

Mission Risk Diagnostic (MRD) Workbook

CERT Program
Limited distribution.



This report was prepared for the

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Introduction

This workbook provides a set of worksheets for conducting the Mission Risk Diagnostic (MRD). The worksheets incorporate the standard set of drivers for software development and deployment. The workbook is divided into three parts. Part 1 provides a worksheet for identifying the program's mission and objectives. Part 2 provides a worksheet for analyzing the current state of each driver. Finally, Part 3 provides a worksheet for summarizing the results of Part 2 in a graphical driver profile format.

Part 1: Identifying Mission and Objectives

Directions:

1. Review the questions in the table below related to the program's mission and objectives:

Category	Question
Mission	What system (e.g., project, program, process) is the target or focus of the assessment?
	What is the fundamental purpose of the system that is being assessed?
Objectives	Select a future point in time.
	What defines success at that future point in time?
	<ul style="list-style-type: none">• How will you determine whether the outcome is successful?
	<ul style="list-style-type: none">• What are the stakeholder and customer requirements?
	<ul style="list-style-type: none">• What products are being developed? What services are being provided?
	<ul style="list-style-type: none">• What level of funding is needed to achieve the outcome?
	Be as specific and measureable as possible.

2. Answer the questions in the table and use your answers to develop a mission and objectives for the program. Document the program's mission and objectives on the worksheet that is provided.

Refer to the *Part 1 Example* on the next page for an example set of a program's mission and objectives.

Mission and Objective(s)
<p>Mission:</p> <p>The EveryPay Program is developing and deploying a system (i.e., EveryPay) that will provide payroll services at all sites across the Company Z enterprise.</p>
<p>Objective(s):</p> <p>In two months:</p> <ul style="list-style-type: none"> – EveryPay will interface with all required applications, components, and infrastructure. – EveryPay will provide all required payroll services to personnel at Site A. – Development and deployment costs for EveryPay will not exceed 20% of the original project cost estimates.

Mission and Objective(s)
Mission:
Objective(s):

Part 2: Analyzing Driver State

Directions:

1. Review the following three items: (1) the objectives that you documented in Part 1, (2) the worksheet provided for Part 2 (starting on p. 9), and (3) the *Driver Value Criteria* provided below. Refer to the *Part 2 Example* on the next page for an example of an evaluated driver.
2. Select a driver to analyze, and review the corresponding driver question. Select the most appropriate response to the driver question (keeping in mind the program objectives that you documented in Part 1). Refer to the *Driver Value Criteria* for a definition of each response, if needed.
3. Document the rationale for your response to the driver question.
4. Complete steps 2 and 3 for all drivers.

Response	Definition
Yes	The answer is almost certainly “yes.” Almost no uncertainty exists. There is little or no probability that the answer could be “no.”
Likely yes	The answer is most likely “yes.” There is some chance that the answer could be “no.”
Equally Likely	The answer is just as likely to be “yes” or “no.”
Likely no	The answer is most likely “no.” There is some chance that the answer could be “yes.”
No	The answer is almost certainly “no.” Almost no uncertainty exists. There is little or no probability that the answer could be “yes.”
Not applicable	The driver question is not relevant at this point in time. It was not evaluated.

1. Program Objectives

Driver Question	Response	Rationale
<p>Are program objectives (product, cost, schedule) realistic and achievable?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Alignment of technical, cost, and schedule objectives ▪ Inherent technical risk ▪ Technology maturity ▪ Resources available 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input checked="" type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	<p>+ The program team has a good sense of its requirements and responsibilities.</p> <p>- Technical objectives do not sufficiently consider integration and functionality issues.</p> <p>- The current set of objectives for the initial deployment phase is not documented or well-communicated to program team.</p> <p>- Plans for the initial deployment phase are driven by the schedule and not by the need to deliver an effective operational capability.</p>

1. Program Objectives

Driver Question	Response	Rationale
Are program objectives (product, cost, schedule) realistic and achievable?	<input type="checkbox"/> Yes	
	<input type="checkbox"/> Likely Yes	
<i>Consider:</i>	<input type="checkbox"/> Equally Likely	
▪ Alignment of technical, cost, and schedule objectives	<input type="checkbox"/> Likely No	
▪ Inherent technical risk	<input type="checkbox"/> No	
▪ Technology maturity	<input type="checkbox"/> Not Applicable	
▪ Resources available		

2. Plan

Driver Question	Response	Rationale
<p>Is the plan for developing and deploying the system sufficient?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Acquisition or development strategy ▪ Program plan ▪ Resources ▪ Funding ▪ Schedule ▪ Roles and responsibilities 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

3. Process

Driver Question	Response	Rationale
<p>Is the process being used to develop and deploy the system sufficient?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Process design ▪ Measurements and controls ▪ Process efficiency and effectiveness ▪ Acquisition and development life cycles ▪ Training 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

