



# Performance Requirement Specification (PRS)

## Halifax Class Combat System In-Service Support

### Appendix 1

17 June 2019

Version 4.0



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# 1 HCCS ISSC Performance Requirements Specification

## 1.1 General

[I] The performance indicators defined in this Appendix, determine the effectiveness of the sustainment and support work delivered by the Contractor.

## 1.2 Performance Management Framework

[I] The HCCS ISSC performance is managed within a three tier framework as shown in Figure 1.

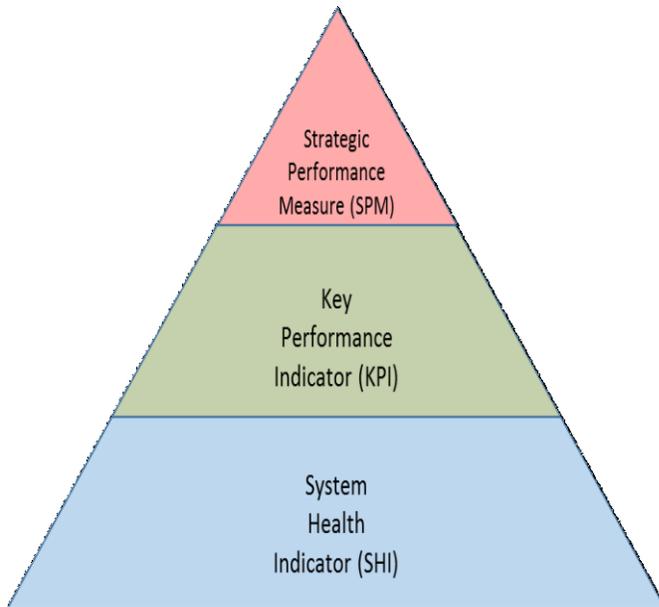


Figure 1 - Performance Indicators Diagram

### 1.2.1 Tier one: Strategic Performance Measure (SPM)

[I] SPMs are annually assessed performance measures designed to focus on long-term behaviours that align to Canada’s strategic goals, and are non-payment related.

### 1.2.2 Tier two: Key Performance Indicator (KPI)

[I] KPIs are quantitative measures of performance that drive possible performance incentive payments. Each KPI includes a desired and a minimum acceptable specified level of performance that the contractor must achieve. KPIs are assigned a weighting factor by Canada and are used to calculate a single Composite Performance Payment (CPP). The CPP is used to determine a performance payment in accordance with the terms and conditions of the contract.

### **1.2.3 Tier three: System Health Indicator (SHI)**

[I] SHIs are indicators that provide some assurance that the SPM and KPI desired levels of performance will be met. SHIs are both qualitative and quantitative.

### **1.2.4 Performance Evaluation Results**

[I] Satisfactory SPM, KPI and SHI ratings will factor into Canada's decision to exercise its contract option years in accordance with the terms and conditions of this contract.

[I] The KPIs will be used to calculate the possible performance incentive payments on an annual basis in accordance with the terms and conditions of the contract.

[I] The KPIs and SHIs must be calculated and reported quarterly concurrent with the PRMs.

### **1.2.5 Performance Indicators**

[I] Figure 2 shows the performance indicators and how they are assigned to the three tiers. The performance indicators are summarized in Table 1.

