentives, since

what may be attractive to firms of some sizes or in some parts of the industry may not be to others. And they affect how to best implement any incentive program, since different *types* of incentives (e.g., tax incentives versus other options such as workforce incentives) may be more or less effective for different components of the industry.

- Once DCEO decides on what industry segments it would like to target, it can determine whether existing incentives in the State of Illinois can be sufficiently tailored to meet the needs of targeted companies or whether new incentives might have to be created. Existing incentive programs that may be utilized for homeland security business development include the following:
  - o Participation Loan Program. This program provides financial assistance to Illinois small businesses. Funds are made available for the purchase of land and buildings, new construction or renovation, the purchase and installation of equipment, and working capital if it is determined that projects could not occur without this assistance.
  - o Large Business Development Program (Prime Sites). This program provides grants to encourage large out-of-state companies (500 or more employees) to locate in Illinois. It also encourages existing Illinois companies to undertake major job expansion or retention projects.
  - o Economic Development for a Growing Economy (EDGE). The EDGE program provides tax credits to qualifying businesses that make a capital investment of at least \$5 million and create a minimum of 25 new jobs (criteria are less stringent for smaller businesses).
  - o High Impact Business Program. This program provides tax credits and exemptions to businesses that make a minimum investment of \$12 million resulting in the creation of at least 500 full-time jobs, or a minimum investment of \$30 million resulting in the creation of at least 1,500 full-time jobs.
- Because existing incentive programs seem to encompass a range of grants, tax credits, and other assistance for both small and large businesses, it could be the case that Illinois already possesses the tools necessary to attract and retain targeted businesses in the homeland security arena. Thus, the State may only need to ensure that these programs were sufficiently funded and marketed.
- Regardless of the approach, DCEO (through the proposed Bureau of Homeland Security) would want to consider various methods for communicating its economic development programs to the homeland security industry. Given the diverse nature of the industry, a comprehensive approach will be needed. This approach could include, for example, hosting, sponsoring, and participating in industry trade shows, workshops, and conventions. It could also include advertising in relevant trade journals and developing an integrated and informative website.

### ***Utilizing Illinois' Military Infrastructure***

- The State of Illinois seeks to maximize utilization of military facilities—specifically, the Rock Island Arsenal—subject to the U.S. Department of Defense's base realignment and closure (BRAC) process. DCEO's work with the Arsenal Support Program Initiative (ASPI) for Rock Island Arsenal brings private-sector companies onto Rock Island to leverage the federal manufacturing facilities, equipment, and workforce (including research and development staff) located there. The State has expressed an interest in finding ways to use such programs to leverage the base's resources to promote the development of the homeland security industry. One idea proposed is to market the Rock Island Arsenal for private use as a testing facility for homeland security product development. This concept merits further investigation.

### ***Education and Training***

- Four-year state colleges, community colleges, and private technical schools typically play an important role in training skilled technicians and machinery operators desired by specialized manufacturers. Once target industries have been identified, the second phase of this project could determine which types of education and technical training programs might be a priority for the DCEO to support.
- DCEO noted that Illinois manufacturers lack skilled labor in a number of specialties, in part because too few people are choosing skilled manufacturing as a career. The TechPaths program has been developed (but not yet implemented) to encourage young people to choose a career path in a technical field. In the second phase of this project, DCEO might want to determine if the TechPaths program would be sufficient to meet this need and how effective this program would be in meeting the longer-term workforce needs of the homeland security industry.

### ***Enhancing R&D***

- There are a number of R&D institutions in Illinois that could play an important role in the development of a homeland security industry in the State. The RAND R&D survey of federally funded awards lists state, federal, and private-sector institutions. As indicated in the previous section, about half of the 2003 awards in dollar terms are clustered at the University of Illinois, Urbana-Champaign (approximately \$21 million), Northwestern University (approximately \$7 million), and the Illinois Institute of Technology (approximately \$4 million). We recommend that the State prioritize any R&D enhancement activities at institutions where homeland security-related R&D already is concentrated.
- Research universities likely are one of Illinois' greatest assets in attracting technology- and knowledge-intensive homeland security firms. Activities at some of these universities could lead directly to the formation of new homeland security-related firms. There could be a State role in assisting these types of firms in accessing federal funds for their early activities (e.g., Small Business Innovative Research [SBIR] funding) or matching them (e.g., the current Innovation Challenge Grant

Program). It is possible that involvement by the Governor (e.g., interaction with universities regarding this type of development), the DCEO Bureau, the Illinois Coalition, or a chartered commission (discussed below) could facilitate these starts.

