



Program Prioritization Index (PPI)

An easy to use value-based model useful for the relative scaling of programs and/or projects related to Homeland Security applications.

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PROGRAM PRIORITIZATION INDEX [PPI]

The U.S. Department of Homeland Security (DHS) was created through the merging of twenty-two separate Federal Government agencies under a central Department with, most notably seven operating components (Federal Emergency Management Agency, Transportation and Security Administration, U.S. Customs and Border Patrol, U.S. Immigration and Customs Enforcement, U.S. Secret Service, U.S. Coast Guard, and U.S. Citizen and Immigration Services). These agencies represent mission-critical activities that are collectively far-reaching and all encompassing efforts and initiatives necessary for securing our Nation. There exist significant management challenges to understand, articulate and address the unique needs and common of each of the agencies that comprise DHS.

With so many needs and requirements generated from DHS stakeholders, an effective and efficient means of prioritizing programs and projects is essential for generating the highest yield per DHS investment dollar. The DHS limited budgets, personnel and shear time constraints to address all requirements make efforts to rank and prioritize projects and program a necessity. A simple, yet effective, method to evaluate the value gained from pursuing certain proposed programs or projects relative to others across the Department is essential.

The DHS's Science and Technology Directorate has developed a Program/Project Prioritization Index (PPI) that is arranged as a value-based model to capture the relative utility of one program/project over another. The PPI described below provides DHS managers a means to make rational rankings based on sound and useful parameters provided by a given program/project. The PPI is calculated using a combination of objective and subjective metrics of practical considerations for the open analysis of various factors that contribute to the value of pursuing programs/projects relative to others.

The PPI is a first-pass simple index to use as a guide for discussions related to program/project prioritization and justification. It incorporates a utilitarian approach to provide the most good for the most amount of people and property while recognizing political sensitivity, risk and cost-saving factors. It should be noted that the PPI is a figure-of-merit to be utilized as only one tool in making a DHS investment decision in the same way personnel assessment tools can "red-flag" potential issues in a hiring decision. The PPI is not intended to be used as the single decision-making tool as we operate in a dynamic environment.

This resource is to be used in the same vein as a quote by General Eisenhower during WWII, "The plan is not important, but planning means everything." The PPI is a tool to spark discussion and critical thinking about the management of resources, expected outcomes and the overall impact of a program.

The Program/Project Prioritization Index is based upon:

1. **People Protected** from potential threat (typical occurrence): Attach the following points for number of people potentially protected: assign 0 for zero people; 1 for 1-10 people; 2 for 11-100; 3 for 101-500 people; 4 for 501-1000 people; 5 for 1001-100,000 people and an additional point for each 20,000 people potentially protected. [If desired, a threat potential from 0.0-1.0 can be multiplied to calculate a threat expectation value.]
2. **Property Protected** from potential threat: assign a point for each \$50,000,000 of property protected. [If desired, a threat potential from 0.0-1.0 can be multiplied to calculate a threat expectation value.]
3. **Positive Political Impact Generated (Societal Perception)** as a result of a program/project's implementation: assign 0 points for "low"; 5 points for "medium"; and 10 points for "high".
4. **Cost Savings Realized by DHS** upon full implementation: assign 1 point for each \$1,000,000 saved (includes personnel plus resources).
5. **Dollars Requested/Spent by DHS** on the program/project: assign 1 point for each \$1,000,000.
6. **PPI Calculation**: Add Items 1-4 and divide by Item 5 to obtain the PPI. The higher the PPI value, the more value it potentially returns for a given DHS investment.
7. **Risk Adjusted PPI**: Multiply Item 6 by the "probability of success" of the program/project (i.e., obtain all stated objective(s)/specification(s) expressed in a fraction ranging from zero percent probability of success (0.0) to one-hundred percent probability (1.0). For example, 0.5 would relate to a 50% probability of success:

Master Equation

$$\text{PPI} = \frac{(\text{People Protected Points} + \text{Property Protected Points} + \text{Societal Perception Points} + \text{Cost Savings by DHS})}{\text{Dollars Requested/Spent by DHS}}$$

For example, an analysis of three hypothetical projects yields the following values.

PPI Metric	Project A	Project B	Project C
<i>People Protected</i>	75	250	100,000
(1) People Protected Points	2	3	5
Probability of Occurrence (Value)	0.5 (1)	0.4 (1.2)	0.25 (1.25)
<i>Property Protected</i>	\$5,000,000	\$15,000,000	\$1,000,000,000
(2) Property Protected Points	0.1	0.3	20
Probability of Occurrence (Value)	0.7 (.07)	0.4 (0.12)	0.25 (5)
<i>Societal Perception</i>	Medium	Medium	High
(3) Societal Perception Points	5	5	10
<i>Cost Savings</i>	\$5,000,000	\$1,500,000	\$10,000,000
(4) Cost Savings Points	5	1.5	10
<i>Dollars Requested/Spent</i>	\$2,000,000	\$6,000,000	\$15,000,000
(5) Dollars Requested/Spent Points	2	6	15
Total (1+2+3+4)	11.07	7.712	31.25
(6) PPI Calculation	5.535	1.285	2.083
“Probability of Success”	0.7	0.7	0.8
(7) Risk Adjusted PPI	3.8745	0.899	1.664

Definition of Values:

People Protected (Typical Occurrence): This value represents the number of people affected by a single incident.

Property Protected (typical occurrence): This value represents the value in dollars of the property affected by a single incident. This value can include surrounding infrastructure that may be affected by collateral damage.

Societal Perception: This value represents the impact that a program/project will have on the way society perceives the Department and its use of the program/project to provide protection. For example, intrusive inspection technologies may be poorly perceived by the public, while stream-lined unobtrusive techniques may be favorably perceived. The assigned value can be ranked on a scale of 0-100.

Cost Savings Realized by DHS: What would be the savings of DHS resources (materials, personnel, opportunity costs) if the program prevented an incident? What are the cost savings from improved efficiencies or capabilities that improve the way a particular task is conducted? To what extent can partnerships reduce the cost of developing/deploying/using the output of a program?

Dollars Requested/Spent by DHS: What is the requested amount necessary for DHS to execute the proposed program/project in terms of development and transition dollars?

Threat Potential/Probability of Occurrence: How likely is the typical occurrence for which the program/project is designed to address expected to happen? This value is based on a percentage from 0.0 to 1.0 and is multiplied against the people and property protected. For example, 0.5 would relate to a 50% probability of success.

Probability of Success: What is the expected impact of the fully developed system? How likely is it that a system will be developed to provide 100% of the desired capability when used in the field? This value is based on a percentage from 0.0 to 1.0 and is multiplied against the people and property protected. For example, 0.5 would relate to a 50% probability of success.

In summary, the PPI is a useful figure-of-merit to induce meaningful discussion among Homeland Security Enterprise members to effectively and effectively develop technology products/services/processes to meet the ever-increasing challenges faced in securing the Homeland. This value-based decision model can easily be modified in the future to accommodate new potential variables and parameters in program management decision-making.

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