

# **Biometrics Enterprise Architecture Project Management Plan (BMEA PMP)**

Version 1.0

Prepared by:

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### Revision History

Date	Purpose	Revision Level	Responsible Person
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## 1 Introduction

The purpose of the BMEA Project Management Plan (PMP) is to define the project scope, schedule, budget, deliverables and quality expectations of the project, and to provide the management approaches and methodologies designed to successfully achieve the project objectives in support of fulfilling the requirements of Systems 798.

### 1.1 Background

*Add Background.*

### 1.2 Objectives

The overall objective of the BMEA project, in support of modernizing biometrics operational architecture is to develop an executable architecture and a set of technical and business models highlighting the effectiveness of the architecture.

### 1.3 Project Approach

Team BMEA will leverage our knowledge, experience, and previous successes in employing industry development best practices such as those defined by the Institute of Electrical and Electronics Engineers (IEEE) to engineer the BMEA. IEEE 12207, “Systems and Software Engineering - Software Life Cycle” is a robust, well organized set of guidelines that specifies the processes, activities, and tasks applied during development, operation, maintenance, and disposal of systems, not just software.

Team BMEA’s developed and integrated BMEA architecture will enable (*include more background info*). The Team BMEA solution will reduce risk by capitalizing on lessons learned from the as-is biometrics architecture which is documented as part of the project. Our solution to overcoming "as-is" biometric architecture shortcomings includes these primary components:

- **Component 1**– *add description*
- **Component 2**– *add description.*

Team BMEA will review and assess the as-is architecture, will interview stakeholders and subject matter experts to arrive at a comprehensive requirements set which will be used to conduct design synthesis on the to-be architecture. Once complete the as-is and to-be architecture will be compared to each other to assess relative merit in terms of technical and economic performance. Team BMEA’s BMEA solution’s features and benefits mitigate many of the risks our stakeholders and subject matter experts face with the current BMEA concept of operations

when initializing and using biometric information for identification and forensics purposes. Our BMEA solution eliminates operating, flexibility, performance and economic vulnerabilities associated with current biometrics' systems implementations and capabilities. Team BMEA's stakeholders and subject matter experts will capitalize on Team BMEA's significant experience in enterprise architecture analysis and development.

## 2 Scope Management

### 2.1 Project Scope Statement

Team BMEA will develop BMEA to include capabilities to efficiently introduce and use biometric information to validate individual's ID for identification and forensic activities. The specific subtasks associated with these tasks include:

#### 2.1.1 Thing We Do #1

Team BMEA will develop (*a thing we do #1*)

#### 2.1.2 Thing We Do #2

Team BMEA will develop (*a thing we do #2*)

#### 2.1.3 BMEA Project Deliverables

The cumulative list of deliverables are summarized in Table 2.1.6 and combines both technical product deliverables and recurring project management data/reports required to support the BMEA project in all major functional areas to include: administration, engineering, configuration management, finance, logistics, quality, safety, manufacturing, and procurement.

Deliverable Title	Format		Calendar Dalendar After TO Award (ATO)
<b>TAILOR THESE DELIVERABLES TO OUR PROJECT</b>			
Task Order Management Plan	Contractor-Determined Format		<i>Draft Initial – 15 days Final Initial – 45 days Updated Plan – in conjunction with Quarterly IPRs</i>
Monthly Status Report	Contractor-Determined Format		<i>Monthly, within 10 workdays after preceding month</i>
Quarterly In-Process Reviews	Contractor-Determined Format		<i>Quarterly, within 15 workdays after calendar quarter.</i>
Final Electronics Services Package design document	Contractor-Determined Format		<i>246 days</i>
Final Data Warehouse Services Package design document	Contractor-Determined Format		<i>272 days</i>
Final Electronics Services Package	Contractor-Determined Format		<i>322 days</i>
Final Data Warehouse Services	Contractor-Determined Format		<i>306 days</i>

