# Deloitte.

June 16, 2011

Dr. John Hnatio, PhD
Chief Science Officer
ThoughtQuest LLC
7420 Hayward Rd,
Frederick, MD  21702

Dear Dr. Hnatio:

We have completed a review of the TQ Application as requested by Projectioneering LLC and its subsidiaries, including ThoughtQuest LLC, (collectively, the "Company" or "Client" or "you") in accordance with the terms of our engagement letter dated January 5, 2011 (the "Services").

The scope of work under this engagement letter included the review, analysis and assessment of Projectioneering LLC's existing key processes related to **U.S. Patent Application No. 12/948,597** *Computerized Complex System Event Assessment, Projection and Control* and **U.S. Patent Application No. 12/948,588** *Metadata Database System and Method* as reduced to practice under Food ProtectionTQ™ and hereinafter referred to as the "TQ Application," and the review, analysis and assessment of the Food DefenseTQ™ and Food SafetyTQ™ question sets.

We have completed our review of the TQ Application and supporting process steps. If appropriately implemented and utilized, the TQ Application should be useful in supporting the identification and management of food safety risks and food defense  threats. Additionally, we have compared the Food DefenseTQ™ and Food SafetyTQ™ question sets to related regulations and leading industry practices, provided by the Company, and it appears that the question sets contain the expected regulatory requirements and leading industry practices.

Throughout the course of the review we identified several opportunities to further enhance the Food DefenseTQ™ and Food SafetyTQ™ question sets being addressed by the Company. The remainder of this report is dedicated to the findings, observations and recommendations of the engagement team and the related responses by ThoughtQuest LLC management.

## ENGAGEMENT OBJECTIVE

The primary objective of this analysis was to evaluate the functionality and content of the TQ Application and subsequent question sets. The review did not constitute a technical code review of the TQ Application. The assessment tasks included:

**Task 1: Evaluate the TQ Application**

- Documentation review, analysis and assessment of the TQ Application.
- On site reviews of the Projectioneeirng/TQ Application system, architecture and functioning at Argonne National Laboratory and ThoughtQuest LLC.
- Evaluate the TQ Application against test scenarios and document findings and recommendations.
- Ongoing recommendations during, and as part of the review, analysis and assessment to enhance the completeness and accuracy of the TQ Application.

**Task 2: Evaluate the Food DefenseTQ<sup>TM</sup> and Food SafetyTQ<sup>TM</sup> Question Sets**

- Evaluate the "All-Hazard" **Food DefenseTQ<sup>TM</sup> and Food SafetyTQ<sup>TM</sup>** question sets provided by ThoughtQuest LLC.

- Review of applicable Federal regulations and leading industry practices, provided by ThoughtQuest LLC, as they pertain to the **Food DefenseTQ<sup>TM</sup> and Food SafetyTQ<sup>TM</sup>** question sets.

- Ongoing recommendations during, and as part of the review, analysis and assessment to enhance the completeness and accuracy of the **Food DefenseTQ<sup>TM</sup>** and **Food SafetyTQ<sup>TM</sup>** question sets.

## STEP 1: DOCUMENTATION REVIEW, ANALYSIS AND ASSESSMENT OF THE TQ APPLICATION

The Deloitte & Touche team obtained and reviewed system and patent documentation related to **U.S. Patent Application No. 12/948,597** *Computerized Complex System Event Assessment, Projection and Control* and **U.S. Patent Application No. 12/948,588** *Metadata Database System and Method* as reduced to practice under **Food ProtectionTQ<sup>TM</sup>** to develop a baseline understanding of the TQ application and information flow.

## STEP 2: ON SITE REVIEWS

Deloitte & Touche conducted a site visit to ThoughtQuest in Frederick, MD for technical discussions with the Chief Science Officer, Dr. John H. Hnatio and Mr. David K. Park, Senior Food Scientist. Deloitte & Touche and ThoughtQuest LLC jointly conducted a site visit to Argonne National Laboratory for technical discussions with the Dr. Craig Swietlik, Group Leader of Information Technology and Decision Support Systems. These visits furthered the understanding and operation of the current processes and the technical treatment and transformation of data related to the TQ Application including those related to Food DefenseTQ<sup>TM</sup> and Food SafetyTQ<sup>TM</sup>.

