



# **Development of a Customisable Object-Oriented Tool for Production Planning**

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## *Abstract*

In today's competitive environment, production of goods and services is very much driven by customer demands for products of the highest quality, sold at the lowest price and delivered just in time. Therefore, production activities must be well planned to satisfy customer demands, yet at the same time, must be able to operate in an economical manner. To this end, a well-designed and customisable production planning tool can help achieve this competitive advantage. This research focuses on an object-oriented customisable production planning tool which has customised features applicable to the manufacturing environment. The customisable production planning tool has been developed using object-oriented techniques and analysis. Object-orientation also makes the planning tool more manageable and maintainable. A robust and scalable architecture enables software to be reused through the component-based software engineering process within the production application systems. Customisation allows more flexibility to the user in planning production activities. It enhances users' ability to adapt to their requirements more easily thus enabling them to use the customisable planning tool with ease. Besides, a use case model can be used to represent a high-level analysis model which captures system's requirements at an early stage in the development process. This analysis model gives shape to the system's layered architecture that brings about dramatic improvements on development time and costs. This will ultimately lead to a more efficient development of the production planning tool that will enable the manufacturing

domain to gain advantage in the production of goods that will be able to meet customers' expectations and timing as well as their ever changing demand patterns.

This tool which uses object-oriented techniques as part of the software engineering process will also enable the reuse of classes in future software enhancement. In addition, object-oriented engineering also offers a modular way of analysis and design that can accommodate the dynamics of a fast changing manufacturing environment, thus making it a very suitable technique for the development of a customisable production planning tool. This is because as requirements evolve over time especially so in the manufacturing industry, object-oriented approach focuses first on identifying objects from the application domain, then fitting procedures around them, thus retaining the underlying framework of the application domain. This will lead to a dramatic improvement on the component-based systems development and software performance, ultimately increasing productivity and efficiency in the production industry apart from achieving a satisfactory level of profitability so as to prolong business life.

## ***Table of Contents***

Acknowledgement.....	ii
Abstract.....	iii
Table of Contents.....	v
Table of Figures.....	viii
Introduction.....	1
1.0 The Manufacturing Sector.....	1
1.1 Overview of Manufacturing Production Process.....	2
1.2 Motivation.....	5
1.3 Problem Statement.....	6
1.4 Research Objectives.....	7
1.5 Summary of Proposal.....	9
1.6 General Strategy of Research.....	10
1.7 Outcome.....	12
1.8 Methodology of Research.....	12
1.9 Chapters Organisation.....	13
Literature Review.....	14
2.0 Production Planning Methods.....	14
2.1 The Manufacturing Process.....	15
2.1.1 Components in Manufacturing.....	16
2.1.2 Manufacturing Resource Planning MRP II.....	17
2.1.3 Production Planning Domain.....	22
2.2 Research Survey and Analysis.....	24
2.2.1 Motorola Incorporated and Motorola, Kuala Lumpur (KLM).....	24
2.2.1.1 KLM Setup of Functions.....	26
2.2.1.2 Background to Research Survey.....	26
2.2.1.3 Survey Approach.....	27
2.2.1.4 Survey Results and Analysis.....	30
2.2.1.5 Conclusion.....	36

2.2.2 Research Analysis on Semiconductor Product Plant (Siemens/Infineon).	37
2.2.2.1 Company's Background.....	38
2.2.2.2 Operating Procedure.....	39
2.2.3 A Comparison of Workflows.....	40
2.2.4 Conclusion of Initial Research Activities.....	45
2.3 Existing Research Prototypes and Techniques.....	46
2.3.1 Reuse Techniques for Customisation.....	51
System Architectural View and Analysis.....	53
3.0 Architectural View.....	53
3.1 Object-Oriented (OO) Software Engineering Process.....	54
3.2 Object-Oriented Development Life Cycle.....	55
3.3 System Development Activities.....	57
3.4 Requirements Model Through Use Case Model.....	59
3.5 Analysis Model.....	63
3.5.1 Plan Production Use Case.....	65
3.5.2 Customisation Through Variation Points.....	66
3.5.3 Check Capacity Use Case.....	69
3.5.4 Schedule Production Use Case.....	70
Architectural and Detail Design.....	72
4.0 Design Model.....	72
4.1 System Architecture.....	72
4.1.1 Production Planning Application System.....	76
4.1.2 Capacity Planning Application System.....	79
4.1.3 Production Scheduling Application System.....	81
4.1.4 Sequence Diagrams.....	82
4.1.5 Customisable Components.....	88
4.2 Storage Management for Production Planning.....	91
4.2.1 Entity-Relationship Diagram.....	92
4.2.2 Storage Management Structure.....	94
4.2.3 Security Access Login.....	94
4.3 Summary.....	95

