Comprehensive & easyto use workbook

Implementing Oracle JDE Manufacturing Applications

MATT RAVIKUMAR

FOREWORD:
JOEL SCHIPPER
JDE SOLUTION ARCHITECT

Dedication:

All the JDE solution experts and analysts
who guided me in multiple implementations.

Special thanks to Joel Schipper, JDE Solution Architect for writing the foreword.
I have interacted with him many times for nearly two decades and
you will learn something new every time from him

The book cover shows a bike!
JDE users will recognize/remember the bike data in all demo junior data models

Disclaimer:
The content on the book came from years of industry & software experience.
Users are strongly advised to test the concepts in non-production system with written Business scenarios, validate and then implement in a live system since software goes through constant changes & upgrades.

Screen-shots of JDE applications come from different implementations.
No customer-specific data is exposed for security and confidentiality.

Contents

Foreword

You are reading this book probably either because your company is considering (or already) utilizing the manufacturing software applications within the Oracle JD Edwards EnterpriseOne solution, or because you wish to (or already) provide consulting services and advice around those applications. In either case, this book can open your eyes to the wide range of possible solutions that you implement using the vast range of features and functions in the software.

I joined JD Edwards in 1993, about two years after the manufacturing applications were first included in the software. My first experiences with JD Edwards software was on release A5.2 of what we now call World Software, coded in the RPG programming language, and running on the then very popular IBM AS/400. This version of JD Edwards had been growing ever since the Jack Thompson, Dan Gregory, and Ed McVaney ("JDE") consolidated their (reportedly) twenty-nine versions of the software since their start in 1977, putting it altogether their 4GL tool, World Case I in about 1981; they later updated the software and the tool to World Case II when the AS/400 was released around 1988.
To give you a sense of how rich and deep and wide the JD Edwards software is in its capabilities, the current release of One-World Software is numbered 9.4. It is deployed in more than 1,000 companies at multiple locations around the world.

But that's not all the whole story. In the mid-1990's, Ed and his crew saw a sea change in computing away from single "mid frame" computers, such as the AS/400, into networks of computers and servers, and understood that they could not precisely foresee the technology future. So they created an "n-tier" server approach where the user presentation layer could be on one server, the logical programs reside on another server, the data base on another, the reporting tools on yet another, and so on. And they separated the core business logic — what we usually call the "applications layer" — from the underlying technology, with a proprietary set of middleware products. With this "future shock absorbing" architectural design, they scrutinized the functions and features of World Software, and reverse engineered it onto the new technology platform originally known as OneWorld, and what we know today as EnterpriseOne. Thousands of companies run EnterpriseOne, including many "net new" accounts and firms that migrated from the World Software version. Oracle has a public roadmap and support policy that extends well into the future, and EnterpriseOne now provides a "rolling update" policy that is similar to the way subscription-based "Cloud" software is continuously updated.

The change to EnterpriseOne gave JD Edwards Manufacturing two paths for moving forward, one within World Software and one within EnterpriseOne. Overall, enhancements to the manufacturing applications in World Software found their way into EnterpriseOne, but the larger R&D efforts were directed at EnterpriseOne because World Software remained tied to the AS/400 and EnterpriseOne could run on a wide range of hardware platforms, operating systems, and data bases.

When I started using JD Edwards manufacturing, I found it surprisingly easy to

learn, for three reasons.

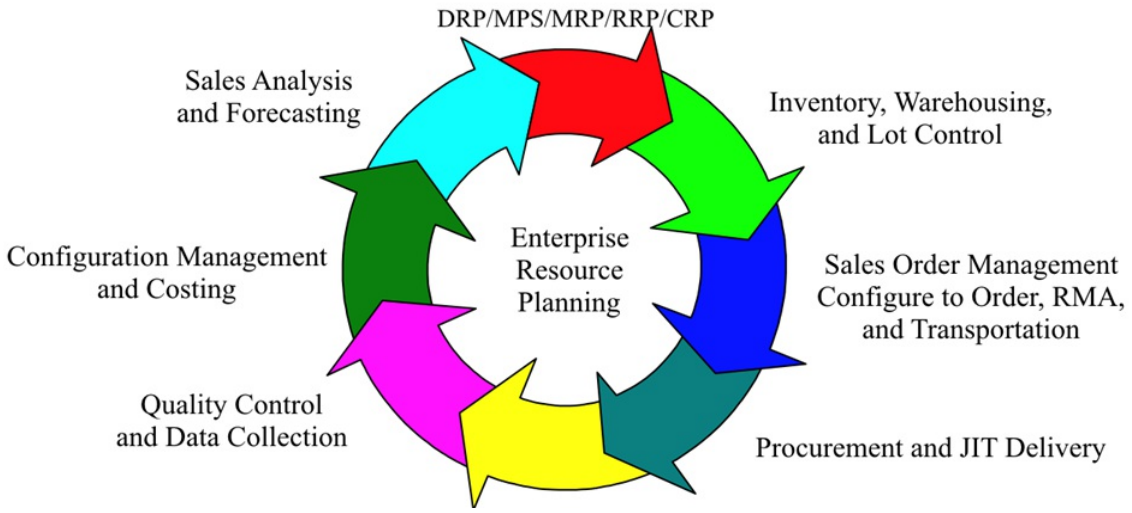
The first reason was that I had a "classical" education into JD Edwards overall, meaning I went to the three week long "JDE College" that all employees attended at that time. This was an in-residence class at the Denver, Colorado headquarters, in which you not only learned the basics of the JD Edwards core and financial applications, and the basics of running an AS/400, but you also learned about the company and it's values, and met the founders and senior management team. Along the way, you built some lifetime friendships. All of that paid large dividends over my twenty-one years with JD Edwards as a sales consultant helping customers and prospects to define their problems, the value of solving their problems, and why and how JD Edwards software would address their problems. In short, my colleagues and I got to build out a prototype for each sales situation as a proof of concept.