## STEP 3: EVALUATE THE TQ APPLICATION AGAINST TEST SCENARIOS

Based on documentation review, analysis, assessment and interviews with ThoughtQuest LLC scientific and technical personnel, Deloitte & Touche developed and conducted test scenarios to test the operating effectiveness of the TQ Application as embodied in the Food ProtectionTQ<sup>TM</sup> tool suite.

## STEP 4: RECOMMENDATIONS FOR THE TQ APPLICATION

Deloitte & Touche prepared and rendered draft recommendations in an observation tracking log during the course of the engagement. Deloitte & Touche provided Projectioneering LLC and ThoughtQuest LLC with weekly continuous feedback during the review in order for ThoughtQuest to react to and implement corrections. ThoughtQuest LLC will have implemented the corrective actions/recommendations by the end of the assessment process and completion of an agreed upon draft management report.

## STEP 5: DELOITTE & TOUCHE REVIEW OF APPLICABLE FEDERAL REGULATIONS AND LEADING INDUSTRY PRACTICES

Deloitte & Touche reviewed and analyzed the provided federal regulations and leading industry practices to develop a benchmarking matrix in which to map reviewed "All-Hazard" questions.

## STEP 6: REVIEW AND BENCHMARKING OF "ALL-HAZARD" QUESTION SETS PROVIDED BY THOUGHTQUEST.

Deloitte & Touche reviewed and analyzed ThoughtQuest LLC provided question sets (i.e., approximately 700 core and subcategory) related to **Food DefenseTQ™** and **Food SafetyTQ™** against Federal Regulations and industry practices in the context of the area in which the question is developed.

## STEP 7: DRAFT RECOMMENDATIONS FOR THE "ALL-HAZARDS" QUESTION SETS

Deloitte & Touche has provided draft recommendations to enhance the "All-Hazards" question sets for **Food DefenseTQ™** and **Food SafetyTQ™.**

**STEP 8:  REVIEW OF IMPLEMENTED RECOMMENDATIONS OR CORRECTIVE ACTIONS**

Deloitte & Touche has reviewed and analyzed recommendations or corrective actions presented by Deloitte & Touche that have been implemented by ThoughtQuest LLC prior to the final report being delivered. ThoughtQuest LLC has prepared a summary of additional review items and these items will be included in the final report.

**OBSERVATIONS AND FINDINGS**

Deloitte & Touche has identified the following product improvement opportunities:

- Food safety and food defense themes, examples, and references should be carried throughout the documentation, presentation materials, and question sets.
- Sourcing of standards and leading practices could be improved by directing users to the specific location instead of a website.
- Scoring systems could be improved to provide end users trending analysis to provide further insights into their compliance programs.
- The application system can be enhanced by removing link server errors, removing dead links, and adding additional functionality to tie to Food Mapper to provide users an integrated solution.
- Question sets can be enhanced to include current leading industry practices and inclusion of additional minimum standards as applicable.

Details regarding these improvement opportunities are presented in the attached "Detailed Observations and Recommendations" portion of the report.  The effective implementation of such corrective actions is the sole responsibility of management.

Our services were performed from January 2011 to May 2011 in accordance with the Statement on Standards for Consulting Services issued by the American Institute of Certified Public Accountants (AICPA). The Services did not constitute an engagement to provide audit, compilation, review, or attestation services as described in the pronouncements on professional standards issued by the AICPA, the Public Company Accounting Oversight Board, or other regulatory body and, therefore, we do not express an opinion or any other form of assurance as a result of performing the Services.  We did not conduct a legal review of any of the Company's documents, records, or policies. Additionally, we did not provide any legal advice regarding our Services nor did we provide any assurance regarding the outcome of any future audit or regulatory examination or other regulatory action; the responsibility for all legal issues with respect to these matters, such as reviewing all deliverables and work product for any legal implications to the Company, is the Company's.

