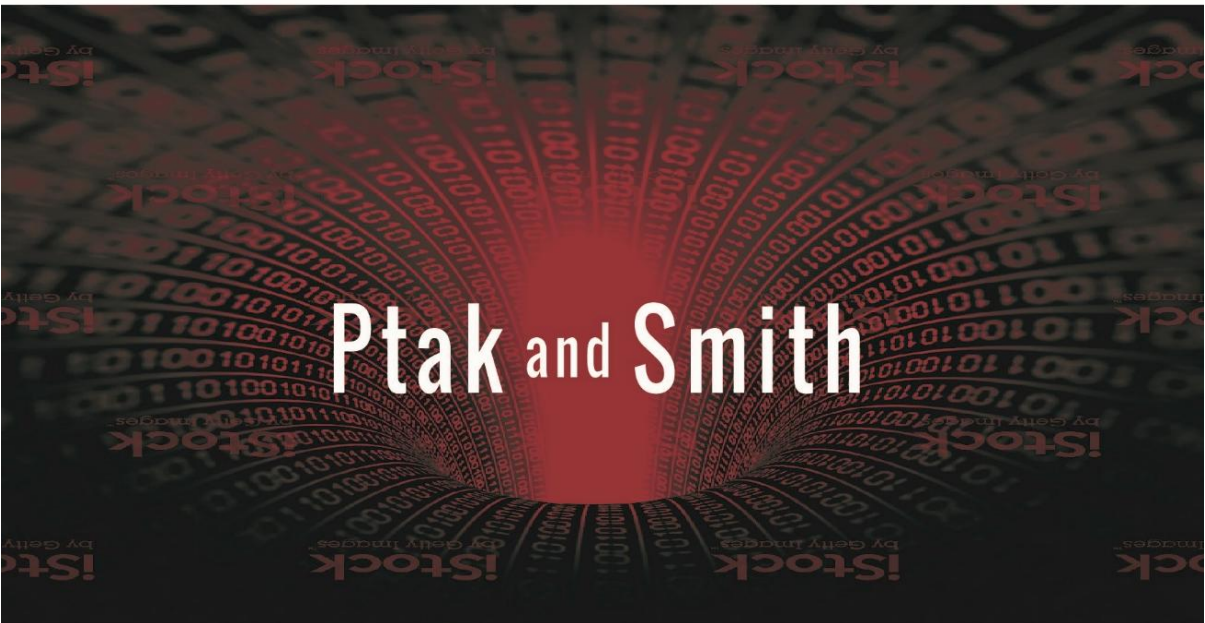


# PRECISELY WRONG

WHY CONVENTIONAL PLANNING FAILS  
AND HOW TO FIX IT



## Table of Contents

Foreword.....	7
Introduction .....	8
Definitions in This Book .....	9
About the Authors .....	10
About the Demand Driven Institute .....	12
Acknowledgements.....	13
Chapter 1 The Objective and History of Planning.....	16
Why do we “Plan”? .....	16
A Brief History of Planning.....	16
The Need for Flow – The True Purpose of Planning .....	20
Plossl’s Law .....	20
A “River” to ROI.....	22
But Something is Very Wrong.....	23
The Macroeconomic Level .....	24
The User Level.....	25
The Enterprise Level.....	27
The Supply Chain Level – The Bullwhip Effect .....	30
Variability and Flow .....	31
The Rise of Complexity and Volatility .....	32
The Case for Relevance .....	33
Finding a Core Problem.....	33
A Deeper Understanding of the Bullwhip Effect.....	34
Summary .....	35
Chapter 2 How Conventional Planning Works.....	36
The Conventional Planning Schema.....	36
The Master Production Schedule (MPS).....	36
Material Requirements Planning (MRP) .....	37
MRP Outputs.....	38
MRP Requirements and Assumptions .....	42
Determining Quantity Requirements .....	43
Determining Timing Requirements.....	46
Gross Requirements.....	47

Net Requirements.....	49
The Perfect Plan.....	50
Executing Perfection – the User Experience.....	52
The Scenario.....	52
Simulating the Scenario.....	53
Distribution Requirements Planning (DRP).....	59
Connecting MRP and DRP.....	66
Summary.....	67
Chapter 3 The Core Problem of the Bullwhip.....	68
Distortions to Relevant Information.....	70
Forecasted Demand.....	71
Using Actual Demand.....	72
Nervousness.....	75
The Weekly Bucket.....	76
Flattening the Bill of Materials.....	77
Distortions to Relevant Materials.....	80
Common Cause Variation.....	80
Linear Delay Accumulation.....	80
Complex Delay Accumulation.....	82
Batching Policies – Amplifying Distortions.....	85
Batching’s Impact to the Relevant Information Distortion.....	85
Batching’s Impact to Relevant Materials Distortion.....	86
Batching for Cost Instead of Flow.....	87
The Failure of Safety Stock.....	87
Summarizing the Challenge.....	89
Chapter 4 The Power of Decoupling.....	92
What is Decoupling?.....	93
The “Decoupled Explosion”.....	96
Restoring the Promise of Planning.....	98
Decoupling Point Success Factors.....	99
Decoupling Test.....	99
Bi-directional Benefit Test.....	99
Order Independence Test.....	99