The second reason was that I began with the A5.2 distribution applications of sales order management, purchasing, and inventory control. This let me became familiar with the way business rules are incorporated into JD Edwards — through a series of "power user" or business analyst switch settings relevant to a specific version (or "copy") of a particular program such as how to handle back orders or credit checking during sales order entry. When the application is selected by the end user (or invoked from another program), these settings are invoked "on the fly". So you might have one version for domestic sales orders, another version for 'rush' orders, one for over-the-counter sales, and one for international orders. A great deal of the power of JD Edwards applications resides within these business rule or logic settings, and how they are assigned to these versions (or copies) of the same program. I also became familiar with the extensive master data files that support the applications, such as the vendor master or the item master. Learning the ways in which related sets of data elements are grouped together — such as the purchase order related data fields in the vendor master file, or the manufacturing planning and control fields in the item and item/branch master files — enabled me to find more capabilities to apply to any given situation. For example, the "issues/receipts" field in the manufacturing section of the item/branch master lets you manage inbound vendor managed inventory (VMI) receipts made simultaneously with the issue of that product to a work order.

Since the distribution applications and files also support the manufacturing modules, I had a running start when I began using JD Edwards manufacturing at the A6.2 release. This solid background in working with JD Edwards paradigms was a bit like knowing how to drive a stick shift car when I had a chance to drive a stock race car on a speedway track. It was still a car, and I needed to be able to steer, press on the gas and brake pedals, and shift gears. But I had to climb in the window, wear a crash helmet and fire protective suit, be strapped in, know how to grab the fire extinguisher and read the tachometer rather than a speedometer, and then go faster (under supervision) than I ever would on the regular highway, negotiating the large banked turns and long straightaways.My basic driving skills were a critical foundation for this high speed experience.

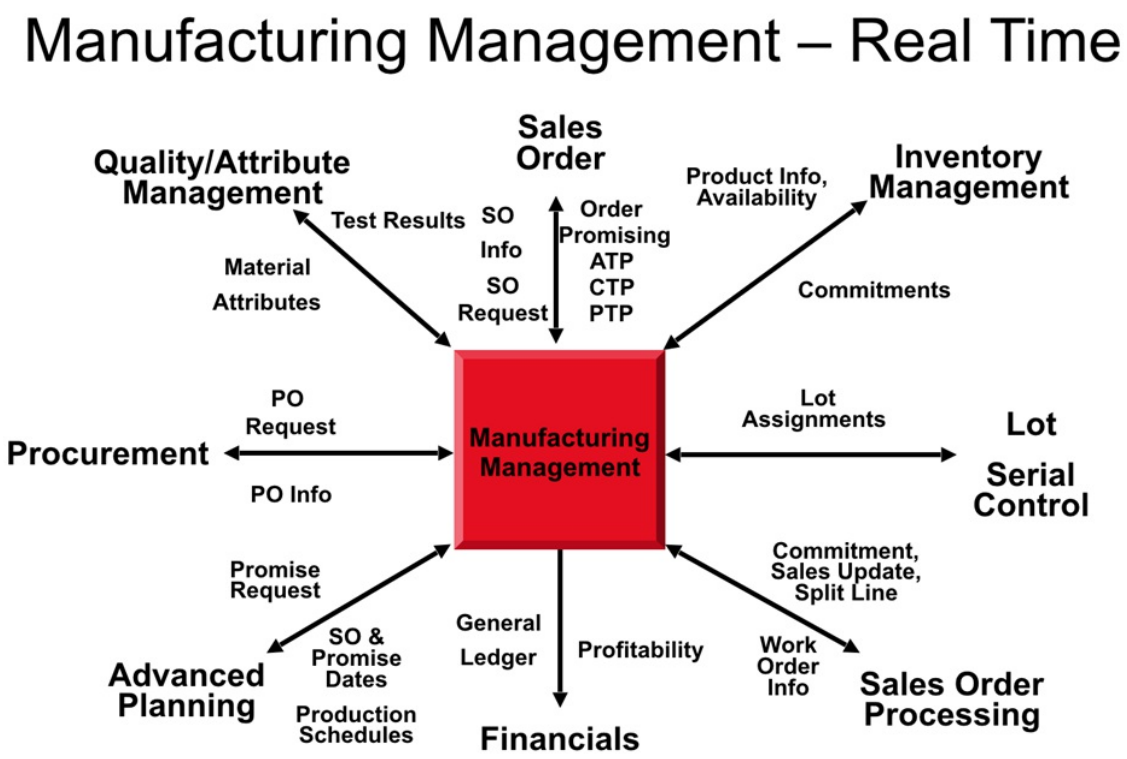
And the third reason, equally as important, was that I had a solid background in manufacturing management and supply chain principles based upon the concepts of "MRP-II" that APICS (the American Production & Inventory Society) had been promoting since the mid-1980's. There was a growing consciousness among practitioners inside companies who were responsible for manufacturing processes and the supporting supply chains, and also among outside consultants and advisors, that computers must become more deeply engaged in the storage and maintenance of accurate records, perform extensive computations to better balance demands and supplies, and help senior management better anticipate and understand the implications and outcome of their decisions. Around 1990, there was a strong market demand for the emerging ERP (Enterprise Resource Planning) software companies such as JD Edwards to incorporate these theories into their software products.