<b>Deliverable Title</b>	<b>Format</b>		<b>Calendar Calendar After TO Award (ATO)</b>
<b>TAILOR THESE DELIVERABLES TO OUR PROJECT</b>			
Polymer-and-steel, ISO compliant, TEU (twenty foot equivalent unit) shipping container	ISO-compliant		<i>308 days</i>
Test Plan	Contractor-Determined Format		<i>256 days</i>
Test Report	Contractor-Determined Format		<i>281 days</i>
Smart Container Demonstration Plan	Contractor-Determined Format		<i>294 days</i>
Project Final Report	Contractor-Determined Form		<i>334 days</i>

**Table 2.1.6 Team BMEA Project Deliverables**

## **2.2 Work Breakdown Structure (WBS) and Project Estimating**

The Team BMEA WBS is tailored around the components outlined in Project Scope Management above and the deliverables required. The established highest level working units (domains) include:

- Project Management
- Thing #1
- Thing #2

The work is packaged into these categories (domains) and is generally further broken down into more specific “domain topics”; the next level WBS. We further assessed project effort based on engineering estimates to support Design, Development, Implementation and Integration for each domain topic resulting in another level within our WBS. Once the scope of work was established, a duration estimate and an estimate of the needed resources to accomplish the work were established and applied to each WBS element to arrive at the level of effort or Basis of Effort (BOE) resulting in the estimated level of effort (LOE) for the project. Likewise, each WBS element was assigned dependencies relative to other WBS elements to establish a relative order and sequencing for completing WBS elements (tasks, or work units) from project start.

All these elements together form a planning basis for project execution and identify the resources and sequencing required to complete each task.

## **2.3 Product Description and Development**

In the subparagraphs that follow, a summary description of BMEA’s solution is provided for each of the main components that when fully integrated will achieve overall BMEA objectives as defined in Section 1 and framed in the Scope Statement of Paragraph 2.1. As part of our development processes, Team BMEA will meet with the BMEA stakeholders and subject matter

experts periodically, as specified in our WBS throughout our analysis and design activities and present preliminary electronics payload design, and subsequently deliver our final (*list our deliverables*) and documentation to in fulfillment of the requirements for Systems 798.

### **2.3.1 Deliverable Item #1**

*Add discussion*

### **2.3.1 Deliverable Item #2**

*Add discussion*

## **2.4 Scope Control**

The foundation for Team BMEA's plan to control scope for this project is to adhere to the project period of performance, the statement of work (SOW) and management and technical controls to monitor technical and management quality during project execution. Our quality processes addresses scope control by coupling the project's technical standards with our implemented quality processes. Team BMEA realizes scope management by collecting, aggregating and documenting artifacts (both technical and management) using our configuration and change management processes and automated tools that support those processes.

Team BMEA will conduct weekly peer reviews, weekly and bi-weekly management reviews and monthly executive stakeholder reviews to ensure the project is managed appropriately, remains on schedule and that technical artifacts and products meet the quality and technical standards assigned to the project. For this project, technical standards include Institute of Electrical and Electronics Engineers (IEEE) and (*writing and report standards*).

## **2.5 Acceptance Management (Deliverable Acceptance Process)**

Team BMEA will accommodate acceptance management using a combination and aggregate of the Weekly Management Reviews (WMR), In-Progress-Reviews (IPRs), internal Team BMEA project and quality control and assurance audits, developmental and operational test events, simulation events and configuration and change management processes to ensure that Team BMEA provided deliverables are accepted. Such criteria will be documented and communicated using acceptance documents which are tracked along with the configuration item or artifact identified as a deliverable within the project's scope. This documentation will be archived and managed within our configuration management processes to track each deliverable and its communicated acceptance. The exact nature of the acceptance vehicle (i.e. the acceptance form or letter) is to be determined at the time of delivery, but will generally be in the form of a letter describing the deliverable and its current version or state.



### 3 Enterprise Management Control

#### 3.1 Integration Management Control Planning

Internal monitoring and controlling of the project schedule, costs, and deliverables will be tracked and monitored via the Team BMEA Project Control Workbook/Log and reported to Team BMEA's management via weekly project status meetings and IPR meetings to BMEA executives, stakeholders and subject matter experts. In addition to tracking critical project schedule, cost and deliverables status a number of key project monitoring and control (PMC) activities will be tracked and managed on a weekly cycle throughout the period of performance. Table 3.1 delineates the essential PMC activities that will be performed to ensure an efficient integrated management control planning process.