## HCCS Performance Measures Hierarchy

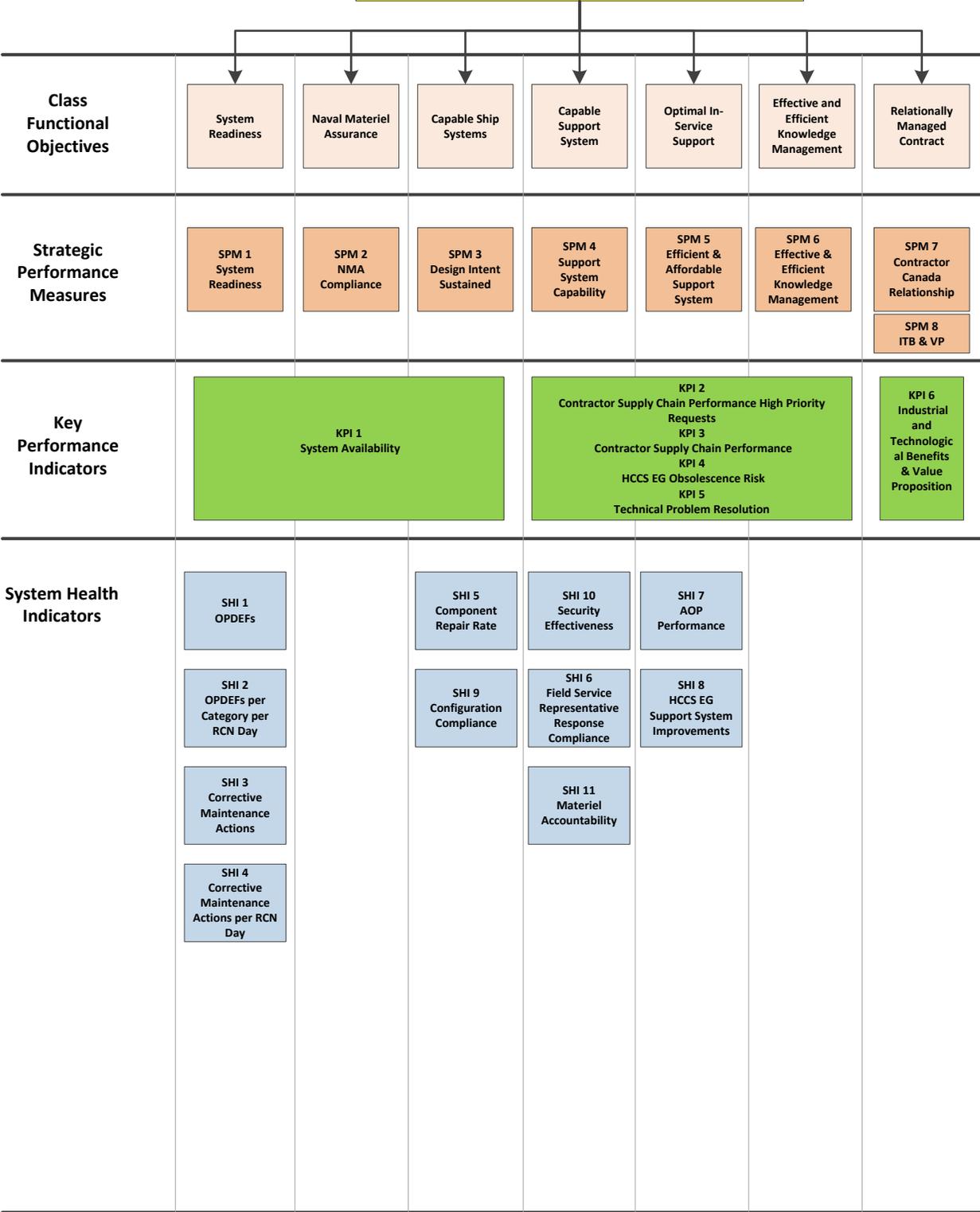


Figure 2 - Performance Indicators by Type

<b>Performance Indicator</b>	<b>Performance Indicator</b>
<b>Strategic Performance Measures – Annual Report</b>	
SPM 1	System Readiness
SPM 2	NMA Compliance
SPM 3	Design Intent Sustained
SPM 4	Support System Capability
SPM 5	Efficient and Affordable Support System
SPM 6	Effective and Efficient Knowledge Management
SPM 7	Contractor-Canada Relationship
SPM 8	Industrial and Technological Benefits (ITB) and Value Proposition (VP)
<b>Key Performance Indicators</b>	
KPI 1	System Availability
KPI 2	Contractor Supply Chain Performance High Priority Requests
KPI 3	Contractor Supply Chain Performance
KPI 4	HCCS EG Obsolescence Risk
KPI 5	Technical Problem Resolution
<b>System Health Indicators</b>	
SHI 1	OPDEFs

SHI 2	OPDEFs per Category per RCN Day
SHI 3	Corrective Maintenance Actions
SHI 4	Corrective Maintenance Actions per RCN Day
SHI 5	Component Repair Rate
SHI 6	Field Service Representative Response Compliance
SHI 7	AOP Performance
SHI 8	HCCS EG Support Improvements
SHI 9	Configuration Compliance
SHI 10	Security Effectiveness
SHI 11	Materiel Accountability

Table 1 - Performance Indicators for HCCS ISS

## 2 Strategic Performance Measure (SPM)

### 2.1 General

[I] SPMs are aligned with the strategic class functional objectives of the Halifax Class. SPMs are designed to focus on strategic outcomes, long-term behaviour, and the alignment of interests and benefits to both Canada and the Contractor.

[I] SPMs are annually assessed and discussed at the Performance Assessment meetings. They are typically used to reflect the long-term behaviours against performance requirements and are qualitative in nature.

[I] SPMs provide Canada with an assessment of the Contractor's commitment and alignment to the long-term strategic goals of the Halifax class. The assessment is supported by the results and trends of the KPIs and SHIs and includes a discussion of initiatives undertaken and planned initiatives. The assessment also includes elements of continuous improvement and innovation that the Contractor determines will lead him to achieve alignment to the strategic goals.

## 2.2 SPM Details

[I] An annual report will be developed that presents the overall past performance of the Contractor in the previous years as well as his planned initiatives with respect to the strategic class functional objectives.

[I] The report should describe the specific strategies and methodologies the Contractor employed to achieve alignment to the strategic class functional objectives and to achieve the results reported by the KPIs and SHIs.

[I] The report should also describe planned innovations and initiatives that the Contractor will implement to improve the alignment to the strategic class functional objectives and to improve the KPI and SHI performance.

[I] The set of SPMs that the report should address and the related strategic class functional objectives are listed in Table 2:

<b>Strategic Class Functional Objective</b>	<b>Strategic Performance Measure</b>
System Readiness	System Readiness
Naval Materiel Assurance	NMA Compliance
Capable Ship Systems	Design Intent Sustained
Capable Support System	Support System Capability
Efficient and Affordable Support System	Efficient and Affordable Support System
Effective and Efficient Knowledge Management	Effective and Efficient Knowledge Management
Relationally Managed Contract	Contractor-Canada Relationships

Table 2: Class Objectives to SPM Mapping

### 2.2.1 SPM 1 – System Readiness

[I] SPM 1 is an assessment of the Contractor’s commitment to achieving HCCS EG System Readiness. The assessment should describe the specific strategic initiatives used to achieve System Readiness. The results of these strategic initiatives are demonstrated through the trends of KPI 1, SHI 1, and SHI 2. Achievements and

shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

### **2.2.2 SPM 2 – NMA Compliance**

[I] SPM 2 is an assessment of the Contractor’s commitment to achieving Naval Material Assurance for the HCCS EG Systems. The assessment should describe the specific strategic initiatives used to achieve NMA. The results are demonstrated through the absence of regulatory violations. For each violation, a description of the cause, effect, non-compliance penalty, and rectification of the violation will be described. The results are also demonstrated through the trends of KPI 1, SHI 1, and SHI 2. Proposed changes to the strategic initiatives to improve future trends in NMA compliance should be described.

### **2.2.3 SPM 3 – Design Intent Sustained**

[I] SPM 3 is an assessment of the Contractor’s commitment to sustaining the HCCS EG Systems’ Design Intent. The assessment should describe the specific strategic initiatives used to maintain Design Intent. The results of these strategic initiatives are demonstrated through the trends of KPI 1, SHI 1, SHI 2, SHI 3, SHI 4 and SHI 5. Achievements and shortcomings in these measures should be described. The assessment should describe situations where HCCS EG capability was lost or degraded through unreliable components and describe activities to provide reliability improvement. Proposed changes to the strategic initiatives to improve future trends in Design Intent sustainment should be described.