Implementation.....	97
5.0 Implementation Model.....	97
5.1 Application and Component Systems .....	97
5.2 Customisation.....	99
5.2.1 Production Environment.....	100
5.2.2 Inventory and Forecast.....	101
5.3 Data Storage Implementation.....	104
5.3.1 Login Access.....	105
5.4 Test Procedures.....	108
Evaluation and Conclusion.....	111
6.0 Evaluation.....	111
6.1 Strength of Research.....	113
6.2 Limitations.....	114
6.3 Future Enhancements.....	115
6.4 Concluding Remarks.....	116
References.....	118
Appendix A : Survey Questionnaire conducted at Motorola SemiConductor Products, Petaling Jaya.....	i
Appendix B : Main Interface of Customised Production Planning Tool.....	ii
Appendix C : The Contents of the Readme.txt file.....	iii
Appendix D : The Contents of the Production Planning Help file / Guidelines.....	iv

### ***Table of Figures***

Figure 1.1 : An overview of manufacturing planning / MRP II of a plant.....	4
Figure 2.1 : The Manufacturing Resource Planning - MRP II.....	19
Figure 2.2 : Categories of Motorola Semiconductor staff involved in the survey.....	28

Figure 2.3 : Graph showing number of users (from 40 samples) using the respective systems in production.....	29
Figure 2.4 : Graph showing percentage of staff using the respective systems in production.....	30
Figure 2.5 : Pie chart showing suggestions to overcome delayed orders.....	32
Figure 2.6 : Rating of current planning system.....	34
Figure 2.7 : Production Planning and Control for Infineon Technologies.....	41
Figure 2.8 : Production Planning and Control for Motorola KLM.....	43
Figure 3.1 : A Layered Architecture of Application and Component Systems.....	54
Figure 3.2 : Overview of the Production Planning Development Cycle [OMG. 1992a].	57
Figure 3.3 : Summary of the Development Activities.....	58
Figure 3.4 : Use Case Diagram for Production Planning Tool.....	60
Figure 3.5 : Components of a Production Plan.....	62
Figure 3.6 : Three different kinds of analysis types (BCE).....	64
Figure 3.7 : A collaboration diagram to trace the Plan Production Use Case Model....	66
Figure 3.8 : A collaboration diagram to trace the Plan Production Environment Use Case Model.....	67
Figure 3.9 : A collaboration diagram to trace the Plan Production Use Case Model with Variation Points.....	68
Figure 3.10 : A collaboration diagram to trace the Check Capacity use case model.....	69
Figure 3.11 : A collaboration diagram to trace the Schedule Production use case model..	71
Figure 4.1 : Layered Architecture of the Customisable Production Planning System....	73
Figure 4.2 : Layered Architecture of the Capacity Planning System.....	76
Figure 4.3 : Component Systems of the Production Planning Application System.....	77
Figure 4.4 : BCE diagram for Demand, Product, Delivery and Plan Detail Management Component Systems.....	78



Figure 4.5 : Component Systems of the Capacity Planning Application System..... 79

Figure 4.6 : BCE diagram for Resource, Check Capacity and Year-To-Date (YTD) Management Component Systems..... 80

Figure 4.7 : Component Systems of the Production Scheduling Application System... 81

Figure 4.8 : BCE diagram for Product and Production Week Management Component Systems..... 82

Figure 4.9 : A sequence diagram describes how the objects perform the plan production use case..... 84

Figure 4.10 : A sequence diagram describes how the objects perform the capacity planning use case..... 86

Figure 4.11 : A sequence diagram describes how the objects perform the schedule production use case..... 88

Figure 4.12 : Customised Component System for Production Environment..... 89

Figure 4.13 : Customised Component System for Inventory and Forecast..... 90

Figure 4.12 : The E-R Diagram for Production Planning..... 93

Figure 5.1 : Main Screen of the Customisable Production Planning Tool..... 99

Figure 5.2 : Customisable Production Environment..... 101

Figure 5.3 : Customisation of Inventory..... 102

Figure 5.4 : Customisation of Forecast..... 103

Figure 5.5 : The Total Year-To-Date Production Values..... 104

Figure 5.6 : Login Window..... 105

Figure 5.7 : Permission for Use to Different Users..... 108