External monitoring and controlling of the project schedule and deliverables, as well issues and related corrective actions will be communicated to relevant stakeholders via the Team BMEA website, through email, phone, in-person, and through the weekly status reports. Team BMEA's active management of the methods and tools contained in the PMC Activities table will facilitate clear lines of communication to provide timely status to stakeholders and subject matter experts and form the basis for the comprehensive documentation of the BMEA project in the WMRs and the IPRs.

PMC Mechanisms	Monitoring/Tracking Method	Responsible	Communication Methods
Project Schedules	Review project tasks, WBS, work assignments, status from team members, and activity due dates and milestones.	PM	Weekly project management meetings. Weekly status reports. IPR meetings.
Budget Summary/Cost Management	Review hours applied on a weekly basis coordinated with BMEA WBS. Review variances in actual versus planned time. Determine if adjustments need to be made in resources and/or duration.	PM	Weekly project management meetings. Weekly status reports. IPR meetings.
Issues	Identified and documented in BMEA website under the "Issues" page.	PM	Weekly project management meetings. Weekly status reports. IPR meetings.
Risks	Identified and documented in BMEA website under the "Risks" page.	PM	Weekly project management meetings. Weekly status reports. IPR meetings.

<b>PMC Mechanisms</b>	<b>Monitoring/Tracking Method</b>	<b>Responsible</b>	<b>Communication Methods</b>
Quality Assurance / Control Audits and Metrics	Quality Assurance / Control audits are coordinated with the Sys 798 Professor.	PM	Various technical, and schedule metrics will be defined and documented in the PMP. QA and QC spot checks will be used to identify weaknesses in process compliance and identify actions to correct weaknesses based on those metrics. Process compliance will be reviewed in the IPR meetings.
Change Requests	Received through email and meetings from the stakeholders and subject matter experts.	PM	PM will document change requests (task assignments) using the process outlined in the PMP.
Project Emails	Relevant project E-mails are stored in the project folder.	PM	Backup material to the Project website.

**Table 3.1 PMC Activities**

### **3.2 Start Work/Kickoff**

At the beginning of the semester stakeholders support a Start Work Meeting with the Team BMEA to ensure that there is a complete understanding of the requirements between the Team BMEA and all invested stakeholders and subject matter experts. Topics covered shall describe the Team BMEA's work plan and schedule, technical approach, organizational resources and management controls to meet the performance, and schedule requirements throughout the period of performance.

### **3.3 Task Order Management**

At the beginning of the semester Team BMEA will publish a detailed draft PMP to the Team BMEA's website. The PMP will address all proposed management controls, and will include sections addressing the WBS, Scope Management Plan, Schedule Management Plan, Cost Management Plan, Quality Management Plan, Staffing Management Plan, Communications Management Plan, Risk Management Plan, Project Final Report, and proposed. Team BMEA will request that stakeholders and subject matter experts review the draft plan and provide any feedback before the end of the POP. Team BMEA will deliver the final PMP that addresses all feedback before the POP expires.

### **3.4 Management Reporting**

QNA will provide a WMR that will include a summary of all work and activities performed during the previous week. We will provide details in the WMR on the progress to date for all tasks, milestones, and any problems encountered, and, if applicable, recommended resolutions

and steps to comply with required delivery dates, with risk identification and mitigation strategies. We will deliver the WMR during identified class periods and will post the WRM to the website.

As required by the class syllabus Team BMEA will conduct an IPR with the Team BMEA faculty stakeholder. We will include a review of work accomplished to date during the task order period of performance, work to be accomplished during the upcoming quarter, a review of the WBS and milestones, a review of pertinent components of the PMP, a summary of funds expended and remaining, and any unresolved issues or problem areas. We will post detailed meeting minutes to the Team BMEA website to include the identification of any actionable items that arose during the meeting.

