









## **PLM Interest Group**

## **PLM Standardisation Manual**

Applying a well-directed Standardisation approach to your implementation is one of the cheapest and yet most effective ways of improving performance.

This is not a book, or theoretical treatise. It is a hands-on instruction manual with the methodology and supporting theory to 'productionise' your PLM.

Roger Tempest, PLMIG Co-Founder

## 0 Executive Summary

There is a difference between 'Standards' and 'Standardisation'.

Standards are formal, regulated, documented specifications of what is expected to happen. They are difficult to define and apply for PLM.

Standardisation is a continual drive towards common, proven best practices; and is one of the cheapest and most effective ways of improving a mature PLM implementation.

In the 19th century, Joseph Whitworth began his career as an apprentice in a machine tool factory, and went on to leave a legacy of standard measures and gauges that transformed the manufacturing industry of his time. Move forward 150 years, and Whitworth's principles of accuracy, standardisation and improvement are just as relevant to PLM.

Of course, PLM is much more complex than turning screw threads, but the current state of the PLM industry has many parallels with the "turned by hand, every screw thread is different" situation that Whitworth first encountered

PLM Standardisation does not mean: "making everyone in the company work in the same way as each other". There may be many reasons why people in different parts of the organisation, or in different countries, or in different subsidiaries or sister companies, should work in slightly different ways to each other.

However, different ways of working normally include ineffective ways of working; and the differences and inconsistencies can waste time, effort and resources.

'PLM Standardisation' is therefore the creation of an effective, balanced and practical environment, in which current ways of working are optimised, and from which future ways of working can be improved. The goal of PLM Standardisation is to establish, document and implement a mixed set of standardisation elements that eliminate this waste, and reinforce best practice.

The aim of this *PLM Standardisation Manual* is to show how to do it. The *Manual* provides a structured and thorough approach that was generated by a series of PLMIG workshops in Sweden, Germany, Italy and the UK.

The *Manual* is structured into seven logical parts. Parts 1 & 2 set the scene, covering the background to standardisation in PLM and looking at the standards that currently exist.

Part 3 explains the theory (essential if standardisation is to be done effectively); and Part 4 describes the improved PLM environment that everyone should be aiming for.

Part 5 presents a flowchart of the methodology, and Part 6 lists 18 factors that should be taken into account when the methodology is applied. Part 7 concludes with a look into the medium and long-term future to see how the wider benefits of standardisation can be achieved.

PLM standardisation leads to more faster and more effective working, and embedding "right first time" practices. For mature and successful PLM implementations, this is one of the easiest ways to generate lasting improvement for a relatively small amount of effort.

© PLMIG 2022 Page 1 of 66

## **Table of Contents**

0	Exe	Executive Summary				
Abo	out Ti	his Manual	5			
1	Intro	oduction	6			
	1.1	Background				
	1.2	PLM Standardisation Premise	7			
	1.3	7 Elements				
	1.4	PLMIG Q&A	8			
Par	t 1: E	Background to PLM Standardisation	9			
2	The	Need for Standardisation	10			
	2.1	The Misconception	10			
	2.2	Standards vs Standardisation				
	2.3	Drivers for Standardisation				
		2.3.1 Internal Drivers				
	2.4	2.3.2 External Drivers				
	2.4	Standardisation Benefits				
3	What is a Standard?					
	3.1	Approval by a Standards Body	14			
	3.2	Partial Approval by a Standards Body				
	3.3	Endorsed Standards				
	3.4	De-Facto Standards				
	3.5 3.6	Voluntary Standards Other Forms of Standard				
	3.7	Best Practices				
Dar	+ 2+ (	Current Standards Scenario	17			
4		1 Standards				
	4.1	PLM Governance Standard				
	4.2 4.3	Product Structure Standard PLM-ALM Standard				
_						
5		ndards That Affect PLM				
6		stry Standards				
	6.1	Underlying Need				
	6.2 6.3	ConceptIndustry Development				
	6.4	PLMIG Workshop Series				
	6.5	Future Standardisation	22			

Part	: 3: P	PLM Standardisation Theory	23
7	PLM	24	
	7.1	The Complexity of 'As-Is'	24
	7.2	The State of Continual Change	
	7.3	Practicality	
		7.3.1 Chess Analogy	
		7.3.2 Schoolboy Analogy	
	7.4	Capture Your Own Best Practices	
	7.5	Capture Other Companies' Best Practices	26
	7.6	Leverage Non-PLM Drivers	
8	The	Intelligent PLM Manager	27
	8.1	Role of the PLM Manager	27
	8.2	PLM Prime Mover	
	8.3	Subject Matter Expert	
	8.4	Agent of Change	28
Part	: 4: T	The Standardised PLM Environment	29
9	Targ	et Scenario	30
	9.1	Target Scenario	30
	9.2	Company PLM Standard	
	9.3	Standardisation Vision	
	9.4	Enterprise / Supplier / Customer	
		9.4.1 Enterprise PLM Standardisation	
		9.4.2 Supply Chain PLM Standardisation	
		9.4.3 Customer PLM Standardisation	37
Pari	5: S	Standardisation Methodology	39
10		dardisation Methodology	
10			
	10.1 10.2		
	10.2	- · · · · · · · · · · · · · · · · · · ·	
	10.3		
	10.4	5 1	
	10.5		
	10.7		
		10.7.1 Standards Department Guidelines	
		10.7.2 PLM Content	
	10.8		

Par	rt 6: Standardisation Factors	45
11	Standardisation Factors	46
	11.1 PLM Understanding	46
	11.2 Committees	
	11.3 Levels of Abstraction	
	11.4 Level of Formality and Detail	
	11.5 PLM Customisation	
	11.6 Super Users	
	11.7 ERP Standards	
	11.8 Revisioning	
	11.10 Nomenclature	
	11.11 CM / Document Management	
	11.12 TQM and ISO 9000	
	11.13 PLM Concept Set	
	11.14 Useful Tools	
	11.15 Compliance with Customer PLM	
	11.16 Ongoing Maintenance	
	11.17 User Feedback	
	11.18 Change Control	49
Dar	rt 7: Future Standardised PLM	51
rai		_
12	5-Year and 10-Year Futures	
	12.1 5-Year View	
	12.2 10-Year View	53
13	Class A PLM	54
14	Professional PLM	55
Apı	pendix 1: Standards That Affect PLM	57
15	Standards That Affect PLM	59
13		
	15.1 Overview	
	15.2 ISO 10303 (STEP)	
	15.4 ISO 10303-243 (MoSSEC)	
	15.5 VDI 2219	
	15.6 ISO 15926	
	15.7 JT Open	
	15.8 OMG PLM Services	
	15.9 Open Group QLM	60
	15.10 OSLC	
	15.11 Strategic Standardization Groups	
	15.12 \$1000D	
	15.13 EN 9300 / LOTAR	
	15.14 DODAF / TOGAF	
	15.15 Codex of PLM Openness	
	15.16 Other Standards	
	13.17 FLIVI Relevance	02
Δn·	pendix 2: PLM Concept Set	63
٦H	pendix 2. FLIN Concept Set	0.
Ter	rms and Conditions	65