See figure 1



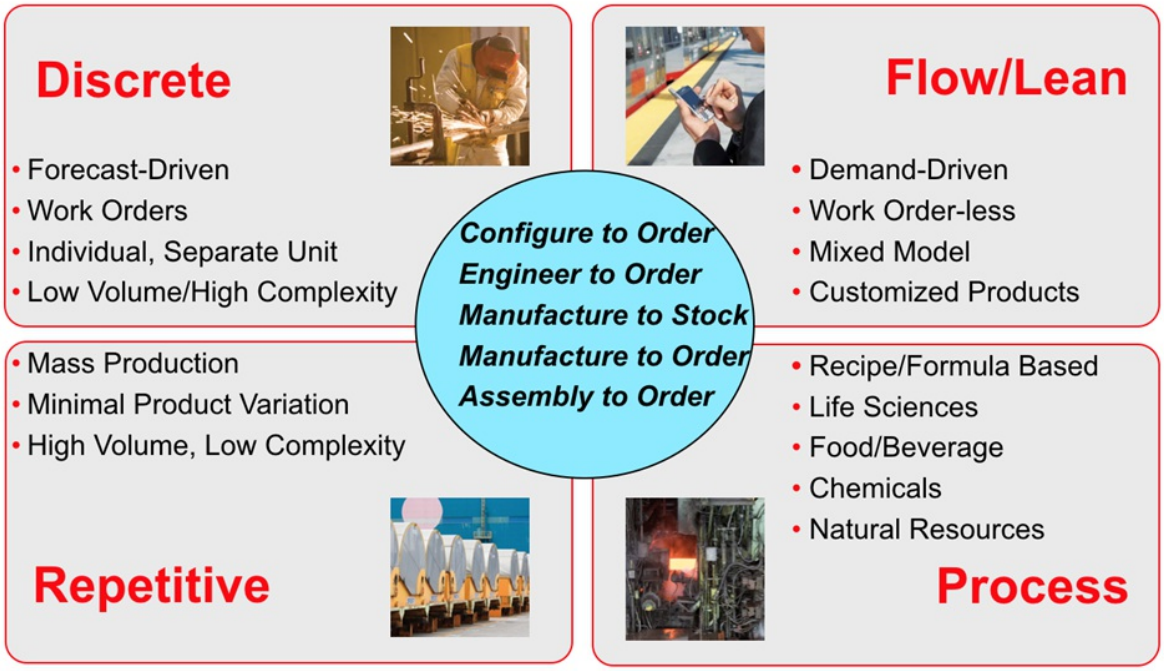
I once heard an anecdotal story that the head of JD Edwards software development had sent programmer/analysts to participate in APICS chapter meetings to learn these new concepts so they could bring the ideas back and add them to the software. As I was certified by APICS at the "Fellow" level,, it was not surprising to me that I found the new manufacturing applications contained a lot of familiar ideas. JD Edwards manufacturing does a fine job of incorporating APICS principles, while also ensuring that the manufacturing applications followed the existing architecture in which all JD Edwards applications "talk" in real time to ensure that transactions are accurate and timely.

See figure 2



Over time, the EnterpriseOne manufacturing applications began to grow and expand. New features were added to existing applications, such as when engineering change orders/requests (ECO/ECR) was added to the product data management (PDM) module that already held the bills of material (BOM). True to Ed McVaney's concept that purchasing JD Edwards was essentially entering into a "covenantal" agreement for the long haul — yes, I heard him say that — many features were simply enhancements with the next release of the system. Sometimes the capabilities were so large that a new system application module was designated, such as with the assemble-to-order (ATO) Configurator module; but more often the features were an expansion of an existing module, such as when repetitive manufacturing and process manufacturing were added to the existing (originally discrete) manufacturing application module. Not only did this provide on-going value to the customers, but it also made it much easier to stay with JD Edwards manufacturing over the long run. This was the start of the "multi-mode" manufacturing management application that is the core of JD Edwards manufacturing today.

see figure 3



As you move forward on your journey with JD Edwards Manufacturing, I believe that the biggest benefit you'll get is by utilizing the "mixed mode" capability of the application. That is why JD Edwards Manufacturing is a great choice for so many businesses … because you can easily configure — and reconfigure —it to handle multiple modes of manufacturing, whether in different facilities, or on different production lines in the same facility, or even demand by demand. Let's take a quick look.