## **4 Resource Management**

### **4.1 Resources**

To assist in monitoring and controlling overall resource management the Team BMEA members will track hours for the BMEA project against the WBS established using MS Project. A Team BMEA project control analysts maintains a separate and redundant labor tracker report utilizing Microsoft Excel.

### **4.2 Resource Control**

Equipped with multiple and redundant reporting data and formats, Team BMEA will perform a thorough resource use variance analysis verifying actual resource usage against estimates established in the WBS. The objective is to improve resource use accuracy, ensure resources are allocated properly, and if required, implement corrective actions to manage resource use variances. Team BMEA's measurements and analysis will be instrumental in conducting a proactive resource use control process. Resource use management procedures will be an integral portion of Team BMEA's internal weekly and project reviews.

## **5 Quality Management**

Quality Management includes the processes required to ensure the project will satisfy the needs for which it was undertaken and includes: Quality Planning, Quality Assurance, and Quality Control. The overall objective of quality management is to ensure a high level of quality in the products and services delivered. In order to accomplish this, both the work products and services delivered, as well as the processes used to create work products and perform services must be continually evaluated against quality standards and the technical requirements/standards

established.

## 5.1 Quality Planning

Team BMEA is responsible for defining the QA/QC activities to be performed throughout the life of the project. The following major QA/QC activities highlight the overarching quality management program to be employed on the BMEA project:

- **Identify Tasks:** QA/QC tasks consist of performing work product or process evaluations, reporting evaluation results, identifying and tracking corrective actions, collecting and analyzing QC measurement data, and identifying and recommending improvements.
- **Assign Resources:** Team BMEA must allocate resources to perform the QA/QC tasks. To ensure the independence and objectivity of the evaluation, the person allocated to perform the QA/QC evaluation cannot be the same person who is developing the product or performing the process being assessed. To facilitate appropriate independence and objectivity, the conduct and reporting of QA audits and spot checks will be external to the BMEA entity responsible for that product.
- **Identify Work Product Evaluations:** Product types that will be considered fall into three categories: documents, analysis products and developed models –especially the “Final Report” and the “Final Presentation” and all “Appendices to the Final Report”. Where applicable, deliverables will always be subject to formal QC evaluation before delivery to the customer, at both the “Draft” and “Final” delivery points.
- **Identify Process Evaluations:** Team BMEA is responsible for identifying the processes that will be evaluated during the project lifecycle according to project needs.
- **Schedule Activities:** Deliverable products usually have firm delivery dates that will dictate the time frames for scheduling the work product evaluations. Reviews of work products need to be included in the project schedule as activities related to the development of the product. Other QA/QC activities such as reporting and data analysis should be considered as inputs to the project schedule as determined by Team BMEA.

## 5.2 Quality Assurance and Quality Control

Guided by the activities identified during the quality planning stage, Team BMEA will meet weekly to assess technical and project risks as an integral element of a comprehensive QA/QC process applied across the project. Key components of the QA/QC process will be applied to minimize the primary technical risks of the Team BMEA project and include: full documentation

of analysis procedures to include process steps for analysis and implementation; conducting work product evaluations via peer reviews, and establishing methods to track parametric data for trend analysis of work product production efficiencies. The metrics defined in paragraph 5.3, Measurements and Analysis, will facilitate this trend analysis. These key elements and procedures of the QA process will allow the Team BMEA the BMEA stakeholders and subject matter experts to maintain excellent traceability for configuration management; will support solution validation phases of the project and provide BMEA stakeholders with continuous visibility of project risks and quality assurance status.