Primary Planning Mechanism Test.....	100
Relative Priority Test.....	100
Dynamic Adjustment Test.....	100
Can Conventional Planning Decouple?.....	100
Using Safety Stock.....	100
Using Order Points.....	101
Over-planning.....	101
Using Stop Explosion Flag.....	101
Using a Multi-Level MPS.....	101
Mitigating the Bullwhip Effect.....	101
Summary.....	102
Chapter 5 Demand Driven Material Requirements Planning.....	104
The Components of DDMRP.....	105
Strategic Decoupling.....	106
Buffer Profiles and Levels.....	107
Dynamic Adjustments.....	112
Demand Driven Planning & the Net Flow Equation.....	114
Visible and Collaborative Execution.....	118
DDMRP Results.....	119
Summary.....	122
Chapter 6 The Quest for More Relevant Information.....	124
Striving for Coherence.....	124
Prerequisites for Relevant Information.....	127
Convention’s Failure with the Prerequisites.....	129
Summary.....	132
Chapter 7 The Demand Driven Adaptive Enterprise Model.....	133
The DDAE Model.....	133
The DDAE Model and Relevant Information.....	134
A Flow Based Operating Model.....	134
DDAE Relevant Ranges.....	141
Flow-Based Metrics.....	142
Tactical Reconciliation – Demand Driven Sales & Operations Planning.....	144
Adaptive Sales and Operations Planning.....	148

The DDAE Development Path .....	152
Stage 1: Operational Efficiency (Cost).....	152
Stage 2: Operational Efficiency (Flow) .....	152
Stage 3: DDAE Level I .....	153
Stage 4: DDAE Level II .....	154
Stage 5: DDAE Level III .....	155
Software Implications .....	156
Demand Driven Operating Model Compliance Criteria.....	156
Demand Driven Sales & Operations Planning Compliance Criteria.....	157
Summary .....	158
Appendix A: Simulating DDMRP Performance against Lean and MRP II .....	159
Overview .....	159
Research Methodology .....	159
Developing the Simulation Model .....	160
The Kanban Game .....	160
Simulation Practices.....	162
The Experimental Design .....	162
DDMRP .....	163
Kanban/Lean .....	163
MRP II.....	164
Data Generation.....	165
Method of Analysis .....	166
Analysis and Results.....	166
The Research and Review Team: .....	171
Appendix B: An Inquiry on Queue Dynamics and Lead Times in Supply Chains.....	173
Opening a Pandora’s Box.....	173
Summary .....	183
About the Author.....	184
Appendix C: Why the Demand Driven Adaptive Enterprise Model is Disruptive .....	185
Defining Disruptive .....	185
The DDAE Model as Disruptive .....	186
Additional Points about the DDAE.....	187
About the Author.....	191

Appendix D: Demand Driven Answers for Accountants .....	192
Introduction .....	192
About the Questions .....	193
Webinar Questions from the Audience .....	194
About the Authors .....	198

## Introduction

“Your presentation and the one earlier blew my mind - I always felt there was something not right with MRP but I could never put my finger on it. I now understand why. THANK YOU!!!!”

The above quote is from a planner who attended two webinars we did in 2017 as part of preparation in writing this book. This is a book more about a problem than a solution. The book on the solution has already been written. Demand Driven Material Requirements Planning was published in 2016. So, why write the book on the problem after the book on the solution?

Quite simply, we underestimated the strength of inertia across industry, academia, consulting and software. To grasp the contents of a book about a solution one must be compelled to open a book about a solution in the first place. The book jacket can only go so far. Furthermore, we have discovered that a common sense solution does NOT sell itself. Often the nature of the problem must be thoroughly understood before one can relate to and/or grasp the totality of the solution.

This is our third book collaboration. The first was the third edition of Orlicky's Material Requirements Planning. The second was Demand Driven Material Requirements Planning. This book fills a small but absolutely vital gap between those two works. People have known for quite some time that something is very wrong with conventional planning. In our two previous collaborations we have talked about the disastrous effects of conventional planning on companies and people. We presented lists of problems and cited large amounts of data proving the existence of these effects. Yet something was missing; exactly WHY those effects occur. Something that when revealed is so incredibly obvious, but flies in the face of everything we held dear as the secret of success in planning.

Thus, this book became a requirement to systematically break down the inertia and usher in a new era of planning and execution across supply chains. So, we return to the problem to make a clear and definitive case for what to change and then discuss a framework in which successful change can occur.

Hang on to your seat. If you are a planner, supply chain professional or even ERP sales person this book may cause you a certain level of discomfort. Hopefully, after reading this, you will also be able to say, “I always felt there was something not right with MRP but I could never put my finger on it. I now understand why.”

However, this is not a book about a new planning method. This book also introduces a completely new management model for the complex and volatile world we live in today – a management model that is not possible without first fixing conventional planning.