- DCEO representatives expressed the belief that Illinois' R&D is rather fractured and competitive. They noted that there might exist an opportunity for the Illinois Coalition or a State entity to help serve as a networker and facilitator of communications, collaborations, and partnerships (including public-private ventures), for example, to jointly pursue federal R&D opportunities. Because the board of the Illinois Coalition will include representatives from the State's largest corporations and research institutions—all with substantial experience in partnering and obtaining federal funding—we believe that the Illinois Coalition would be well-positioned to help the State better coordinate and focus its R&D activities.
- The ability to utilize existing State assets will be determined in part through a more comprehensive evaluation of federal R&D activities and trends in Illinois and other states, as well as the survey of homeland security companies, to better understand their activities, interests, and needs.

### ***DCEO Bureau of Homeland Security***

- A single responsible bureau in the State could be valuable for coordinating what are likely to be multiple components of the overall initiative. The initiative could involve, for example, monitoring the effectiveness of tax incentives; assisting firms in the application process for these incentives or in the relocation process; and overseeing the development of training programs that support these firms' needs. Having one responsible entity, then, would likely help to ensure that these diverse activities are carried out in a consistent and mutually reinforcing manner.
- The bureau could also serve as a liaison with the State personnel and bodies responsible for homeland security, such as the Illinois Terrorism Task Force. For example, the Task Force could provide the bureau guidance on the types of technologies and services needed by the homeland security community—without rating specific firms or products and possibly compromising the Task Force's mission of preparing the State for terrorist events involving weapons of mass destruction.
- The office could take the lead role in any marketing and communications efforts the State undertakes—for example, to advertise existing and new State programs to homeland security firms and to conduct outreach to homeland security firms and organizations, such as conferences and conventions.
- Such an office could also potentially provide an information monitoring and provision function for State companies. Taking advantage of placement in Washington, D.C., members of the office could gather information on federal procurements, programs, etc. relevant to State companies and provide another route to get that information to Illinois

firms that can benefit from it. Such a function could be particularly relevant for small firms that lack the resources to do such monitoring on their own or to pay others to do it for them.

- Illinois can draw on many models of issue-based economic development initiatives and liaison offices. All U.S. states and territories maintain representative offices in Washington, D.C. to pursue various interests with the federal government. Organizational structures and staffing levels vary. For example, there are many specialized consulting firms to which the State could outsource some tasks, such as obtaining intelligence on various grant streams, requests for proposals, and procurements. Some State agencies maintain staff dedicated to specific issues, such as transportation and human services.
- The homeland security industry is evolving over time. As a result, a key function of any such centralized office will be information gathering to inform policy implementation and any future policy changes. The office should also provide a linkage to industry, academia, etc. to better assess needs and any shifts in those needs as circumstances evolve.

## 6. How Can the State Move Forward?

### Background

Through this scoping effort, Illinois officials and RAND discussed a wide range of opportunities and options for building the homeland security industry in the State. Several of these directions merit further development and analysis for possible implementation as the State moves forward with the initiative. Below, we outline the next steps for the State to begin to execute its desired strategy.

### Major Elements and Timeline

We envision that the next phase of the initiative would involve three primary elements: surveying the homeland security market; obtaining strategic intelligence; and developing a business plan and policy recommendations. The market survey is intended to assess the nature of the homeland security market as well as the current and future demand for products and services. Strategic intelligence about Illinois' comparative advantages, its business climate, and the needs of its companies will be gathered through discussions with select business leaders in the homeland security industry and other research. And the business plan and policy recommendations are intended to spell out a detailed strategy for moving forward. These elements are discussed in turn below.

#### *Market Survey*

The market survey in the second phase will build on the work completed during the initial scoping phase. Based on what we have learned to date, we suggest that in its initial push, the State not attempt to define what the homeland security industry is. Once any initiatives are announced, entities and opportunities will likely present themselves to the State ("come out of the woodwork" in the words of one DCEO representative) to be considered for programs. This process of self-selection is likely to provide the State with information and experience that it can use to define the industry at a later date.

The market survey should have the following steps:

- Compile representative sample of companies from NAICS and other lists to contact.
- Develop questionnaire for companies to learn about their mix of homeland security/non-homeland security products and services and their business trends.
- Compile results of questionnaire.

### *Strategic Intelligence*

Obtaining strategic intelligence will focus on how Illinois can best attract homeland security companies to the State, meet the needs of companies in the industry, and leverage the State's strengths to develop a strong industry cluster.