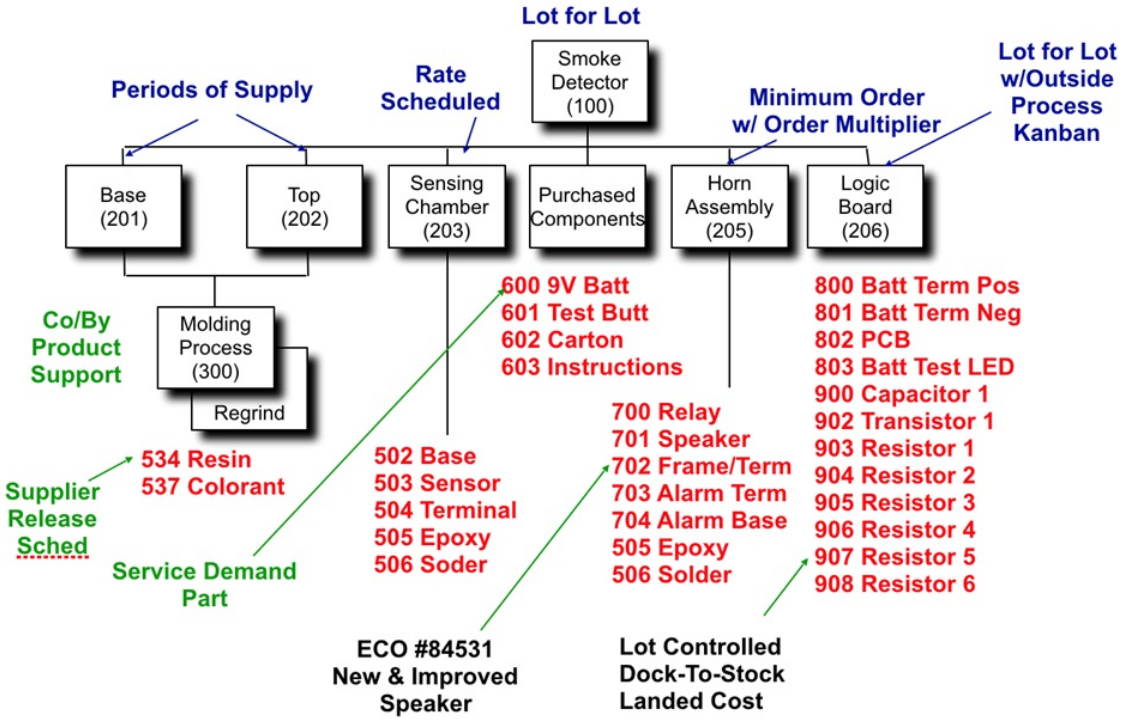
With the same basic "manufacturing management application, you can handle all of these situations:

- Businesses that use discrete work orders to produce a quantity of product, often to refill an inventory need.
- Businesses make product over and over on a repetitive basis, often using assembly lines set up for to make a particular product and model, and need to balance line capacities.
- Process manufacturers that produce in a "batch", sometimes with fixed and/or multiple batch sizes, and sometimes with "potent" or active ingredients whose issue quantity can vary depending upon the potency of the lot of ingredient being issued to that work order. Lot identified co-products and by-products can be produced from these work orders.
- Other businesses may demand that assembly parts and raw materials arrive in pre-sized quantities, called kanban's, and are replenished at the manufacturing line (or point of usage) "just in time" or only when they are needed. And may produce and ship in kanban quantity sizes as well.
- Using the ability of the sales order entry application to create an offsetting work

order in manufacturing, you can handle job shop or other made-on-demand orders.

- Combining the JD Edwards Configurator with sales order entry, you can create a unique work order to manage a configured assemble-to-order (ATO) request for every sale, such as when you order a car, or specify the inclusion of memory sizes, disk sizes, and other components of built-to-order personal computer.
- Some businesses build an entire unique structure to specifications, such as an oil drilling tower, also known as engineer-to-order or ETO.
- Using the embedded Manufacturing Project Management capabilities, you can track the costs of individual 'projects' through sales, purchases, work orders, and inventory, performing "Kanban" manufacturing.
- Utilizing the JD Edwards Demand Flow Management application, you can handle businesses that seek to remove every bit of activity that does not directly contribute to the assembly or fabrication of a product, while building a mixed set of final products directly upon demand

See figure 4



All of these modes of manufacturing can be mixed and matched at different points of the total product structure, such as batch manufacturing the substructure, and custom finishing the final assembly. It all comes from the same set of software. This mixed mode manufacturing agility is key for any business that is not fixed and defined in its ways for the foreseeable future.