### 5.3 Measurement and Analysis

The purpose of measurement is to provide information for planning and decision-making. Projects review measures relevant to the general, ongoing activities of the project as well as business-related measures relating to the project. By tracking actual performance against established plans and objectives, resolving issues and documenting and storing project status results throughout the project lifecycle, Team BMEA can make informed decisions regarding current and future project activities. In the execution of the BMEA project, Team BMEA has identified **five** key project measures that will provide insight into the health, on-time delivery record, product quality, and the risk level of the project. They are described below:

- **Estimated Hours versus Actual Hours:** This measure is captured to ensure that the hours are allocated properly throughout the life of the project and the contract funding/project budget is not exceeded within the Period of Performance and that estimates were accurately prepared.
- **Percentage of On-Time Deliverables:** This measure is captured to identify the timeliness of delivery for project deliverables. If situations arise where timeliness is less than satisfactory, assessments would involve determining whether there are controllable contributing factors and/or possible trend analysis will facilitate corrective actions.
- **Open Risks:** This measure provides insights as to the overall risk status of a project. If there are many risks, or if the number of risks keeps growing, a greater investment in risk analysis and contingency planning activities may be required.
- **Work Product Review Deficiencies:** This measure is captured to determine the effectiveness and thoroughness of the formal review of products. The objective of capturing this metric is to determine if work product deficiencies are being identified and removed early in the project lifecycle. Work products should be reviewed at various

points in the life cycle to facilitate the optimization of the review process and to comply with established QA/QC standards.

## **6 Configuration Management (CM)**

Team BMEA will perform Configuration Management (CM) to ensure that factors that create change to achieve the end state are needed, are agreed upon and are managed. Changes to the project can impact a variety of areas including Cost, Scope, Schedule, Quality and Technical aspects of the project; quality CM processes help to such limit impact in these areas. Our CM processes supporting scope management processes ensures quality deliverables and aids in achieving the goals of the BMEA project. Team BMEA CM processes, including using the Team BMEA website to post and manage project work products and deliverables and consistently represent and drive our CM processes and techniques and allow us to rely on the passive output of our CM processes using our tools.

## **7 Human Resources Management**

### **7.1 Roles and Responsibility**

Team BMEA reports to the Team BMEA faculty advisor thereby ensuring a rapid conduit to resolve any performance issues above Team BMEA's decision-authority. This streamlined decision process mitigates potential risks and ensures maximum efficiency, visibility, and agility for the proposed effort. As a result, Team BMEA is able to rapidly and effectively respond to issues that arise during project execution, thus ensuring stakeholder satisfaction.

#### **Team BMEA Leadership:**

- Dr. Speller is the faculty advisor to Team BMEA. In this capacity, he guides Team BMEA in its effort to deliver products for Team BMEA's stakeholders and is conduit to the senior oversight team and stakeholders associated with the university and its SEOR department. He is the reviewing authority at Team BMEA's internal IPRs for the BMEA project.

#### **Team BMEA Project Team:**

- Mr. Michael Luckey is.
- Mr. Nat Hall is.
- Mr. Jeremy Worley is.

## 7.2 Organizational Chart

Figure 1 depicts Team BMEA's Project Team and outlines the functional roles, responsibilities, and the primary technical areas for the team as well as the lines of authority and communication for the stakeholders and subject matter experts with both the project team and the senior executive management of BMEA.