From our initial scan there appear to be tax incentives, relocation packages, and training programs already at DCEO's disposal. At this early point, it does not appear imperative that the State develop new programs. Rather, DCEO might consider aggressively marketing its existing and relevant economic development and training programs to the homeland security industry. The results of this effort will give the State an opportunity to assess how effective these programs are at meeting the industry's needs and determine if mid-course modifications and tailored packages are needed later.

Also, given the fractured nature of the industry, conventions, meetings, and trade shows serve an important role for networking and information gathering. The Governor's Office might consider, for example, organizing, cosponsoring, and participating in statewide industry trade shows, meetings, workshops, and training events over the coming year. DCEO suggested that an event at the National Center for Food Safety would be a good means of capitalizing on the state's strengths in agriculture and agriculture-related research. By attending national and regional homeland security meetings, conventions, and trade shows, DCEO could reach out the industry and communicate Illinois business development opportunities while gaining an opportunity to interface directly with industry representatives.

Because of the decisions that must be made to focus any effort for attracting or expanding the homeland security industry in Illinois (e.g., what components of the industry should be the focus, what types of incentives will be most effective, how any development program should be structured), a near-term action could involve the Governor chartering a panel to gather the information needed to make these decisions over the next 12 months. This panel could tackle a number

of issues, including guiding analytical efforts to assess the effectiveness of current business development programs and outreach; industry needs; options for creating new incentive packages; and the potential size of new programs and incentives. Outreach efforts to industry and academia by the panel itself (through open meetings, perhaps with participation by the Governor to emphasize the importance of the initiative) could provide a way to build broader involvement in the creation of the homeland security economic development initiative.

Accordingly, the strategic intelligence element should likely have the following steps:

- Conduct a scan of upcoming national and regional homeland security meetings, conventions, and trade shows.
- Determine the desirability and possible composition of a homeland security panel chartered by the Governor.
- Develop company questionnaire to learn about companies' training, infrastructure, and other business needs and their perceptions of Illinois.
- Determine a strategy for attending, sponsoring, and/or creating conferences.
- Convene a homeland security panel with instructions for future action.
- Conduct focus groups with select companies.
- Compile the results of focus groups.
- Develop appropriate incentive packages and craft necessary legislative changes.

### ***Business Plan***

The development of a business plan and policy recommendations will occur primarily after the completion of the first two elements. But some preliminary actions will be taken.

DCEO will likely need a single responsible center for coordinating what will probably be multiple components of the overall initiative, including reaching out and being responsive to request for information and direction from the homeland security industry; helping organize and attend industry events; serving as a liaison with the State personnel and bodies responsible for homeland security and for managing the BRAC process; gathering and disseminating

information on federal procurements and R&D opportunities; and serving as a networker and focal point to help build strategic alliances among Illinois' entities for pursuing federal procurement and grant opportunities.

Accordingly, the business plan element should likely include the following steps:

- Organize and charge a single responsible center for coordinating the initiative, possibly within DCEO.
- Develop a business plan with a decision and implementation schedule.
- Develop policy recommendations including necessary enabling policy and legal actions by executive and legislative authorities and budget requirements.

## Appendix

### Enterprises in Illinois Likely to Have Homeland Security–Related Activities, by North American Industry Classification System Code, 2003

