

PLMIG

PLM Interest Group

PLMuERP Handbook

Version 3.0

12 February 2013

0 Executive Summary

This [PLMuERP Handbook](#) was created by members of the PLM Interest Group (PLMIG) based on a series of Workshops that were held from September to November 2012 in Europe and the United States.

The whole area of PLM-ERP at that time was clouded by misconceptions and lack of clarity. The aims of the Workshop series were to resolve the subject, and to formalise the best practices into a methodology that can be used universally.

This Handbook embodies the comprehensive and authoritative methodology generated by the Workshop series. It combines the collective PLM and ERP experience of the Workshop participants with the core theory of the PLMIG, and can be applied by any commercial organisation to structure and manage its PLM-ERP implementation.

PLM and ERP evolved separately, with their own skill sets, best practices, and computer applications. Because of their different emphases, it has been difficult to reconcile them, even though a successful PLM-ERP implementation is necessary for many commercial enterprises. In some companies, PLM and ERP compete with each other for resources and project justification.

The effort required to “integrate PLM and ERP” hides the fact that they are merely different elements of the same goal: an over-arching product management solution that reaches through the whole enterprise. This new target solution is referred to as PLMuERP - the ‘Union’ of the two environments, and is an essential viewpoint for an effective overall implementation.

Even where companies are running successful PLM-ERP implementations, these tend to be heavily customised, and typically require intensive support and management. There is a need to capture and formalise the common knowledge and methods that have been learned.

The purpose of this Handbook is to provide a neutral working guide to PLMuERP so that it can be easily implemented by any organisation that has a need to do so. It should not matter whether you start from PLM, or from ERP: if you apply the Handbook, you should reach the correct outcome. In some companies this outcome may be a straightforward development of the existing situation: in others, it may require a major transformation of ideas and methods. The Handbook includes a methodology for the PLMuERP Team to plan towards the desired outcome in a series of simple steps.

Table of Contents

0	Executive Summary	3
Part 1: About This Handbook		8
1	Background.....	9
2	Introduction.....	10
	2.1 Aims of the Handbook	10
	2.2 Handbook Source.....	10
	2.3 Mandatory References	11
	2.3.1 PLMuERP Primer	11
	2.3.2 Product Structure Standard	11
	2.3.3 Data Management Manual.....	11
	2.4 Useful References.....	11
	2.4.1 PLM Governance Standard	11
	2.4.2 PLM Concept Set	12
	2.4.3 Other PLMIG Material.....	12
	2.5 How to use this Handbook.....	13
Part 2: Definitions		14
3	'Types' of PLM and ERP	15
	3.1 'Pure PLM'	15
	3.2 'True PLM' and 'True ERP'	15
	3.3 'Nominal PLM' and 'Nominal ERP'	15
	3.4 Differentiation.....	16
	3.5 Analysis and Use.....	16
4	'PLMuERP' vs 'PLM-ERP'	17
	4.1 PLM-ERP	17
	4.2 PLMuERP	17
5	General Definitions.....	18
	5.1 Product Lifecycle Management (PLM)	18
	5.2 Enterprise Resource Planning (ERP).....	18
	5.3 PLM-PDM	19
	5.4 Product	19
	5.5 Engineering Bill of Materials (EBOM).....	19
	5.6 Manufacturing Bill of Materials (MBOM).....	19
	5.7 ECR / ECO.....	20
	5.8 Manufacturing Process Management (MPM)	20
	5.9 Manufacturing Execution Systems (MES).....	20
	5.10 Maintenance Repair & Overhaul (MRO).....	20
	5.11 CAx.....	20
	5.12 DASAMASA	21
	5.13 Other Definitions.....	21
Part 3: Overview of PLMuERP		22
6	Overview.....	23
7	Scope	25
8	The New PLMuERP Paradigm	25
9	Vision.....	26