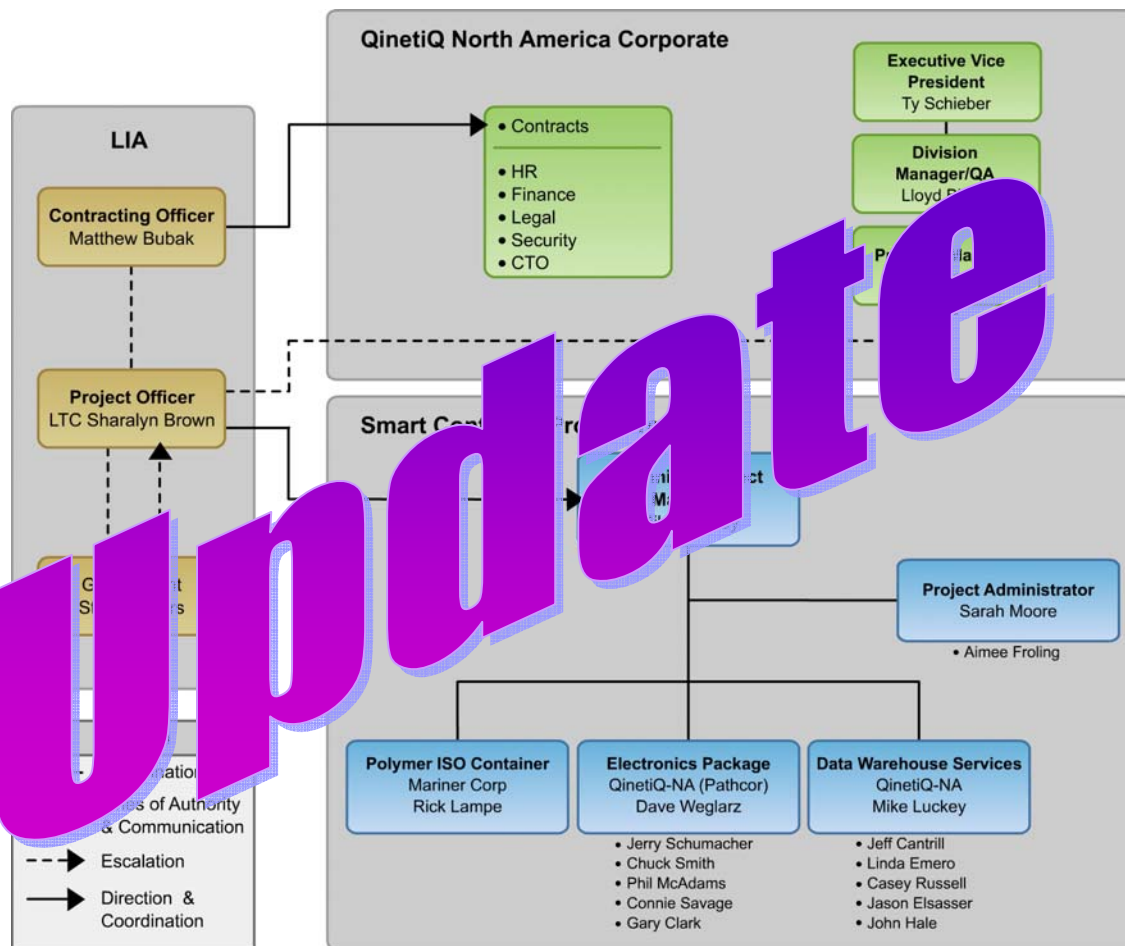


Figure 1: BMEA Organizational Chart

## 8 Communications and Data Management

Communications and data management for the BMEA project will be accomplished using a number of adaptive and collaborative tools in conjunction with an established schedule of meetings, and reporting and contract deliverables.

### 8.1 Internal Communications

Internal to the BMEA project team, the weekly Project Management Meeting will be an essential

forum to exchange vital project information. The Team BMEA website and email will be the primary tools of reference for the weekly meetings and will include essential information regarding project schedule, scope, risks, resources, documentation, issues, actions, and the management of deliverables. This weekly meeting and the project tools used during the conduct of the meeting will ensure timely and appropriate generation, collection, dissemination, storage, and ultimately disposition of project information. Team BMEA will also be developing a collaborative process to implement the use of a team website to facilitate efficient sharing of information among the Team BMEA project team members. Additional communication mechanisms will include internal IPR status reviews with the Team BMEA's executive management team and selected stakeholders. The agenda and format of this meeting will follow an informational flow that will mirror the project status to be reported to Team BMEA executive management in the WMR's and format to be conducted during the IPRs.

## **8.2 External Communications**

Communication with stakeholders and subject matter experts will be primarily achieved through the WMR reporting requirements and the IPR meetings. This will not preclude responsive communications with stakeholders and subject matter experts or other organizations as needed for other project matters that should develop and the full range of telecommunications and GMU facilities are readily available to support these ad hoc requests. Collaborative tools to accommodate geographically displaced parties include GMU telecommunications and computing facilities. Additionally, conference room support is readily available at GMU facilities for local meeting requirements.

## **9 Risk Management**

To enhance the probability of successfully achieving the BMEA project objectives, Team BMEA will proactively manage a comprehensive risk management program. The goals of risk management are to predict the likelihood that a risk will occur, to quantify its potential impact on the project, and to develop plans for risk management. Risk management is the systematic process of identifying, analyzing, and responding to project risks. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of events that are adverse to project objectives.