In my years of supported the sale of JD Edwards, I found that this support for "mixed mode manufacturing" in a single software application was the number one reason why JD Edwards Manufacturing "fit" so many companies, or their divisions or lines of business. It is why this software can be deployed and redeployed over many years without a company having to buy additional software and having to make it all work together, or even trying to replace JD Edwards.

In this book, Matt has brought you his experience from more than twenty years of working with JD Edwards software. All his expertise is presented to you here, in this book, in a concise and useful format. Good luck on your journey!

Joel Schipper, CFPIM, retired Master Principal Sales Consultant
Author of the Wordpress blog, "Your System: Not Guilty as Charged"

Preface

This book is about implementing Oracle's JD Edward's (popularly known as JDE) Manufacturing ERP software applications. This is not a typical user guide but provides insight into key applications and configurations. The book includes case studies and FAQs. The intended audience is the end-user in the JDE community who need more guidance and functional support. The book will help entry-level consultants and/or consultants moving from non-manufacturing applications into manufacturing suite.

As an author, I have spent close to 20 years in JDE products area. I was a employee in the consulting division of JD Edwards prior to Oracle's acquisition. I worked as Business Analyst for many companies in industrial segments and pharma industry. During last five years, I have worked in multiple manufacturing implementations as independent consultant. All my case studies are published in Linked-in, at the end of each major implementations.

JDE has it's dominance in ERP industry especially in manufacturing sector companies. No week goes by where I found something new or learn a different interpretation to something I already know. That's the power of the JDE software. It's so flexible and configurable that changing business process can be adopted so easily in the software applications

The book is not about replacing regular Oracle's user guide or knowledge available in Oracle support site. This does not replace training needs nor work as a training document. The goal is to make use of the best in the software, guiding the users in configuring the software during CRP times. As in any software implementations, any configuration changes need to be completely understood first. That is achieved only by testing the configuration in a non-production environment. As always, build your own scenarios and script for your formal testing process.

These days, a brand-new JDE manufacturing implementation can be achieved in three months subject to strong leadership and active user participation in training/testing. This book helps to handle that process with key touch-points and critical factors in various applications. The case studies will give perspectives to factors not necessarily relating to software configurations. Most of the configurations and setups are from EnterpriseOne 9.1 release onward.

The purpose of the book is to guide the power users from understanding functional concepts to go-live. Chapter of process flows gives a high level overview of the manufacturing process in JDE. This includes Product Data Management, Planning, shop floor control, product costing, manufacturing accounting and Quality. Standard costing process, which is very popular in discrete industry, is the underlying assumption. Chapter on key functionality in JDE details descriptive statements on major functional process. The idea is to document these for C-level executives and/or external agencies like auditors, inspectors, etc.

The chapter on JDE discovery is the starting point in any implementation. Even if you have started the project and undergoing first round of CRP, it's not too late to go back and document the discovery process. These questions can act a prompt to define test scenarios later in the project phase. New few chapters of basic configurations, PDM, Planning, etc are contents with screen-shots to show important fields. These chapters are not designed as training tools but to prompt broader level understanding and issues

The chapter on Tips & Tricks shows some unique functionality in JDE Manufacturing which can be used effectively in certain industries. The Chapter on FAQs are to be used after few rounds of CRP sessions. The idea is to re-evaluate the user level understanding. Pop Quiz chapter is another way of educating and evaluating the user level knowledge. This could be used just after user training.

Chapter on key applications list all key objects/reports that required for any standard JDE implementations. The listing may also help power users to evaluate current JDE standard reports and it's modification needs. Test scenarios chapter is the guideline scripts for your CRPs. Key configurations chapter is for advanced user to verify whether configurations are controlled and validated at each CRP time line

Chapter on white papers list few case studies that elaborate project level issues in data conversions and user adoption. All about Z-files chapter details basic data conversion tools available within JDE.

This is a hand-on manual to make your implementation right and successful. Your feedback and comments are welcome!

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Process Flows

In every implementation, the question always arise whether business process comes first (or) the system configurations. Define (and re-defined) business process is the key for successful implementation for any software systems. These process models can be used for Steering-committee reviews, user training guide and in day-in-life type of scenarios.

These process flows are created AFTER functional discovery and goes through changes after CRP testing. These flows can be a part of AS-IS and TO-BE documentation as well.