### **2.2.4 SPM 4 – Support System Capability**

[I] SPM 4 is an assessment of the Contractor’s commitment to achieving a capable support system for the HCCS EG. The assessment should describe the specific strategic initiatives used to support the HCCS EG including the supply chain. The results of these strategic initiatives are demonstrated through the trends of KPI 2, KPI 3, KPI 4, KPI 5, SHI 3, SHI 4, SHI 5, SHI 6, SHI 8, SHI 9, SHI 10, and SHI 11. Achievements and shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

### **2.2.5 SPM 5 – Efficient and Affordable Support System**

[I] SPM 5 is an assessment of the Contractor’s commitment to delivering an efficient and affordable support system for the HCCS EG. The assessment should describe the specific strategic initiatives used to efficiently and affordably support the HCCS EG. The results of these strategic initiatives are demonstrated through the trends of KPI 2, KPI 3, KPI 4, SHI 6, SHI 7, SHI 8, and SHI 11. Achievements and shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

### **2.2.6 SPM 6 – Effective and Efficient Knowledge Management**

[I] SPM 6 is an assessment of the Contractor’s commitment to implement strategic initiatives derived from an effective and efficient knowledge management system to improve the HCCS EG support system. The assessment should describe the specific strategic initiatives developed from the knowledge management system, the implementation of the strategic initiatives and the results of these strategic initiatives. The results of these strategic initiatives are also demonstrated through the trends of KPI 5, SHI 8 and an assessment of the knowledge gained and shared through delivering ISS for the HCCS EG. An example of an effective and efficient knowledge management system is analyzing the data collected from providing ISS services to develop new knowledge to find efficiencies and develop new support capabilities. Achievements and shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

### **2.2.7 SPM 7 – Contractor-Canada Relationship**

[I] SPM 7 is an assessment of the Contractor’s commitment to delivering the HCCS EG ISS services in a collaborative environment with Canada. The assessment should describe the specific strategic initiatives used to support the HCCS EG within a relationally managed framework. The results of these strategic initiatives are demonstrated through the trends of KPI 5 and an assessment of the working environment and relationship that facilitates successful outcomes based on a positive relationship. For example, positive relationship behaviours are demonstrated through commitments to consistently resolve issues at the lowest level, consistently resolve disputes reasonably and equitably, having a healthy relationship with all stakeholders, and being proactive in mitigating risks and resolving issues. Achievements and shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

### **2.2.8 SPM 8 – Industrial and Technological Benefits (ITB) and Value Proposition (VP)**

[I] SPM 8 is an assessment of the Contractor’s commitment to delivering its ITB and VP requirements to Canada. The assessment should describe the specific strategic initiatives implemented to deliver the ITBs. Achievements and shortcomings in these measures should be described as well as any proposed changes to the strategic initiatives to improve future trends.

## **3 Key Performance Indicators (KPI)**

### **3.1 General**

[I] Key Performance Indicators are used to calculate possible performance incentive payments in accordance with the terms and conditions of the contract. The KPIs will also be one consideration used by Canada to exercise contract option years.

[I] KPIs measure performance with respect to the following outcomes:

1. System Availability using Operational Deficiency Reports;
2. Contractor Supply Chain Performance using the Contractor's demand satisfaction rate with respect to parts and consumables;
3. The Contractor's management of obsolescence risk;
4. The Contractor's effectiveness in resolving technical problems.

### **3.2 Performance Level Calculations**

[I] The Measured Performance (MP) for each KPI is calculated on a calendar year basis. A Performance Score (PS) is calculated using the MP for each KPI. This score is based on the Minimum and Desired levels of performance as specified for each KPI.

[I] The calculated PS values for all KPIs are combined to calculate the Composite Performance Payment (CPP). The CPP is used to determine the performance incentive payment that the contractor may receive for that calendar year.

### **3.3 KPI 1 – System Availability**

#### **3.3.1 General**

[I] The availability of the HCCS EG systems for operations is critical to RCN. Anytime a HCCS EG system fails or degrades, a Materiel Operational Deficiency (OPDEF) will be raised by RCN. The OPDEFs have a category (one, two or three) assigned to them when raised which indicates the criticality of the deficiency reported.

[I] The availability is determined by computing the number of HCCS EG OPDEF Days. OPDEF Days will be calculated using the date time groups in the OPDEF reports.

[I] The MP for this KPI will measure the quantity and duration of the OPDEFs raised, categorized by severity, over the measurement period. The quantity and duration of the OPDEFs will result in a number of OPDEF Days adjusted in accordance with the business rules for KPI 1. The OPDEF Days will be

normalized to the number of available ship days in that year. A separate MP will be calculated for each of the six HCCS EG systems.

### 3.3.2 Requirement

[I] The Minimum level in a calendar year for each HCCS EG system is the average of all previous year's **Weighted OPDEF Day Rate**. The Desired is the average of all previous year's **Weighted OPDEF Day Rate** adjusted for a 10% improvement.

### 3.3.3 Calculation Method

[I] The Total Weighted OPDEF Days for each HCCS EG system across the fleet for each calendar year period is calculated using Table 3, where:

- a. Weighted OPDEF Days will be computed, using the category of the OPDEF as follows:
  - i. CAT 1 – results in 1 OPDEF Day charged for each day, or part thereof, that the OPDEF is in this category;
  - ii. CAT 2 – results in 0.5 OPDEF Day charged for each day, or part thereof, that the OPDEF is in this category; and
  - iii. CAT 3 – results in 0.25 OPDEF Day charged for each day, or part thereof, that the OPDEF is in this category.
- b. Table 3 column A (OPDEF Days) is the total number of days, or parts thereof, that the system had an OPDEF of the applicable category as determined across the fleet for the 12-month measurement period. This value is to be determined by the Contractor from the OPDEF data provided by DND and entered into Table 3 column A for the quarterly reporting of the previous 12 months.
- c. Table 3 column C (Weighted OPDEF Days) is the product of columns A and B to determine the Weighted OPDEF Days per OPDEF category.
- d. The last row in column C is the MP for each HCCS EG system, calculated as the sum of the Weighted OPDEF Days.
- e.  $i$  corresponds to the  $i^{\text{th}}$  system (for Systems 1 to 6).