This report is intended solely for the information and use of management and the Board of Directors and is not intended to be and should not be used by anyone other than these specified parties.

Yours truly,

Deloitte & Touche LLP

Attachments - Appendix

# APPENDIX -- DETAILED OBSERVATIONS AND RECOMMENDATIONS

**1)** **System and marketing documentation for Food Safety and Food Defense contained references to non-food industries and examples. The uses of the same graphical elements were not consistent throughout the documents.**

**Observation:**

Through the review of system and market facing documents and presentations, Deloitte & Touche noted that many references are tied to previously developed TQ areas (School & Campus TQ). Many of the discussion examples provided are tied to workplace safety (anhydrous ammonia, etc.). Finally, there are common graphical elements used throughout the reviewed documents that have slight differences on each.

**Recommendation:**

ThoughtQuest should undertake an effort to modify the existing documentation to reflect a common food-industry specific theme. Through Deloitte & Touche's experience, references to unrelated industries and examples, though well intentioned, often times lead to confusion by potential users of a tool.

**Management Response:**

ThoughtQuest agrees with Deloitte & Touche that market facing documents for Food ProtectionTQ$^{TM}$ must focus on the agricultural vertical and that supporting documentation should reflect a common food-industry specific theme. Marketing and industry facing documents for Food ProtectionTQ$^{TM}$ are being prepared to reflect this recommendation.

TQ also agrees that where there are actual agricultural and food industry events that may be more appropriately cited references in the Food DefenseTQ$^{TM}$ Question sets, they should be appropriately cited. At times, however, in the Food DefenseTQ$^{TM}$ question sets, it is appropriate to use ***non-***agriculture and food scientific sources which are developed from general events involving violent human behavior and where large groups have gathered and employees are potential targets of violence. Available sources that are acknowledged to be capstone references are frequently borne from violent events in school and campus environments.

Therefore, ThoughtQuest has developed a custom paragraph insertion where non-agricultural and food sources appear. The purpose of this paragraph is to clarify to the food industry user why these sources are cited in support of the question set. The inserted paragraph is as follows:

> "A ***non-***agricultural, ***non-***food source(s) is cited for this question set. There are *insufficient* available and credible sources that relate to agricultural or food subject matter and recommendations to support minimum standards and best practices in this question set category. There is however, appropriate information available to support these standards and best practices that may arise in events of violent human behavior, where large groups have gathered and where employees are targets for a perpetrator's violent act."

**2)** **Sourcing links for minimum standards and best practices linked to general directives and documents.**

**Observation:**

Through the review of the question sets, Deloitte & Touche reviewed the sourcing of the standards by referencing and following the provided links. Many times the sources were general in nature and did not provide specific guidance on where a standard or best practice was developed.

**Recommendation:**

ThoughtQuest should continue the efforts to tie the minimum standards and best practices to the lowest level of detail possible. Providing the user with the reference directly without having to search through a large document will provide value to the tool.

**Management Response:**

ThoughtQuest agrees that efforts to tie the minimum standards and best practices to the lowest level of detail possible must continue. Question sets are currently designed to be consistent with the generalized regulatory framework, i.e., "one-size-fits-all" approach, used by the government and are thus, in most cases, supported by general guidance. Much of the guidance is not at a food-specific level. While Food SafetyTQ<sup>TM</sup> and Food DefenseTQ<sup>TM</sup> question sets cover "all-hazards" as intended in our initial software design, we agree with Deloitte & Touche that the minimum compliance and best practice options ultimately need to be driven by specific food type and supported by detailed science-based standards. This more extensive capability described by Deloitte & Touche is a key mid-term objective of our product development plan in partnership with academia and scientific organizations.