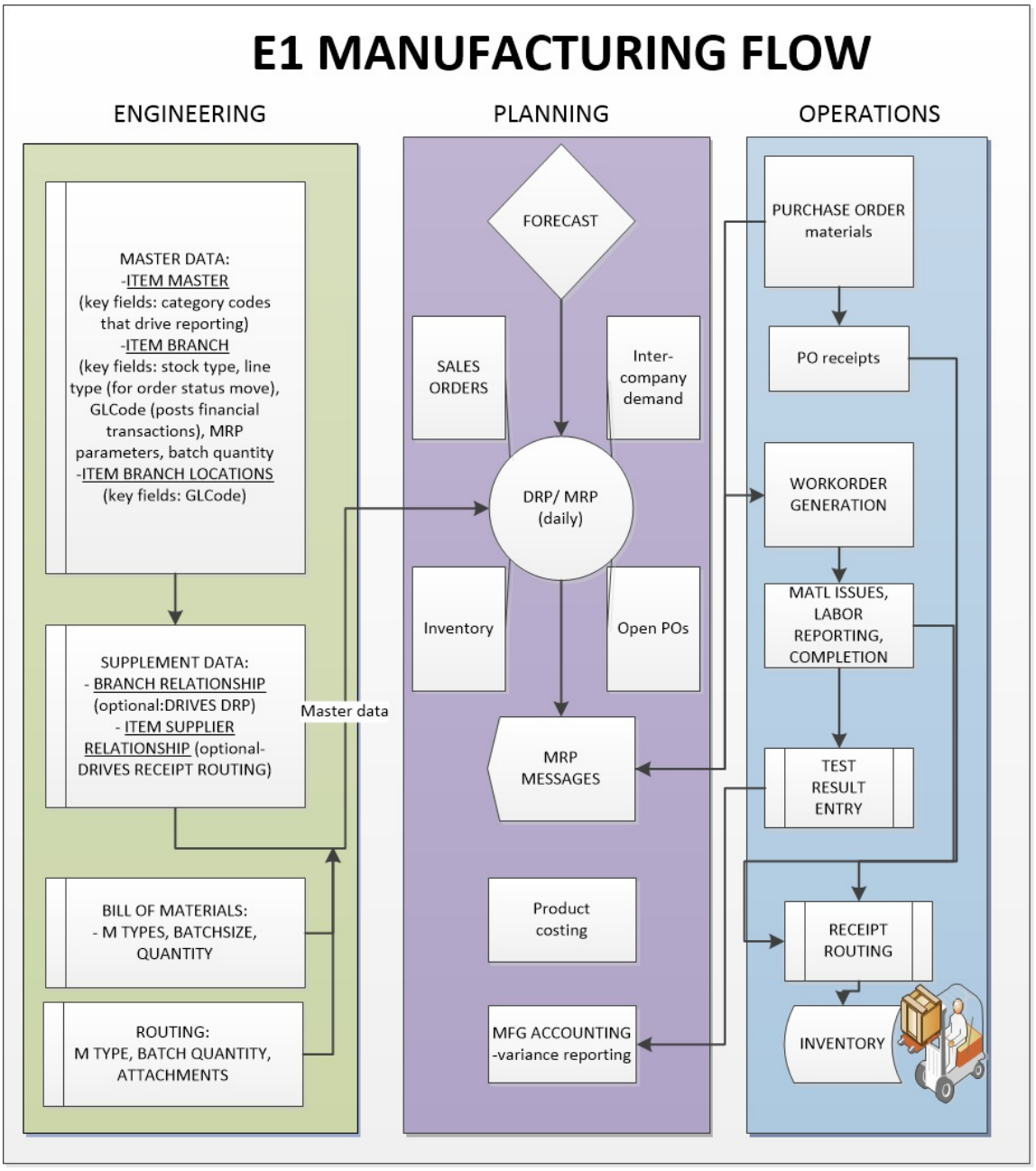
Following pages shows some of the key business processes relating to JDE Manufacturing implementation. Oracle support site has data models on each functional area and that could be used in conjunction with these flows.