**System  $i$  - OPDEF Days**

	<b>A</b>	<b>B</b>	<b>C</b>
<b>OPDEF Category</b>	<b># Days System in OPDEF Category (OPDEF Days)</b>	<b>Category Weighting</b>	<b>Weighted OPDEF Days per Category (A x B)</b>

CAT 1		1	
CAT 2		0.5	
CAT 3		0.25	
Total Weighted OPDEF Days <sub>i</sub> (Sum of column C)			

Table 3 – Total Weighted OPDEF Days Calculation

### 3.3.4 Business Rules and Conditions

[I] The following rules apply for calculating the HCCS system MP<sub>i</sub>:

[I] OPDEF Day counting is initiated from the date time group indicated in the initial OPDEF message and continue during the time that the HCCS EG system remains in any category of OPDEF, and until rectified by notification of a Materiel OPDEF Rectification message.

[I] Should multiple OPDEFs apply to the same HCCS EG system on a particular day, only one day is counted based on the severest category of OPDEF in effect. Counting continues in this manner until the last OPDEF is rectified;

[I] Should an OPDEF change category, then the category weighting to be applied for the day the transition takes place is to be that of the new category;

[I] OPDEF Days will not be counted during scheduled work periods, such as designated maintenance periods or docking work periods to conduct the work and selected test and trials.

[I] Should an outstanding OPDEF not be rectified during the scheduled work period, the OPDEF Day counting shall resume on the first day after the work period; and

[I] Any OPDEF whose rectification has been deferred by DND shall not count during the deferred period.

### 3.3.5 Ship Days Available

[I] The Ship Days Available will be used to normalize the OPDEF Days in a calendar year. This normalization will normalize the effects of varying number of available ship days in a year.

[I] The total number of days that all the ships in the calendar year were available for operations is calculated as the Ship Days Available. The Ship Days Available is calculated taking into consideration the Business Rules.

### 3.3.6 Calculation of the Weighted OPDEF Day Rate

[I] The Total Weighted OPDEF Days for each system is normalized by the Ship Days Available in that calendar year.

[I] The Weighted OPDEF Day Rate is calculated by dividing the Total Weighted OPDEF Days by the Ship Days Available.

### 3.3.7 Target Levels per HCCS EG System

Target	MPI Level
A - Desired	Average of previous year's Weighted OPDEF Day Rate plus a 10% improvement
B - Minimum	Average of previous year's Weighted OPDEF Day Rate

Table 4 - KPI-1 Target Levels

### 3.3.8 Calculations of Performance Score (PS)

[I] A  $PS_{Sys\ i}$  is calculated separately for each of the HCCS EG systems. The PS parameters for each system  $MP_i$  and are shown in Table 5. In Table 5, the MP is the Weighted OPDEF Day Rate for an HCCS EG system.

Calculated MPI	Resultant $PS_{Sys\ i}$
$MP_i \leq \text{Desired}$	$PS_{Sys\ i} = 100\%$
$\text{Desired} < MP_i < \text{Minimum}$	$PS_{Sys\ i} = ((\text{Minimum} - MP_i) / (\text{Minimum} - \text{Desired})) \times 100\%$
$MP_i \geq \text{Minimum}$	$PS_{Sys\ i} = 0\%$

Table 5 – KPI 1 Adjusted Performance Score Bands

[I] Once all  $PS_{Sys\ i}$  have been determined an aggregate PS for KPI-1 ( $PS_{KPI-1}$ ) is calculated as the average of the individual system  $PS_{Sys\ i}$  by summing each system's  $PS_{Sys\ i}$  and dividing by the number of HCCS EG systems, which can be written as:

$$[I] PS_{KPI-1} = (\sum PS_{Sys\ i}) / 6$$

## **3.4 KPI 2 – Contractor Supply Chain Performance High Priority Requests**

### **3.4.1 General**

[I] Contractor Supply Chain Performance measures the Contractor's performance in satisfying high priority supply chain demands for items, both consumables and repairable items. The measure used is the Demand Satisfaction Rate (DSR), which is the proportion of Contractor high priority supply chain demands delivered satisfactorily.

### **3.4.2 Requirement**

[I] The Minimum level for DSR in a calendar year is 90%. The Desired level for DSR in a calendar year is 98%.

### **3.4.3 Calculation Method**

[I] The MP for KPI 2 is calculated using the following equation:

$$MP_{KPI2} = DSR = \text{Qty of Items Delivered Satisfactorily} / \text{Qty of Items Demanded}$$

[I] Quantity of Items Demanded is the sum of all high priority HCCS EG material items demanded over the specified measurement period.

[I] An item is counted as having been Delivered Satisfactorily if all of the following are met:

- a. Correct Part Number and NSN was delivered
- b. Correct quantity of parts were delivered
- c. All parts were delivered to the proper Handover point
- d. All parts were delivered within the allotted time as specified in the demand request

### **3.4.4 Business Rules and Conditions**

[I] The following rules shall apply for calculating  $MP_{KPI2}$ :

[I] All items need to be delivered to designated Handover Points. The Handover Points are normally the Base Logistics Supply Warehouses located in Halifax and Esquimalt. However under certain conditions items may need to be delivered to ships in foreign ports in which case an alternate Handover Point will be specified.

[I] Upon delivery to the Handover Point, DND will record receipt of the item in DRMIS and its delivery date. DND will also verify the item is correct, delivered in good condition as packaged and the correct quantity. Any deficiencies in these areas will be actioned in accordance with DND supply chain administration

policies, notified to the Contractor and need to be rectified on or before the original demand’s required delivery date to be counted as an Item Delivered Satisfactorily.

[I] Demands whose required delivery date is beyond the reporting period will be included in the reporting period in which the required delivery date falls.

[I] DRMIS will be used as the data source for the items demanded and those delivered satisfactorily.

### 3.4.5 Target Values

Target	Value
A - Desired	98%
B – Minimum	90%

Table 6 – KPI 2 Target Levels

### 3.4.6 Calculations of Performance Score (PS)

[I] A  $PS_{KPI-2}$  shall be calculated as shown in Table 7.