In the interim, the enhanced search refinement capability Deloitte & Touche has recommended is of great user value-add. ThoughtQuest has tasked Argonne National Laboratory, Argonne, IL and High Rock Studios, Hagerstown, MD with this Deloitte & Touche recommended improvement. These enhancements are being featured in Food MapperTQ<sup>TM</sup>, Food SafetyTQ<sup>TM</sup> and Food Defense TQ<sup>TM</sup> as part of the ThoughtQuest Integrated Business Application (IBA). These product development enhancements include:

1. On-going, periodic scheduled searches for updating minimum federal compliance standards subject matter as contained in federal Statutes and Acts, the Code of Federal Regulations, (CFR) Federal Register, (FR), Agency Directives, Notices and Official Laboratory Methods.
2. Codified paragraph isolation, complete identification and full description of all mandatory compliance and advisory text.
3. Highlighting the specific best practice text contained within the industry best practice industry source document to aid the user.
4. Optional  side-by-side display posting of a client SOP documents for comparative review to the federal standards and best practices
5. User-alerts of federal announcements of advanced notification of public rule making (ANPR), Proposed Rules, Final Rules, for guiding user interests within federal requirements.

**3) <u>The scoring system does not support trending or historical analysis of previous responses to questions.</u>**

**Observation:**

Currently the system is designed to give a point-in-time scoring of the questions that are found within a question set, which is provided to the user on green, yellow, red basis along with a numerical score. Previous scores or projected scores based on predictive indicators is currently not built in.
**Recommendation:**

ThoughtQuest should enhance the system to incorporate historical scoring. Historical trends will allow the user to see progress or regression across questions and more easily draw their attention to areas of need rather than a point in time.

**Management Response:**

ThoughtQuest agrees that historical scoring would be of great user value so that operational performance can be tracked more objectively. Both Food DefenseTQ<sup>TM</sup> and Food SafetyTQ<sup>TM</sup> have live and active built-in scoring criteria coded underneath the responses and driven by weighted values that are intended to drive trends analysis. This type of trends analysis is a key enhancement objective within the product development plan and part of the ThoughtQuest IBA enhancement effort.

In an independent response to the stated recommendation, ThoughtQuest tasked Argonne National Laboratory with refinements to the current system including historical and other factor trends analysis to be featured in Food SafetyTQ<sup>TM</sup> and Food Defense TQ<sup>TM</sup>. These and other refinements of the individual tools, fully integrated into an interdependent IBA with relational and dynamic scoring, i.e., within all tools, is included as part of the IBA enhancement effort. These include:

1. Weighting the importance of the question and responses against the accumulated event library contained within the POISON<sup>TM</sup> database, which are themselves weighted against the frequency of events and probability of occurrence of those events as populated in the database.
2. Weighting changes as statistically driven over time as new events are added to the database.

3. Non-compliance (low-scoring) items are categorized and used in follow-up Food Protection TQ assessments to ensure attention is directed to gap areas in minimum compliance
4. Opportunities to improve to best practice areas are also summarized and reported
5. Ability of plant to compare, contrast and trend plant operations level performance only, compare, contrast and trend like-plant operations level within the business, compare and contrast all plant operations level performance within the business, compare, contrast and trend operational performance to outside plant operations will be provided.
6. Numerical assessment scoring will be converted to user "dashboard" visualizations for both plant and corporate users.

## 4) **The scoring system does not provide insight or recommendations on how to explicitly fix the problem that has been identified.**

**Observation:**

Users are informed graphically and numerically of the scoring results for the question set. If a user scores low, currently there is no specific action plan or recommendations provided by the system to fix the identified problem. A link is provided back to the specific question under review.

**Recommendation:**

ThoughtQuest should as defined in the minimum standard and best practices guides and link these to the currently displayed results. The information would allow users to quickly develop or use test steps to correct an identified issue.

**Management Response:**

TQ agrees that the reports user interface must incorporate recommendations and action plans. Under the IBA enhancement effort, particular attention is directed toward the Food DefenseTQ$^{TM}$ and Food SafetyTQ$^{TM}$ user interface and report generation to include recommendations and action plans with links to currently displayed results, i.e., low scores. The challenge of identifying recommendations and action plans using Food DefenseTQ$^{TM}$ and FoodSafetyTQ$^{TM}$ question sets is greatly simplified because all questions are "ipsitive" meaning that they require a "yes" or "no" response from the user. Under this schema, a corrective action is identified by reversing the question's negative context to a positive context. This is part of the basic design of the question sets that is intended to immediately establish a baseline for corrective action and to form the basis for recommendations and action plans.