### **9.1 Risk Planning**

Risk planning consists of the up-front activities necessary to execute a successful risk management program. Planning includes developing the process for risk management for the



project and is documented in the subsequent subparagraphs. Process improvement is an integral aspect of risk management approach. Therefore, the risk management process for the BMEA project will be reviewed for potential updates in conjunction with the IPRs.

## **9.2 Risk Identification**

Risk identification consists of discovering and documenting candidate risks. Accurate and complete risk identification is vital for effective risk management. The identification and examination of risk sources is a highly effective way to identify specific risks and a periodic review of sources is essential to ensure early identification and handling of risk.

It is also important to separate concerns, issues, and problems from risks. Issues and problems should be worked through their respective processes, not in the risk process. The following definitions will be used when identifying risks:

- Risk: An uncertain event which may cause an execution failure to the program. The probability and impact of the risk are measurable.
- Concern: Something that may happen, but insufficient information is known to determine the probability or impact. Concerns are placed on a “watch list”.
- Issue/Problem: Something that is certain to happen (an issue) or has happened (a problem) and will have a negative impact on the program. Issues/Problems are handed off to an established action item process.

## **9.3 Risk Analysis**

Risk analysis is the process of examining each identified risk and includes risk rating and prioritization in which risks are defined in terms of their probability of occurrence, severity of consequence/impact, and relationship to other risks.

## **9.4 Risk Handling**

Risk handling is the process that evaluates, selects and implements options in order to set risk at acceptable levels given program constraints and objectives. All risk handling options will be evaluated before selection and when deciding upon a handling option, the feasibility, cost and schedule implications, and the effect on the system’s technical performance should be considered. Risk handling options for the Smart Container project are described below:

- Accept: An acknowledgement of the existence of a particular risk situation and a conscious decision to accept the associated level of risk, without engaging in any special efforts to control it. The strategy should identify the resources (time, money, people, etc)

needed to overcome a risk if it materializes.

- **Avoid:** Involves a change in the concept, requirements, specifications, and/or practices that reduce risk to an acceptable level. Eliminates the sources of high or possibly medium risk and replaces them with a lower risk solution. May be supported by a cost/benefit analysis.
- **Mitigate:** Monitors and manages the risk in a manner that reduces the probability and/or impact of its occurrence or minimizes the risk's effect on the program. The cost of the mitigation plan compared to the benefit of the mitigation plan should be considered when choosing the mitigation option. Mitigation plans are required for risks rated as high and medium.
- **Research:** More information is needed to understand the risk. Owner is actively seeking to better understand the risk so that it may be accepted, watched or mitigated.
- **Transfer:** Involves the reduction of risk exposure by the reallocation of risk from one part of the system to another or the reallocation of risks between the government and contractor.
- **Watch:** Monitors a risk and its attributes for significant change. Watch list risks may later be mitigated or closed without any further action, depending upon how it changes as time progresses. Watch list risks will be reviewed weekly internally within the BMEA project team meeting, and at a program meeting or review.

## **9.5 Risk Monitoring**

Risk monitoring is the process that systematically tracks and evaluates the performance of risk-handling actions against established metrics. All risks will be monitored and reported at least monthly and are re-evaluated with the BMEA stakeholders and subject matter experts in conjunction with the IPR. Mitigation plan schedule status for high risk items will be monitored weekly at project meetings and reviews. Risks that cannot be mitigated to a low residual rating and high risks that are behind schedule will be elevated to the faculty advisor.

## **10 Issue Management Plan**

Issues differ from risks because an issue already exists; risks are only a potential event. If a risk occurs, it can become an issue, and conversely, a new issue can generate new risks. Team BMEA will use the Team BMEA website for issue management. The website provides an effective format for capturing, reporting, escalating, tracking, prioritizing and assigning

ownership to resolve problems that occur as the project progresses. It allows for tracking of issue identification as well as assigning both critical and target resolution dates that assist in initiating escalation procedures if required. Communication methods to highlight issues include: internal project management meeting, WMRs, and the IPR meetings.