Calculated MP	Resultant PS
$MP \geq 98\%$	$PS = 100\%$
$90\% < MP < 98\%$	$PS = ((MP - 90) / (98 - 90)) \times 100\%$
$MP \leq 90\%$	$PS = 0\%$

Table 7 – KPI 2 Performance Score

## 3.5 KPI 3 – Contractor Supply Chain Performance

### 3.5.1 General

[I] Contractor Supply Chain Performance measures the Contractor’s performance in satisfying supply chain demands for items, both consumables and repairable items. The measure used is the Demand Satisfaction Rate (DSR), which is the proportion of Contractor supply chain demands delivered satisfactorily. Note that High Priority requests are not included in this calculation as they are covered in KPI 2.

### 3.5.2 Requirement

[I] The Minimum level for DSR in a calendar year is 90%. The Desired level for DSR in a calendar year is 98%.

### 3.5.3 Calculation Method

[I] Note that High Priority requests are not included in this calculation as they are covered in KPI 2.

[I] The MP for KPI 3 is calculated using the following equation:

$$MP_{KPI3} = DSR = \text{Qty of Items Delivered Satisfactorily} / \text{Qty of Items Demanded}$$

[I] Quantity of Items Demanded is the sum of all HCCS EG material items demanded over the specified measurement period.

[I] An item is counted as having been Delivered Satisfactorily if all of the following are met:

- a. Correct Part Number / NSN was delivered
- b. Correct quantity of parts were delivered
- c. All parts were delivered to the proper Handover point
- d. All parts were delivered within the allotted time as specified in the demand request

### 3.5.4 Business Rules and Conditions

[I] The following rules shall apply for calculating  $MP_{KPI3}$ :

[I] All items need to be delivered to designated Handover Points. The Handover Points are normally the Base Logistics Supply Warehouses located in Halifax and Esquimalt. However under certain conditions items may need to be delivered to ships in foreign ports in which case an alternate Handover Point will be specified.

[I] Upon delivery to the Handover Point, DND will record receipt of the item in DRMIS and its delivery date. DND will also verify the item is correct, delivered in good condition as packaged and the correct quantity. Any deficiencies in these areas will be actioned in accordance with DND supply chain administration policies, notified to the Contractor and need to be rectified on or before the original demand's required delivery date to be counted as an Item Delivered Satisfactorily.

[I] Demands whose required delivery date is beyond the reporting period will be included in the reporting period in which the required delivery date falls.

[I] DRMIS will be used as the data source for the items demanded and those delivered satisfactorily.

### 3.5.5 Target Values

Target	Value
A - Desired	98%
B – Minimum	> 90%

Table 8 – KPI 3 Target Levels

### 3.5.6 Calculations of Performance Score (PS)

[I] A  $PS_{KPI-3}$  shall be calculated as shown in Table 9.

Calculated MP	Resultant PS
$MP \geq 98\%$	$PS = 100\%$
$90\% < MP < 98\%$	$PS = ((MP - 90) / (98 - 90)) \times 100\%$
$MP \leq 90\%$	$PS = 0\%$

Table 9 – KPI 3 Performance Score

## 3.6 KPI 4 – HCCS EG Obsolescence Risk

### 3.6.1 General

[I] Obsolescence is the loss or impending loss of the HCCS EG original manufacturer’s parts being available in the future. Obsolescence includes discontinuance of the original manufacturer’s parts. Obsolescence impacts the HCCS EG hardware, software and supporting systems such as special tools and test equipment.

[I] As the HCCS EG system obsolescence risk rises, the likelihood of an impact on the availability of the HCCS EG increases.

[I] Therefore it is important to understand the risk level of each HCCS EG system becoming obsolete.

### 3.6.2 Requirement

[I] Unlike the other KPIs, MP is not used in this KPI calculation. Instead the incentive is based on the combined risk assessment of the obsolescence state of each HCCS EG system.

[I] The Desired level is that each HCCS EG system has a low obsolescence risk assessment at the end of the calendar year. The Minimum level is that no HCCS EG system has a high obsolescence risk assessment and that at least one HCCS EG system has a low obsolescence risk assessment at the end of the calendar year.

**3.6.3 Calculation Method**

[I] The obsolescence risk assessment at the end of the calendar year for each of the HCCS EG systems is the measurement for that system.

**3.6.4 Business Rules and Conditions**

[I] There are no business rules or conditions in this KPI.

**3.6.5 Target Levels**

Measurement Point	Value
A - Desired	All HCCS EG system obsolescence risk assessments are low
B - Minimum	No HCCS EG system obsolescence risk assessments are high  AND  at least one HCCS EG system obsolescence risk assessment is low

Table 10 – KPI 4 Performance Score Values

**3.6.6 Calculation of Performance Score (PS)**

[I] A  $PS_{KPI-4}$  shall be calculated as shown in Table 11.

HCCS EG Risk Assessments	Performance Score Value ( $PS_{KPI-4}$ )
All low	100%
1 medium + 5 lows	$5/6 \times 100\%$
2 mediums + 4 lows	$4/6 \times 100\%$
3 mediums + 3 lows	$3/6 \times 100\%$

4 mediums + 2 lows	2/6 x 100%
5 mediums + 1 low	1/6 x 100%
6 mediums	0%
Any high	0%

Table 11 – KPI 4 Performance Score

### 3.7 KPI 5 – Technical Problem Resolution

#### 3.7.1 General

[I] Technical Problem Resolution is a measure of the Contractor’s performance in implementing solutions to technical problems. It is measured by the proportion of technical problems resolved by the Contractor, as specified in the Technical Problem Management System (TPMS), throughout the calendar year.

#### 3.7.2 Requirement

[I] The Desired level in a calendar year is 98% and the Minimum level in a calendar year is 90%.