## 5) **Assessment scores can only be generated on a defined question set area**

**Observation:**

Under the current system design, users select an area of question in which to answer questions and receive a score. The question sets are group logically within Food Defense and Food Safety, but some areas of concerns for manufacturers and producers could be found across multiple sets. For example, allergens could exist in transportation, food labeling, food safety core, but there is not a way to see performance across the sets.

**Recommendation:**

ThoughtQuest should enhance the system to include the capability to search across question sets by a key area to provide insight for a whole issue.

**Management Response:**

ThoughtQuest agrees with the Deloitte & Touche recommendation. A user feature to allow segregation and stratification of specific questions to particular subject matter of user interest would be a value-add. Food ProtectionTQ currently has the ability to use a "Keyword" tag that allows the user to identify all core and subcategory questions. As part of the Integrated Business Application (IBA) enhancements effort, FoodProtectionTQ$^{TM}$ question sets are being stratified functionally around keyword tags to target questions and performance criteria in areas of focused concern.

## 6) Question wording and references are tied to non-food industry sources

**Observation:**

Several questions for food manufacturers refer to schools. References for certain questions also refer to school and campus climates.

**Recommendation:**

Similar to the marketing materials, ThoughtQuest should review the question sets to confirm that the links and references tie out to the audience that this tool is intended for. Eliminating references to non-food industry will allow users to focus on the use of the tool rather than interpreting the meaning.

**Management Response:**

ThoughtQuest agrees that the Food DefenseTQ™ question sets must be linked to references that apply to the audience that the tool is intended for. ThoughtQuest is now using the new ANL data input utility to manage the data/ input/ changing/ correcting/editing past and future requirements. Using the new data input utility ThoughtQuest has made the sweep of the current Food Defense and Food Safety question sets to eliminate, as appropriate, the use of school and campus related terminology.

ThoughtQuest agrees, in part, with Deloitte & Touche that question sets for Food DefenseTQ™ must eliminate references to non-food industry users. In some instances, however, ThoughtQuest must use sources that relate to school and campus environments because they are the only credible reference sources available that address issues of mass assembly and the potential for violent acts. As noted above, (see ThoughtQuest response Deloitte & Touche recommendation 1.) a statement informing users that no other credible sources exist will accompany these cited sources.

## 7) Certain links were not functional and lead to server errors

**Observation:**

Multiple reference links and the link to view the facility map caused unintended server errors for the system.

**Recommendation:**

ThoughtQuest should review code for the active links to confirm the link is clickable and sends the user to the desired destination.

**Management Response:**

ThoughtQuest agrees with this Deloitte & Touche recommendation. In some cases, user queries resulted in server errors. In other cases, however, server errors arise because the link itself is not active. In the example cited by Deloitte & Touche, i.e., facility map, the URL was a static screen shot and not a live link. A software utility to conduct an automated test loop of all URL's to identify dead or redirected URL links is part to the Integrated Business Application (IBA) enhancement effort. The test utility will check all sources on a weekly basis and, as a backup, source documents will be saved and available in .pdf file form so the user can always obtain cited source information.

## 8) Confirmatory questions did not match the minimum standard or best practice

**Observation:**

The system is designed to ask users a series of "confirmatory questions" in order to gauge whether the result selected for the best practice is actually occurring at the facility. There were several cases that Deloitte & Touche judged the confirmatory question being asked to be unrelated to the best practice.

**Recommendation:**

ThoughtQuest should review the identified questions in Attachment B to confirm that the questions are written as intended and do provide a positive confirmation of the best practice being utilized in a facility.

**Management Response:**

ThoughtQuest agrees with Deloitte & Touche that review of confirmatory questions to confirm that the questions are written as intended and do provide a positive confirmation of the best practice being utilized in a facility can, in some cases, help to identify potential errors. ThoughtQuest is now using a new ANL data input utility to manage the data/ input/ changing/ correcting/editing past and future requirements.  Confirmatory questions are part of the review process of correction and reformatting using the ANL data input utility. It is noted, however, that confirming questions may be intentionally unrelated to a best practice, and at times may have been asked against another set of minimum requirements or best practices to verify a truthful answer to a previously asked and answered question. This is important to ensure consistent, accurate and truthful responses from the respondent.