The process flows are,

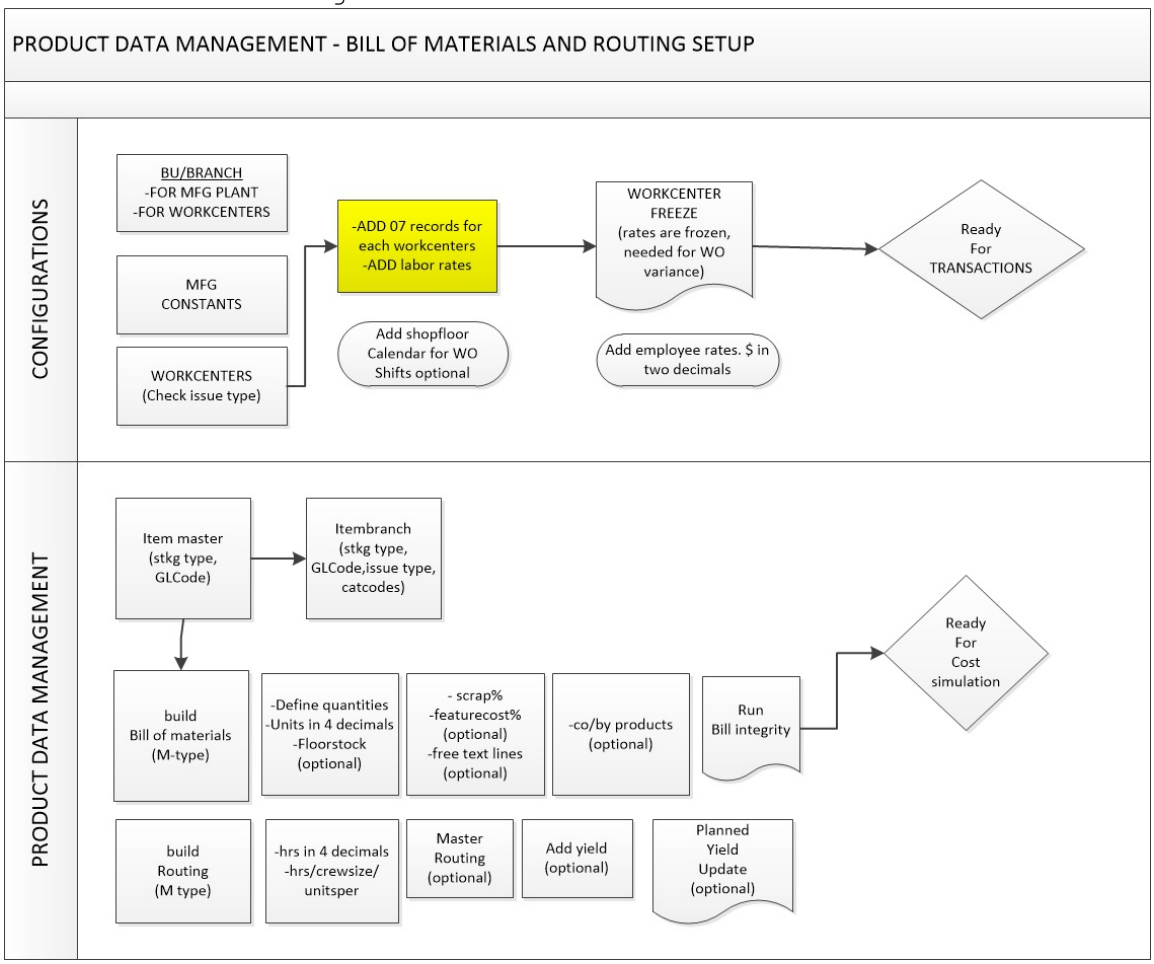
- High level manufacturing flow
- Planning systems
- Cost rollup process
- Work order flow
- Other functional flows are embedded within their chapters

The book may not show the contents in re-usable form. You can download the original Vision file (or) printable PDFs from www.enterpriseprojects.com
(Look for download link on JDE Manufacturing Implementation book)

