DART3: DHS Assistant for R&D Tracking and Technology Transfer

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Abstract

Department of Homeland Security (DHS) Assistant for Research and development Tracking and Technology Transition (DART3) is a web-based implementation designed to capture US Federally funded research and development (R&D) project descriptions and the DHS Cyber Security and Communications (CS&C) R&D requirements and use this information to plan a set of transition activities that accelerate the deployment of relevant R&D results to CS&C operational systems.

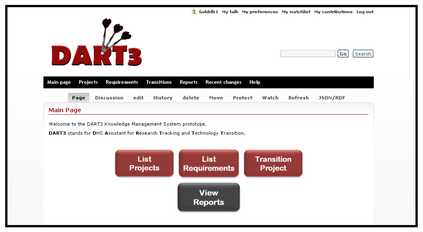

Figure 1 DART1 Main Page

Introduction

DART3 provides the following capabilities:

- DART3 identifies R&D projects that meet R&D requirements for operational systems.
- Uses the information within DART3 to coordinate with the principal investigators (PIs) of the R&D in order to assure the results of the R&D meet the needs of DHS.
- DART3 can help generate and communicate a set of transition activities to be undertaken to accomplish the transition of the R&D results.
- DART3 can also be used to identify CS&C requirements that do not match any research descriptions; these represent gaps that could be addressed in future BAA solicitations.

System Overview

DART3 contains Project, Requirement, and Transition pages, each displaying relevant information and providing useful tools for the user.

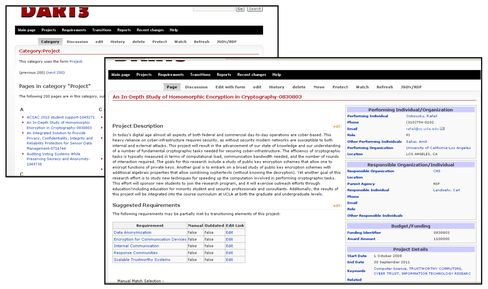

Figure 2 Projects Page and Example Project Page

- The semantic information available on a Project or Requirement page makes it easy to browse through pages with related information.
- A Requirement page shows suggested projects to which the requirement matches. (Similarly, Project pages show suggested matching requirements.)
- A Project page contains a *'Transition This!'* button which can be pressed to launch an assistant to guide the transition process and produce a transition activity and tracking sheet.
- A Transition page provides assistance with selecting and tracking transition activities. This process is based on the Transition Planning and Assessment Model (TPAM) [2].

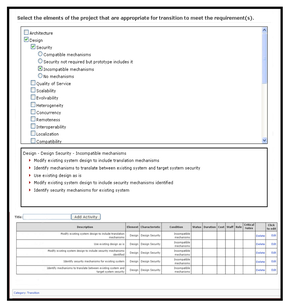

Figure 3 Transition Activities and Tracking

Matching

The ability to automatically determine whether or not a funded project matches a DHS requirement has been developed in DART3. Without this capability:

- There is much repetitive work in searching for projects across different agencies' project databases.
- An individual researching the relationship between projects and requirements needs to understand the different vocabulary used by different agencies.
- One exploring the requirement/project relationships may be biased toward a particular project if, for instance, he or she has recently attended a presentation about the project.

Automatic Matching Algorithm

The automatic matching is completed by:

- Performing a web-like search over project descriptions, where the query is made up of the requirement keywords.
- The query is expanded through use of a fuzzy query and synonym expansion.

Manual Matching

DART3 provides the user with the capability to make a match outside of the automatic matching algorithm.

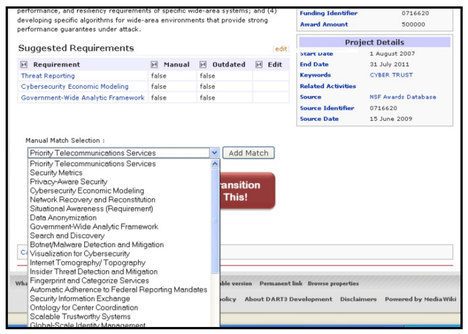

Figure 4 Manual Match Interface

Future Work

An additional capability that would be useful for the matcher is an algorithm that uses semantic equivalence to discover matches. For instance, determining that *trustworthy computing* and *survivable systems* refer to similar ideas would result in an automatic match being made.

It would significantly improve both the usefulness of this tool and the sharing of R&D information in general to standardize the way cyber R&D projects and requirements are described.

Conclusions

- DART3 has provided DHS with a …. that ….
- The automatic matching between DHS requirements and projects that can be transitioned will….
- DART3 will be valuable because…
- ???

References

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