4. Task Execution

Driver Question	Response	Rationale
<p>Are tasks and activities performed effectively and efficiently?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Experience and expertise of management and staff ▪ Staffing levels ▪ Experience with the acquisition and development life cycles 	<input type="checkbox"/> Yes <input type="checkbox"/> Likely Yes <input type="checkbox"/> Equally Likely <input type="checkbox"/> Likely No <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	

5. Coordination

Driver Question	Response	Rationale
<p>Are activities within each team and across teams coordinated appropriately?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Communication ▪ Information sharing ▪ Dependencies ▪ Relationships ▪ Partners and collaborators 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

6. External Interfaces

Driver Question	Response	Rationale
<p>Will work products from suppliers, partners, or collaborators meet the program's quality and timeliness requirements?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Applications ▪ Software ▪ Systems or sub-systems ▪ Hardware 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

7. Information Management

Driver Question	Response	Rationale
<p>Is the program's information managed appropriately?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Usability ▪ Confidentiality ▪ Integrity ▪ Availability 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

8. Technology

Driver Question	Response	Rationale
<p>Does the program team have the tools and technologies it needs to develop the system and transition it to operations?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Software applications ▪ Infrastructure ▪ Systems ▪ Databases 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

9. Facilities and Equipment

Driver Question	Response	Rationale
<p>Are facilities and equipment sufficient to support the program?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Building ▪ Physical work spaces ▪ Support equipment ▪ Supplies ▪ Other resources 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

10. Organizational Conditions

Driver Question	Response	Rationale
<p>Are enterprise, organizational, and political conditions facilitating completion of program activities?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> Stakeholder sponsorship Actions of upper management Effect of laws, regulations, and policies 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

11. Compliance

Driver Question	Response	Rationale
<p>Does the program comply with all relevant policies, laws, and regulations?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Policies ▪ Laws ▪ Regulations ▪ Standards of care 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

12. Event Management

Driver Question	Response	Rationale
<p>Does the program have sufficient capacity and capability to identify and manage potential events and changing circumstances?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Risk management plan, process, and tools ▪ Schedule slack ▪ Funding reserve ▪ Risk control/mitigation plans ▪ Program continuity and contingency plans ▪ Opportunity management plan, process, and tools 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

13. Requirements

Driver Question	Response	Rationale
<p>Are system requirements well understood?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Customer, user, and stakeholder requirements and needs ▪ Functional and non-functional requirements ▪ Operational requirements ▪ System growth and expansion needs ▪ Technology maturity 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

14. Architecture and Design

Driver Question	Response	Rationale
<p>Are the architecture and design sufficient to meet system requirements and provide the desired operational capability?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Interfaces ▪ Dependencies ▪ Software and system architecture ▪ Operational requirements ▪ Technology maturity 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

15. System Capability

Driver Question	Response	Rationale
Will the system satisfactorily meet its requirements?	<input type="checkbox"/> Yes	
<i>Consider:</i>	<input type="checkbox"/> Likely Yes	
▪ Functional	<input type="checkbox"/> Equally Likely	
▪ Performance	<input type="checkbox"/> Likely No	
▪ Operational	<input type="checkbox"/> No	
▪ Reliability	<input type="checkbox"/> Not Applicable	
▪ Security		
▪ Safety		
▪ Usability		
▪ Maintainability		
▪ Technology maturity		

16. System Integration

Driver Question	Response	Rationale
<p>Will the system sufficiently integrate and interoperate with other systems when deployed?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Interfaces ▪ Applications ▪ Tools ▪ Hardware ▪ Data ▪ Technology maturity 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

17. Operational Support

Driver Question	Response	Rationale
<p>Will the system effectively support operations?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Business and operational workflows ▪ Support of organizational and enterprise missions ▪ Operational risk control/mitigation ▪ Disaster recovery, contingency and business continuity plans ▪ Technology maturity 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

18. Adoption Barriers

Driver Question	Response	Rationale
<p>Have barriers to customer/user adoption of the system been managed appropriately?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ User acceptance ▪ Stakeholder sponsorship ▪ Transition to operations ▪ User support 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

19. Operational Preparedness

Driver Question	Response	Rationale
<p>Will people be prepared to operate, use, and maintain the system?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> ▪ Policies ▪ Procedures ▪ Training 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

20. Certification and Accreditation

Driver Question	Response	Rationale
<p>Will the system be appropriately certified and accredited for operational use?</p> <p><i>Consider:</i></p> <ul style="list-style-type: none"> Compliance with policies, laws, and regulations Acceptable control/mitigation of risk 	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> Likely Yes</p> <p><input type="checkbox"/> Equally Likely</p> <p><input type="checkbox"/> Likely No</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not Applicable</p>	

Part 3: Documenting the Driver Profile

Directions:

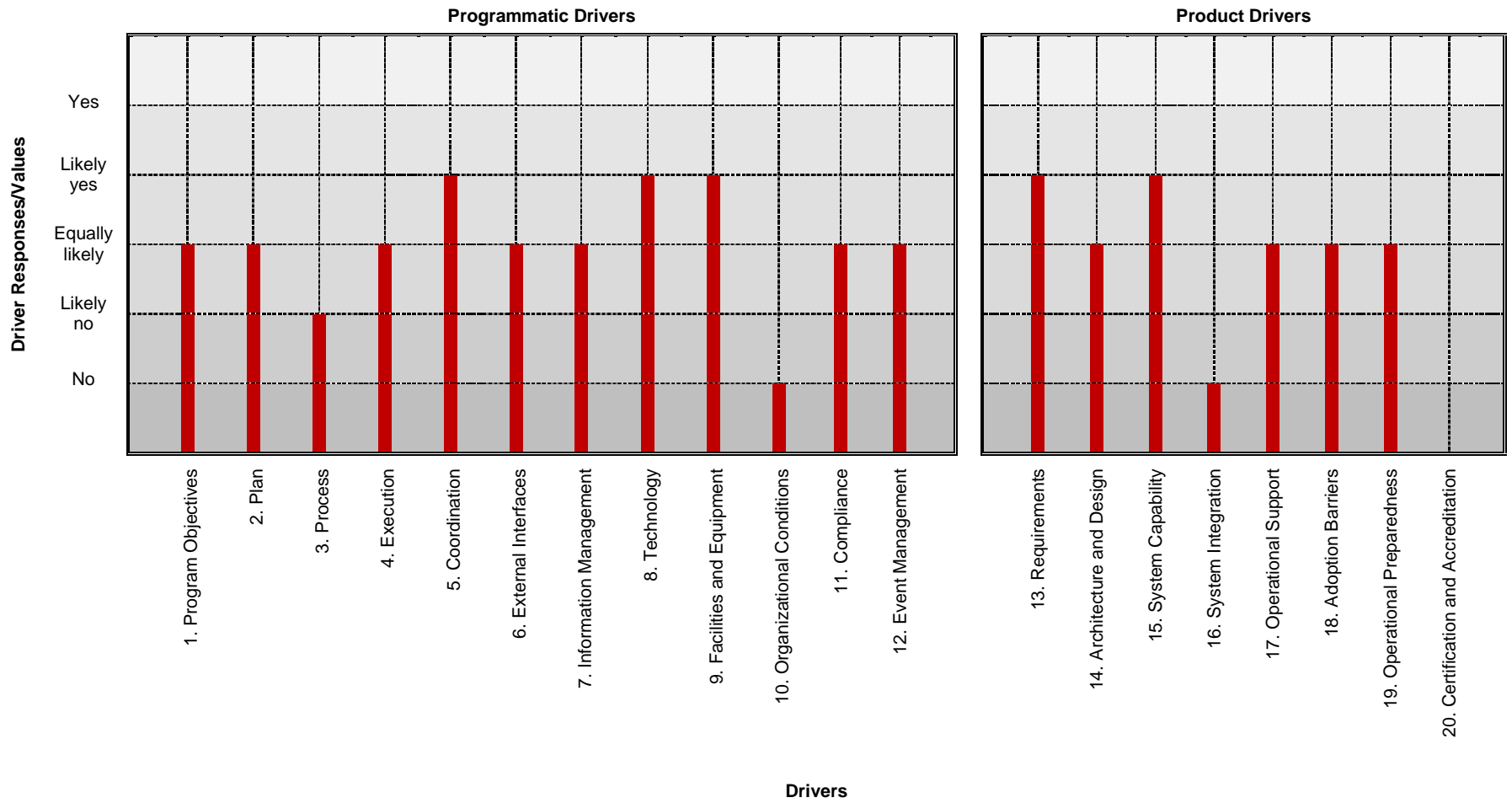
1. The *Driver Profile* featured in Part 3 provides a graphical snapshot of a program's current conditions, where the value of each driver is plotted on a bar chart.

Refer to *Part 3 Example* on the next page for an example of a completed driver profile.

2. A blank driver profile is provided on page 31. Complete the profile's bar chart using results from Part 2 of this workbook.

If your response to any driver question in Part 2 was *Not Applicable*, you should leave the bar for that driver blank. (Driver 20 in the example illustrates the case where a bar has been left blank because the response to the driver question was either *Not Applicable*.)

Driver Profile



Driver Profile

		Programmatic Drivers												Product Drivers							
Driver Responses/Values	Yes																				
	Likely yes																				
	Equally likely																				
	Likely no																				
	No																				
		1. Program Objectives	2. Plan	3. Process	4. Execution	5. Coordination	6. External Interfaces	7. Information Management	8. Technology	9. Facilities and Equipment	10. Organizational Conditions	11. Compliance	12. Event Management	13. Requirements	14. Architecture and Design	15. System Capability	16. System Integration	17. Operational Support	18. Adoption Barriers	19. Operational Preparedness	20. Certification and Accreditation
		Drivers																			