**9)** **Links provided for reference may not be fully updatable going forward**

**Observation:**

Links provided in reference to minimum standards and best practices are linked in the system via the U.S. Government GPO website. Through the review period, Deloitte & Touche noted that the government system was being modified and the linked site would become "archive only".

**Recommendation:**

ThoughtQuest should review the GPO website to confirm that the links the TQ tool is utilizing will still be updated and maintained by the government.

**Management Response:**

The Federal Digital Information Systems (FDSys)

http://www.gpo.gov/fdsysinfo/aboutfdsys.htm

ThoughtQuest is aware of this upgraded federal site. Using the new FoodProtectionTQ™ Data Input Utility, ThoughtQuest will update every CFR's link from www.gao.acess.gov to the new link above. We are further enhancing Food Mapper™ search capabilities into other federal government documents as part of the Integrated Business Application enhancement effort to add user value.

**10)** **No direct link to a referenced CFR is available**

**Observation:**

The question sets do a good job of citing a CFR reference when a minimum standard is tied to a specific regulation. However, there is not a direct way for a user to review that CFR from the Food Protection TQ screen. Users would have to switch internal applications and search for the CFR via Food Mapper.

**Recommendation:**

As ThoughtQuest has the CFRs fully mapped via Food Mapper, providing a link to the applicable CFR in question would be a great value add and time saver for an end user.

**Management Response:**

ThoughtQuest agrees with the Deloitte & Touche recommendation that fully mapping CFR's via Food Mapper™ adds value for the end user.  This added capability is addressed under the ThoughtQuest Integrated Business Application enhancement effort.
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**11) <u>Some activities noted as best practices should be updated to reflect current leading industry practices</u>**

**Observation:**

Deloitte & Touche reviewed the associated "best practices" as presented by ThoughtQuest and noted that there are opportunities to enhance certain practices to reflect current leading industry practice.

**Recommendation:**

ThoughtQuest should confirm that the best practice questions noted in Attachment A are reviewed and addressed prior to piloting the program.

**Management Response:**

ThoughtQuest agrees that that there are opportunities to enhance certain practices to reflect current leading industry practice in both Food DefenseTQ$^{TM}$ and Food SafetyTQ$^{TM}$. Question sets and associated minimum compliance and best industry practice are currently designed to be consistent with the generalized regulatory framework, i.e., "one-size-fits-all" approach, used by the government and are thus, in most cases, supported by general guidance. Much of the guidance is not at a food-specific level. We agree with Deloitte & Touche that best practice options ultimately need to be driven by specific food type and supported by detailed industry best practices that have been independently confirmed to be scientifically valid. This more extensive capability described by Deloitte & Touche is a key mid-term objective in our product development plan in partnership with academia and scientific organizations.

**12) <u>Question sets and subsequent data elements were not presented consistently via the Food Protection TQ web interface</u>**

**Observation:**

Throughout the review process, multiple errors around the number schemes, missing links, missing minimum standards, missing best practices and missing confirmatory questions were noted and tracked in the ongoing observation log.

**Recommendation:**

ThoughtQuest should confirm that the data loading process with Argonne National Laboratory is being performed as efficiently as possible. ThoughtQuest should continue to strengthen version control efforts with Argonne National Lab to confirm that the latest information is uploaded into the system for review. ThoughtQuest should also confirm that the presentation issues noted in Appendix B are resolved prior to piloting the program

**Management Response:**

ThoughtQuest agrees with the Deloitte & Touche recommendation. ThoughtQuest is now using a new ANL data input utility to manage the data/ input/ changing/ correcting/editing past and future requirements for POISON$^{TM}$ , Food DefenseTQ$^{TM}$ and Food SafetyTQ$^{TM}$ tools to more efficiently load changes/edits/additions to databases without having to load these changes/edits/additions manually into complex MS Excel spreadsheets.