NAICS Code and Title	Establishments	Employees	Total U.S. Sales (in millions of \$)
611310-Colleges, Univs & Prof Schools	809	62067	10,475.65
928110-National Security	349	51116	0.00
524126-Direct Prop & Cslty Ins Crrers	360	39978	88,707.24
541511-Custom Computer Prmgng Srvc	1669	26755	2,628.13
541512-Computer Sys Design Srvc	2853	25581	2,581.92
541618-Otr Mgmt Consulting Srvc	3462	22632	3,238.71
325412-Pharmaceutical Prep Mfg	139	20424	30,793.29
518210-Data Processing,Hosting, and Related Svc	999	14202	1,691.01
561612-Security Guards & Patrol Srvc	163	13177	277.79
524113-Direct Life Ins Carriers	449	12548	23,101.89
524114-Dir Hlth & Med Ins Carriers	150	11278	14,452.16
Other*	147	11144	1,832.00
541710-R&D in Phs, Eng & Lf Scncs	467	9678	822.64
541611-Admin Mgmt&Gen Mgmt CnsltSrvc	1311	9452	1,209.86
541690-Otr Sci & Tech Cnslt Srvc	1106	7653	725.10
541720-R&D Social Sciences&Humanities	331	7612	444.85
334220-Rad&TVBrdcstng&WrlsComEquipMfg	136	7071	28,619.94
334419-Otr Electr Component Mfg	129	5265	801.36
339112-Surgical & Mdcl Instr Mfg	105	4937	2,149.46
621511-Medical Laboratories	420	4812	220.61
561611-Investigation Srvc	217	4175	157.45
561621-Secur Sys Srvc (exc Lcksmths)	211	3669	118.13
541380-Testing Laboratories	113	3453	719.98
561613-Armored Car Srvc	106	3209	59.93
339113-Surgical Appliance & Supls Mfg	113	3205	558.62
334210-Telephone Apparatus Mfg	82	2802	1,436.81
523120-Securities Brokerage	145	2175	233.17
541990-Otr Pro Scientific Tech Srvc	251	2108	123.34
541910-Mktg Res & Pub Opinion Polling	118	1948	572.53
561450-Credit Bureaus	50	1652	172.23
523110-Invstmt Banking & Secs Dealing	99	1613	666.80
334290-Otr Cmunictns Equip Mfg	46	1485	668.46
334413-Semiconductor & Rltd Devic Mfg	53	1409	131.30
336412-Aircraft Engr & Engr Parts Mfg	9	1406	1,308.30
562910-Remediation Srvc	92	1329	151.16

## Appendix (continued)

Enterprises in Illinois Likely to have Homeland Security-Related Activities,  
by North American Industry Classification System Code, 2003

NAICS Code and Title	Establishments	Employees	Total U.S. Sales (in millions of \$)
336411-Aircraft Mfg	16	1,293	50,487.36
812990-All Other Personal Svcs	609	1,103	37.64
541519-Other Computer Related Svcs	93	1,050	106.81
336413-Otr Aircraft Prt Aux Equip Mfg	25	922	236.80
561990-All Other Support Svcs	34	876	21.21
621493-Frstand Amb Surg & Emerg Cent	44	748	68.40
334516-Analytical Laborator Instr Mfg	47	711	39.59
334517-Irradiation Apparatus Mfg	19	692	68.10
541614-Prc,Phs Dist & Log Cons Svcs	118	578	97.85
562211-Hzrds Waste Trtmt & Disposal	28	565	583.24
611519-Otr Tech & Trade Schools	10	514	1.15
562112-Hazardous Waste Collection	15	510	17.65
624221-Temporary Shelters	41	465	18.61
334511-Nav, Guid System & Instr mfg	28	435	31.38
541513-Computer Facfts Mgmt Svcs	22	414	29.34
524130-ReInsurance Carriers	14	402	4,716.05
238990-All Other Specialty Trade Cont	8	330	41.87
336611-Ship Building & Repairing	15	315	29.71
332994-Small Arms Mfg	14	289	29.20
325414-Bio Prdct (exc Diagnstc) Mfg	21	279	138.69
334510-Nav,Meas,Med & Cntr Instrs Mfg	15	173	4.02
336992-Milt Arm Veh,Tnk & Cmpn Mfg	3	165	25.85
332993-Ammo (exc Small Arms) Mfg	3	152	0.16
561210-Facilities Support Svcs	13	120	5.77
326299-All Otr Rubber Prdct Mfg	5	109	7.51
624190-Otr Indiv & Family Svcs	10	96	0.92
541620-EnvironMntl Consulting Svcs	34	91	3.40
525190-Other Insurance Funds	5	73	5.90
624229-Otr Community Housing Svcs	2	47	3.45
519190-All Other Information Services	20	33	1.16
541320-Landscape Architectural Svcs	8	29	0.96
541199-All Other Legal Svcs	6	26	2.00
523999-Misc Financial Invstmt Activ	6	24	1.84
488330-Navigational Svcs to Shipping	6	22	2.00
523910-Misc Intermediation	8	20	0.00
332992-Small Arms Ammunition Mfg	6	8	0.32
561110-Ofc Administrative Svcs	1	5	0.31
332995-Otr Ordnance & Accessories Mfg	2	4	2.64
711510-Indep Artists, Wrtrs, & Prfmrs	1	1	0.03
<b>TOTALS</b>	<b>18,634</b>	<b>416,709</b>	<b>278,720.70</b>

Source: Illinois Department of Commerce and Economic Opportunity (DCEO)

\* Relevant establishments provided by DCEO without readily identifiable NAICS codes are included here