#### 3.7.3 Calculation Method

[I] The MP for KPI 5 is calculated using the following equation:

[I]  $MP_{KPI5} = \text{Qty of Technical Problems Resolved within the calendar year} / (\text{Qty of Technical Problems raised in the calendar year} + \text{Qty of Unresolved Technical Problems remaining from prior years})$

#### 3.7.4 Business Rules and Conditions

[I] There are no business rules or conditions in this KPI.

#### 3.7.5 Target Values

Measurement Point	Value
A - Desired	98%
B - Minimum	90%

Table 12 – KPI 5 Performance Score Values

### 3.7.6 Calculations of Performance Score (PS)

[I] An  $PS_{KPI-5}$  shall be calculated as shown in Table 13.

Calculated MP	Resultant PS
$MP \geq 98\%$	$PS = 100\%$
$90\% < MP < 98\%$	$PS = ((MP - 90) / (98 - 90)) \times 100\%$
$MP \leq 90\%$	$PS = 0\%$

Table 13 – KPI 5 Performance Score

## 3.8 KPI 6 – Industrial and Technological Benefits (ITB) and Value Proposition (VP)

### 3.8.1 General

[I] This Indicator measures the Contractor's ability to submit a fully described and completed ITB Annual Report on time and deemed acceptable by the ITB Authority as described in section 4 of the ITB Terms and Conditions.

### 3.8.2 Requirement

[I] This incentive is based on the timely receipt and acceptance by the ITB Authority of a fully described and completed ITB Annual Report as described in section 4 of the ITB Terms and Conditions.

### 3.8.3 Calculation Method

[I] On an annual basis, the report shall be submitted sixty (60) days after the end of the annual Reporting Period. The Contractor is required to submit an ITB annual report describing ITB claims, new transactions, and updates to ITB plans and associated ITB program progress.

### 3.8.4 Business Rules and Conditions

[I] The Contractor must submit a fully described and completed ITB Annual Report on time and deemed acceptable by the ITB Authority as described in section 4 of the ITB Terms and Conditions.

### 3.8.5 Target Values

[I] The Contractor will receive the maximum Performance Score Value (100%) if the Contractor submits the fully described and completed ITB Annual Report on time at the end of the annual Reporting Period as described in section 4 of the ITB

Terms and Conditions and deemed acceptable by the ITB authority. If the Contractor does not submit the fully described and completed ITB Annual report on time at the end of the annual Reporting Period as described in section 4 of the ITB Terms and Conditions then the Performance Score Value is zero (0%).

### 3.9 Composite Performance Payment (CPP)

#### 3.9.1 CPP Calculation

[I] The CPP is calculated as the weighted average of the KPI PS's by summing the product of each KPI's PS and its proportional weight factor, and dividing by the sum of the weights, which can be written as:

$$CPP = \frac{W_1 \times PS_{KPI1}}{100} + \frac{W_2 \times PS_{KPI2}}{100} + \frac{W_3 \times PS_{KPI3}}{100} + \frac{W_4 \times PS_{KPI4}}{100} + \frac{W_5 \times PS_{KPI5}}{100} + \frac{W_6 \times PS_{KPI6}}{100}$$

[I] Where:

[I]  $PS_{KPIi}$  = PS corresponding to the  $i^{th}$  KPI measure expressed as a percentage, where  $i$  corresponds to the KPI (1 to 6) number.  $PS_{KPIi}$  will be calculated to one decimal point; and

$W_i$  = Weight factor for the  $i^{th}$  KPI expressed as a percentage, as shown in Table 15. The total weight of all measures is 100%.

[I] The CPP will be calculated to one decimal point.

KPI	Description	Weight Factor (W <sub>i</sub> ) %
KPI 1	System Availability	40
KPI 2	Contractor Supply Chain Performance High Priority	10
KPI 3	Contractor Supply Chain Performance	10
KPI 4	Obsolescence Risk	15
KPI 5	Technical Problem Resolution	15
KPI 6	ITB and VP	10

	<b>W<sub>i</sub> Totals</b>	100%
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Table 15 - Weight Factors for KPIs

### 3.9.2 Weight Factors Re-adjustment

[I] The weight factors presented in Table 15 can be re-adjusted by Canada to improve the effectiveness of the performance measures and enhance the services or the affordability of the ISSC.

## 4 System Health Indicators (SHI)

### 4.1 General

[I] SHIs are indicators of the overall effectiveness of the Contractor performance in providing and conducting ISS. SHIs provide lead indicators to ISS issues that, if not corrected, could result in degradation of the higher level outcomes. SHIs constitute the suite of metrics that will be monitored for negative trends and cautionary indications. The intent is to provide Canada and the Contractor with a set of metrics that could be highlighted and reviewed as the basis for management forums to drive analysis and corrective actions. SHIs will be one consideration used by Canada to exercise contract option years.

[I] SHIs are to be calculated and reported on a quarterly basis, to include a measurement period of the previous 12 months.

### 4.2 SHI 1 – OPDEFs

#### 4.2.1 Description

[I] This SHI is assessed by measuring the number of new OPDEFs raised for each HCCS EG system.

[I] The list of new OPDEFs provides granularity of the incidents and downtime and is required to compile the KPI 1 System Availability measure.

#### 4.2.2 Target

[I] Five (5) or fewer new OPDEFs raised per quarter per HCCS EG system.

#### 4.2.3 Calculation Method

[I] Count the number of new OPDEFs raised per HCCS EG system in the reporting period.

#### **4.2.4 Data Source**

[I] Halifax Class OPDEFs regarding HCCS EG systems.

### **4.3 SHI 2 – OPDEFs per Category per RCN Day**

#### **4.3.1 Description**

[I] This SHI is assessed by calculating the normalized rate of new OPDEFs raised for each HCCS EG system.

[I] The number of ship RCN Days in the measurement period will be used to calculate the normalized rate of new OPDEFs raised by Category. A separate calculation is to be determined for each of the six HCCS EG systems.

#### **4.3.2 Target**

[I] No explicit target but general trends will be observed over time.

#### **4.3.3 Calculation Method**

[I] As specific system operating hours are not available, ship RCN Days will be used as a measure of system usage. Taken over an annual period, this should provide a fairly consistent average usage measure between reporting periods.