Part 4: PLMuERP Fundamentals	27
10 Fundamentals	28
10.1 Understanding and Acceptance	28
10.2 Governance and Management	28
10.3 Written Definition	28
10.4 Accuracy and Cleanliness	28
10.5 Discipline.....	28
10.6 Permeation.....	28
11 Principles	29
11.1 PLMuERP Management.....	29
11.2 It's a Transformation.....	29
11.3 Working with Project Management.....	29
11.4 Emulate 'One Source of the Truth'	29
11.5 Use the Best System for the Job.....	29
11.6 Data States	30
11.7 Process Importance.....	30
Part 5: PLMuERP Management Techniques	31
12 PLMuERP Governance	32
12.1 Default Situation.....	32
12.2 Governance Structure	33
13 Data Governance.....	34
13.1 Active Governance	34
13.2 Example Issues.....	34
13.2.1 Practical Data Structure.....	34
13.2.2 Clear Rules	34
13.2.3 Basic Data Quality.....	34
13.3 Managing Metadata.....	35
13.4 Problem-Free is Not Sufficient	35
14 Process Management	37
14.1 Overview.....	37
14.2 The PLMuERP Process Set.....	37
14.3 Method.....	38
14.3.1 Identification.....	38
14.3.2 The Integration Point	38
14.3.3 Documentation	38
14.3.4 Ranking.....	38
14.4 The PLMuERP Process Map	39
14.4.1 Primary Processes	39
14.4.2 Secondary Processes.....	39
14.4.3 Constructing the Process Map	39
15 'The Bridge'.....	40
15.1 Concept	40
15.2 Classical View.....	41
15.3 PLMuERP View.....	42
16 The Equipment Diagram.....	43
17 Landscape Design	44

Part 6: PLMuERP Technical Areas	45
18 Technical Subject Areas.....	46
19 Item Master / Master Data	47
19.1 Item Master	47
19.2 Master Data	47
19.3 Master Data Management	47
19.4 Rules and Principles.....	47
20 Part Number Allocation.....	48
20.1 Rules	48
20.2 Exceptions	48
20.3 Customer Part Numbers.....	48
20.4 Supplier Part Numbers	49
20.5 Uncontrolled Part Numbers.....	49
20.6 'Soft' Part Numbers	49
21 Boundaries.....	50
21.1 Mandatory	50
21.2 Business Decisions	50
22 What to Transfer	51
22.1 PLM to ERP	51
22.1.1 Theoretical Minimum	51
22.1.2 Practical Minimum	51
22.1.3 Other Transferable Fields	51
22.2 ERP to PLM	52
22.2.1 Content	52
22.2.2 Rules.....	52
22.3 Viewing and Queries	52
23 Timing & Synchronisation.....	53
23.1 Buffered or Direct Integration.....	53
23.2 Timing Considerations.....	53
23.3 Concurrent Engineering.....	53
24 Configuration Management	54
25 Change Management.....	55
25.1 Basics	55
25.2 Change Requests.....	55
25.3 Change Orders.....	56
25.4 Workflow	56
26 EBOM / MBOM	57
26.1 Fundamental Premise	57
26.2 EBOM.....	57
26.3 MBOM.....	57
26.4 Discipline.....	57
27 Process Plan (Routing).....	58
28 Viewing.....	59
29 Workflow / Lifecycle.....	60
30 Maintenance, Repair & Overhaul (MRO)	61
31 Document Management (DMS / CMS).....	62
32 Usability	63

Part 7: How To Apply This Handbook	64
33 How to Apply PLMuERP.....	65
33.1 Step Up to the Plate	65
33.2 Understand the Whole Subject	65
33.3 Carry Out the Status Check.....	65
33.4 Preparation and Alignment	66
33.5 PLMuERP Expansion	67
33.6 PLMuERP Implementation	68
33.7 Supplier Roadmaps.....	69
33.8 Short- and Long-Term Planning.....	69
33.9 The Transformation Project	69
Part 8: Terms and Conditions	70
34 Terms and Conditions	71
34.1 Handbook Ownership and Use	71
34.2 Disclaimer	71