









## **PLM Interest Group**

# **PLM Maturity Manual**

A comprehensive manual that explains the intricacies of PLM Maturity and how to assess it, in a way that presents clear and useable findings.

This is a hands-on instruction manual for evaluating PLM Maturity and using it to generate accurate roadmaps.

Version 3.0E

#### **Foreword**

The concept of PLM Maturity has been around for more than a decade, and has formed into a general idea that if you choose 5 Levels of maturity progression, and write down how you perform against them, you will find a 'Maturity Score' for your company.

In fact this does not work. The subject of 'Maturity' in general breaks down into much more detail than this; and when it is applied to PLM it becomes even more complex. You must decide whether to measure absolute or relative maturity; choose levels that match the way that PLM develops; and break down each score into subdivisions that apply to the way that PLM is enacted.

The only way to treat the subject is thoroughly, and that is what this Manual sets out to do.

Accurate measurement of PLM Maturity is important for three reasons:-

- Many companies have been working on PLM for more than a decade, with no clear indication of progress. The ability to quantify PLM Maturity will enable them to demonstrate their progress in graphical and numerical terms, and hence will show how much more of the journey is still to be travelled.
- 2. The industry as a whole has no central idea of what "completed PLM" entails, apart from the fact that it will be digitally connected. The concept of **Full PLM Maturity** (as defined in this Manual) provides this vision in a way that is straightforward and easy to understand.
- 3. The most effective method for long-term roadmapping is to understand the strengths and weaknesses of the current maturity situation and to plan towards Full Maturity.

The first step towards understanding PLM Maturity is to evaluate your own, as it is now, and the *PLM Maturity Manual* enables you to do this.

© PLMIG 2021 Page 4 of 75

### 0 Executive Summary

This *PLM Maturity Manual* enables PLM practitioners to understand and measure the maturity of any PLM implementation.

PLM does not lend itself to Maturity assessment by generic methods. Conventional, widely-used scales of maturity level from 1-5 do not apply properly to PLM; and conventional metrics fail to provide adequate granularity in terms of the analysis. For a PLM environment, most methodologies are insufficiently precise about the scope and perimeter of interest, and fail even to define the type of maturity that is being measured.

This *Manual* contains a comprehensive Maturity assessment methodology that is designed specifically for PLM, together with wider explanations of the subject material and how to use it for analysis and roadmapping.

The Manual begins by explaining the main issues of PLM Maturity to establish the context; and describes two alternative scales, or metric criteria, against which Maturity can be scored.

The original *PLM Maturity Manual* set out two possible methods of carrying out the assessment:- Activity-Based, or Structure-Based. This Version focuses on the Activity-Based method, which leads seamlessly into roadmapping and planning; and provides more detailed text to guide the user through the process. The Structure-Based method, (plus some other frameworks that have been proposed in the past) are covered in appendices for those who would like to use them.

Every organisation will apply the Maturity Assessment in its own context, recording its own scores, and generating its own Roadmap and follow-on projects from the results.

It is important to understand and adhere to this, because:-

- (a) there are no general external standards of PLM Maturity that you could compare yourself to; and,
- (b) the main benefit of understanding your PLM Maturity is to be able to put in place a set of follow-on improvement actions, and these will be specific to your own implementation.

This *PLM Maturity Manual* contains a self-contained set of instructions that any PLM Team can apply to define their current situation and create Roadmaps for future project approval.

© PLMIG 2021 Page 5 of 75

## **Table of Contents**

Fore	word		4	
0	Exec	utive Summary	5	
Abo	ut Th	is Toolkit	10	
1	1.1 1.2 1.3 1.4 1.5 1.6	Background	. 11 . 12 . 12 . 13	
2	Definitions			
	2.1 2.2 2.3 2.4	Product Lifecycle Management (PLM)  2.1.1 Descriptive Definition  2.1.2 Functional Definition.  Perimeter of Interest  PLM Permeation.  PLM Traction.	. 14 . 14 . 15 . 15	
3	How	to Use this Manual	.16	
Part	1: N	laturity Fundamentals	18	
4	What	t is PLM Maturity?	. 19	
	4.1 4.2 4.3	Overview  Maturity, not Capability  Possible Maturity Parameters  4.3.1 Full PLM  4.3.2 Evolving Scale  4.3.3 Industry Factors  4.3.4 Organisation Factors  4.3.5 Product Development Position  4.3.6 Lifecycle Position  Full PLM Maturity - Definition	. 19 . 20 . 20 . 20 . 20 . 20 . 21	
5	PLM Maturity Levels			
	5.1 5.2 5.3	Overview	. 23 . 24 . 24 . 25 . 26	
6	Maturity Permeation			
	6.1 6.2	Maturity DevelopmentLights Out / Lights On		

Part	2: N	Maturity Methodology	30		
7	Maturity Assessment Methodologies				
	7.1	Overview	31		
	7.2	Activity-Based Method			
	7.3	Structure-Based Method			
	7.4	Choosing the Method	32		
8	Matu	Maturity Methodology: Activity-Based			
	8.1	Overview	33		
	8.2	Basic Principles			
	8.3	Aim	34		
	8.4	Iteration			
	8.5	What You Need to Know			
	8.6	Positioning			
	8.7	Setting the Parameters			
		8.7.1 Choosing the Perimeter of Interest			
		8.7.1.1 CAE Example			
		8.7.1.2 Supply Chain Example			
	0.0	8.7.2 Choosing the Metric Axes			
	8.8	8.8.1 Position			
		8.8.2 Focal Points			
		8.8.3 Perimeter of Interest			
		8.8.4 Maturity Levels			
		8.8.5 Axes			
		8.8.6 Assessment			
		8.8.7 Scoring			
	8.9	Review / Action			
		8.9.1 Documentation	41		
		8.9.2 Presentation			
		8.9.3 Next Steps	41		
Part	3: P	Presentation of Results	42		
9		Presentation of Results			
	9.1	Core Documentation			
	9.2	Maturity Assessment Report			
		9.2.1 Document Structure			
		9.2.2 Level of Detail			
		9.2.3 Presentation of Results			
Dani	. 4				
		Roadmapping	48		
10		Roadmapping Methodology			
	10.1				
		Roadmapping Overview			
	10.3				
		Common Questions			
		Principle			
		PLM Roadmap Document			
	10.7	maintaining the Roadinap			

Cla	Class A PLM			
11	Integration with Class A PLM	57		
Арр	pendix 1: Structure-Based Maturity Methodology	58		
12	Maturity Model: Structure-Based	59		
	12.1 Overview	59		
	12.2 Structure-Based Matrix	60		
	12.2.1 Basic Matrix	60		
	12.2.2 Extending the Matrix [1]			
	12.2.3 Extending the Matrix [2]			
	12.2.4 Displaying the Initial Results			
	12.2.5 Spreadsheet Structure			
	12.2.6 Analysing the Detailed Results			
	12.2.7 Analysis by Function			
	12.2.8 Analysis by PLM Element			
	12.3 Compiling the Maturity Score			
	12.4 Detailing the Maturity Score			
	12.5 CAE Example	68		
App	pendix 2: Other Roadmapping Techniques	70		
13	Three Alternative Options	71		
	13.1 Option 1	71		
	13.2 Option 2			
	13.3 Option 3	73		
Ter	rms and Conditions	74		
14	Terms and Conditions			
	14.1 PLM Maturity Manual Ownership and Use			

Page 8 of 75