[I] The calculation is a rolling 12-month average for each HCCS EG system, reported quarterly, using the following equations:

Cat 1 OPDEFs per RCN Day = Qty New Cat 1 OPDEFs raised / Total RCN Days across the fleet in the measurement period

Cat 2 OPDEFs per RCN Day = Qty New Cat 2 OPDEFs raised / Total RCN Days across the fleet in the measurement period

Cat 3 OPDEFs per RCN Day = Qty New Cat 3 OPDEFs raised / Total RCN Days across the fleet in the measurement period

[I] 240 Days for the shore system (fleet school) should be added to the RCN Days calculated from the Major Surface Combatant Class Program Plan (Halifax-class) and the Fleet Maintenance Facility Annual Operating Plan for the Total RCN Days.

[I] Conduct an annual trend analysis, starting at the date of contract award, of the OPDEFs per RCN Day for each OPDEF Category for each HCCS EG system.

#### **4.3.4 Data Source**

[I] SHI 1 OPDEFs.

[I] The Major Surface Combatant Class Program Plan (Halifax-class) and the Fleet Maintenance Facility Annual Operating Plan to determine each ship's RCN Days.

## **4.4 SHI 3 – Corrective Maintenance Actions**

### **4.4.1 Description**

[I] This SHI is assessed by measuring the number of Corrective Maintenance Actions (first, second and third level) within a reporting period.

[I] The number of Corrective Maintenance Actions associated with each HCCS EG system and per component of each of the HCCS EG systems will be counted.

### **4.4.2 Target**

[I] Five (5) or fewer Corrective Maintenance Actions per quarter per HCCS EG system.

[I] It is expected that the number of Corrective Maintenance Actions per component will decrease over time as the Contractor's processes improve.

[I] It is expected that the HCCS EG components will meet their OEM's reliability specification.

### **4.4.3 Calculation Method**

[I] Count the number of Corrective Maintenance Actions per HCCS EG system on a quarterly basis.

[I] Identify the HCCS EG components with Corrective Maintenance Actions in the quarter and list the number of Corrective Maintenance Actions for each of these components.

[I] Identify the HCCS EG components that fail more frequently than their OEM's reliability specification.

### **4.4.4 Data Source**

[I] DRMIS corrective maintenance work order data.

## **4.5 SHI 4 – Corrective Maintenance Actions per RCN Day**

### **4.5.1 Description**

[I] This SHI is assessed by calculating the normalized rate of corrective maintenance actions for the HCCS EG systems. It provides a rate of HCCS system breakdowns and is an estimator of system/equipment/assembly failure rate.

[I] The number of ship RCN Days in the measurement period will be used to calculate the normalized rate of corrective maintenance actions. A separate calculation is to be determined for each of the six HCCS EG systems.

#### **4.5.2 Target**

[I] No explicit target but general trends will be observed over time with an expectation that each HCCS EG system will meet its OEM specified reliability.

#### **4.5.3 Calculation Method**

[I] As specific system operating hours are not available, ship RCN Days will be used as a measure of system usage. Taken over an annual period, this should provide a fairly consistent average usage measure between reporting periods.

[I] The calculation is a rolling 12-month average for each HCCS EG system, reported quarterly, using the following equation:

$$\text{CMAs per RCN Day} = \text{Qty CMAs} / \text{Total RCN Days across the fleet in the measurement period}$$

[I] 240 Days for the shore system (fleet school) should be added to the RCN Days calculated from the Major Surface Combatant Class Program Plan (Halifax-class) and the Fleet Maintenance Facility Annual Operating Plan for the Total RCN Days.

[I] Conduct an annual trend analysis, starting at the date of contract award, of the CMAs per RCN Day for each HCCS EG system.

#### **4.5.4 Data Source**

[I] SHI 3 - Corrective Maintenance Actions.

[I] The Major Surface Combatant Class Program Plan (Halifax-class) and the Fleet Maintenance Facility Annual Operating Plan to determine each ship's RCN Days.

### **4.6 SHI 5 – Component Repair Rate**

#### **4.6.1 Description**

[I] This SHI is assessed by measuring the number of HCCS EG components being returned to the Contractor for repair within a reporting period. It provides a rate of HCCS component failures and returned components where no failures were found.

[I] In addition, by measuring component failures by the component's serial number, systemic problems with specific components or an issue with a specific serial numbered component will be identified.

#### **4.6.2 Target**

[I] It is expected that the HCCS EG components will meet their OEM's reliability specification.

[I] No explicit target but general trends will be observed over time with an expectation that the rate of returned components where no failures were found will decrease over time.

#### **4.6.3 Calculation Method**

[I] Count the total number of HCCS EG components being returned for repair on an annual basis.

[I] Count the total number of returned HCCS EG components that needed to be repaired and the number of returned components where no failures were found.

[I] Identify the HCCS EG components that fail more frequently than their OEM's reliability specification.

[I] Count the total number of HCCS EG returns per serial numbered component over the life of the serial numbered component.

[I] Identify specific serial numbered HCCS EG components that fail more frequently than their OEM's reliability specification.

[I] Conduct an annual trend analysis, starting at the date of contract award, of returned HCCS EG components that needed to be repaired.

[I] Conduct an annual trend analysis, starting at the date of contract award, of returned HCCS EG components where no failures were found.

#### **4.6.4 Data Source**

[I] Contractor's records of components being returned for repair.

### **4.7 SHI 6 – Field Service Representative Response Compliance**

#### **4.7.1 Description**

[I] This SHI is assessed by calculating the compliance of Field Service Representative (FSR) Call-Outs to the required response time throughout the reporting period.

#### **4.7.2 Target**

[I] FSR Response Time Compliance = 98%.

#### **4.7.3 Calculation Method**

[I] The calculation is a rolling 12-month average, reported quarterly, using the following equation:

$$\text{FSR Response Time Compliance} = \frac{\text{Qty FSR Call-Outs Within Contracted Response Time}}{\text{Qty FSR Call-Outs}}$$

[I] Quantity Call-Outs is the sum of all FSR calls submitted to the Contractor in accordance with the contract, over the specified reporting period. If the FSR arrives on location within the required response time, then it is counted as an FSR Call-Out Within Contracted Response Time.

#### **4.7.4 Data Source**

[I] The Contractor records associated with FSR deployment.

### **4.8 SHI 7 – AOP Performance**

#### **4.8.1 Description**

[I] This SHI is assessed by measuring how the work completed is tracking to the Annual Operating Plan (AOP) using Earned Value calculations to determine if the ISS program is meeting its cost, schedule and scope targets.

[I] Monitoring this SHI monthly over the Fiscal Year (FY) will ensure issues are being dealt with in a timely manner to achieve an effective and affordable solution.

[I] It is critical to identify discrepancies between actuals costs, budgeted costs, and earned value as soon as possible such that steps can be taken to remedy the problem.

#### **4.8.2 Target**

[I] Earned value within 5% of the planned budget.

[I] Actual costs within 5% of the planned budget.

[I] Actual schedule within 5% of the planned schedule.

#### **4.8.3 Calculation Method**

[I] Calculate Cost Performance Index and Schedule Performance Index using Earned Value Management (EVM) techniques to determine the cost and schedule performance of the AOP on a monthly basis.

#### **4.8.4 Data Source**

AOP schedule and cost tracking data.

### **4.9 SHI 8 – HCCS EG Support Improvements**

#### **4.9.1 Description**

[I] This SHI is assessed by measuring the value of the proposed and implemented initiatives from the Contractor's continuous improvement and value engineering programs.

[I] This SHI will be measured on an annual basis.

#### **4.9.2 Target**

[I] No explicit target but general trends will be observed over time with an expectation that there will be continual savings proposed and implemented for the support of the HCCS EG.

#### **4.9.3 Calculation Method**

[I] Sum the quantified benefits proposed and implemented from the Contractor's continuous improvement and value engineering programs.

[I] Conduct an annual trend analysis, starting at the date of contract award, of the sum of quantified benefits.

#### **4.9.4 Data Source**

[I] The Contractor's estimated benefits of proposed improvements and the realized benefits of implemented improvements.

### **4.10 SHI 9 – Configuration Compliance**

#### **4.10.1 Description**

[I] This SHI is assessed by measuring the trend of the number of non-compliant configuration issues within a reporting period for each HCCS EG system.

[I] A non-compliant configuration issue exists when the installed configuration does not match the recorded configuration.

[I] This SHI will be measured on an annual basis.

#### **4.10.2 Target**

[I] It is expected that the number of non-compliant configuration issues will decrease over time as the Contractor's processes improve.

[I] It is expected that each HCCS EG system's configuration is accurately recorded.

#### **4.10.3 Calculation Method**

[I] List the non-compliant configuration issues in the reporting period identifying the quantity and description of the non-compliant configuration issues.

[I] Conduct an annual trend analysis, starting at the date of contract award, of non-compliant configuration issues.

#### **4.10.4 Data Source**

[I] Configuration non-compliance issues reported by Canada and identified through configuration audits.

### **4.11 SHI 10 – Security Effectiveness**

#### **4.11.1 Description**

[I] This SHI is an assessment of the effectiveness of the Contractor's implemented security control measures and processes. All WBS items of the Work will have some security risks. Continuous assessments of the security control measures and processes should be conducted to identify security risks. For example, a security risk assessment may be required when changes to processes are made, new suppliers are found, and unexpected events occur.

[I] The comprehensiveness of the security risk assessments and the measures of the number of security incidents will be the basis of this SHI.

#### **4.11.2 Target**

[I] Zero security incidents.

[I] Continuous security assessments to cover 95% of all WBS items of the Work.

[I] New or updated security control measures identified in the security assessments are implemented.

#### **4.11.3 Calculation Method**

[I] The number of security incidents is to be counted for the reporting period.

[I] The number of security risk assessments conducted in each WBS item is to be counted for the reporting period. The coverage is calculated as a percentage of the number of WBS items with a security risk assessment divided by the total number of WBS items.

[I] The number of new or updated security control measures (identified from the assessments) is to be counted for the reporting period. The coverage is calculated as a percentage of the number of new or updated security control measures that have been implemented divided by the total number of new or updated security control measures identified.

#### **4.11.4 Data Source**

[I] Security risk assessments and security control measures implementations.

## 4.12 SHI 11 – Materiel Accountability

### 4.12.1 Description

[I] This SHI is assessed by measuring the quantity and value of items held by the Contractor that is unaccounted for.

[I] This SHI will give Canada confidence in the Contractor’s ability to warehouse, control and account for all items related to the contract.

[I] This SHI will be measured on an annual basis.

### 4.12.2 Target

[I] 99% of all items held or in transit are accounted for and 99% of the value of all items held or in transit is accounted for.

### 4.12.3 Calculation Method

[I] On an annual basis, review the Contractor Held Inventory report which identifies the quantity of items that have are unaccounted for.

[I] Count the number of items that are unaccounted for and calculate the % of items that are unaccounted for against the total number of items held and in transit.

[I] Calculate the value of the items that are unaccounted for and calculate the % of the value of the items that are unaccounted for against the total value of items held and in transit.

### 4.12.4 Data Source

[I] Contractor Held Inventory report.

## 5 Acronym List

CAT	Categorization of OPDEFs – CAT 1,CAT 2, CAT 3
CPP	Composite Performance Payment
DND	Department of National Defence
DRMIS	Defence Resource Management Information System
DSR	Demand Satisfaction Rate
EC	Engineering Change
FSR	Field Service Representative

HCCS	Halifax Class Combat Systems
ISS	In-Service Support
ISSC	In-Service Support Contract
KPI	Key Performance Indicator
MP	Measurement Point
NMRA	Naval Material Readiness Assurance
OPDEF	Operational Defect
PRM	Progress Review Meeting
PWS	Performance Work Statement
RCN	Royal Canadian Navy
SHI	System Health Indicator
SPM	Strategic Performance Measure
TPMS	Technical Problem Management System