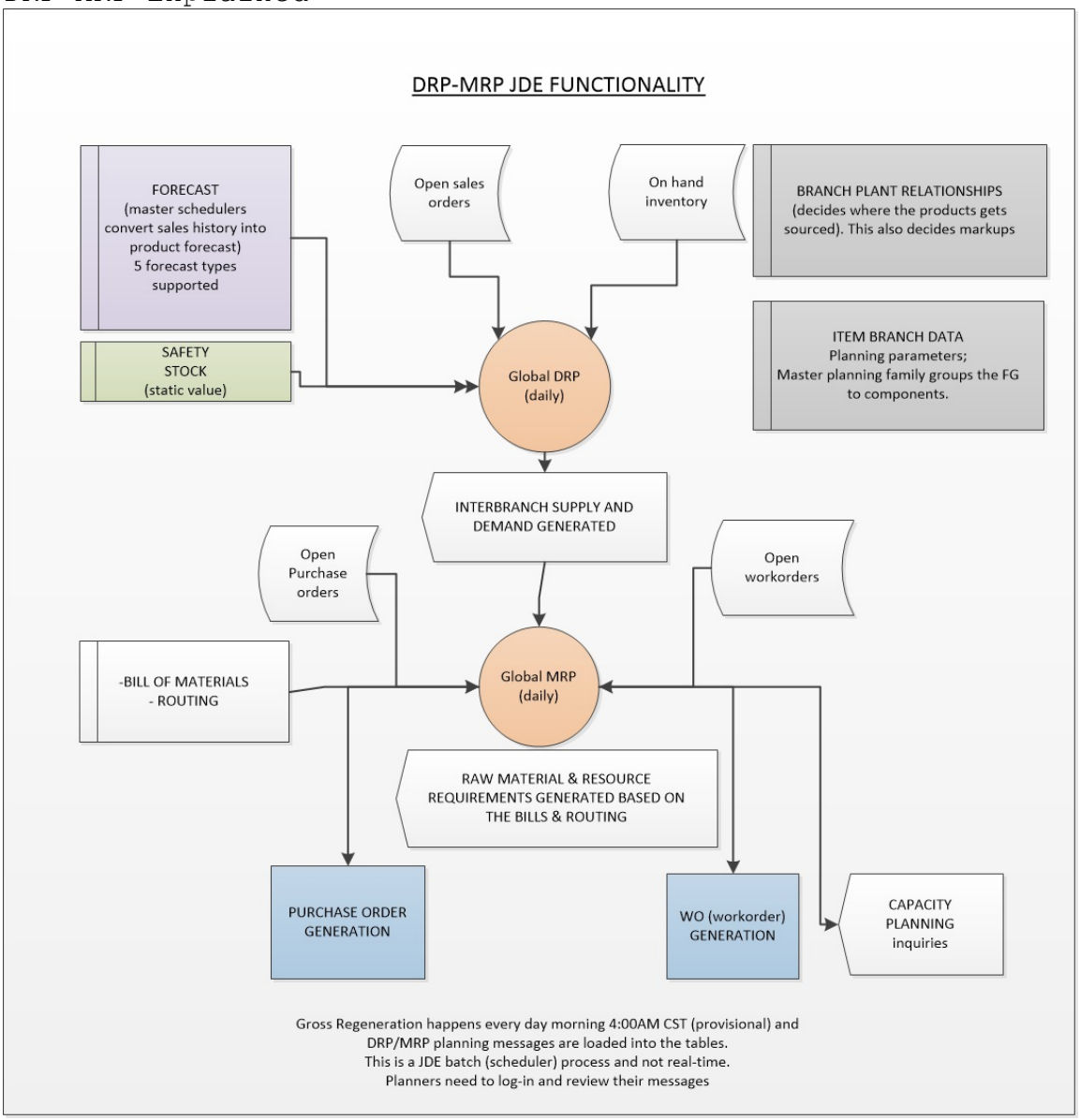
Overall Flow



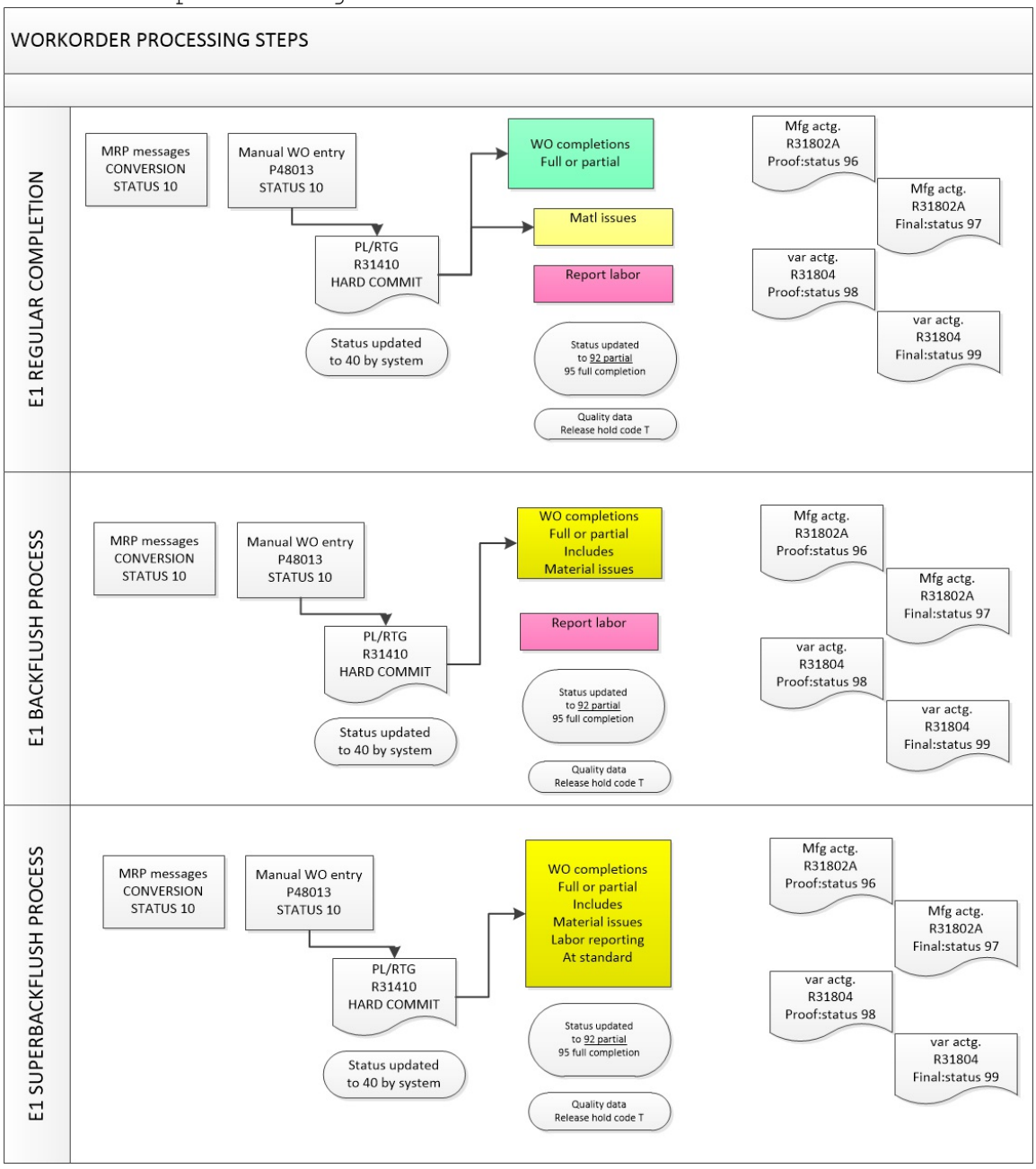
Product Data Management



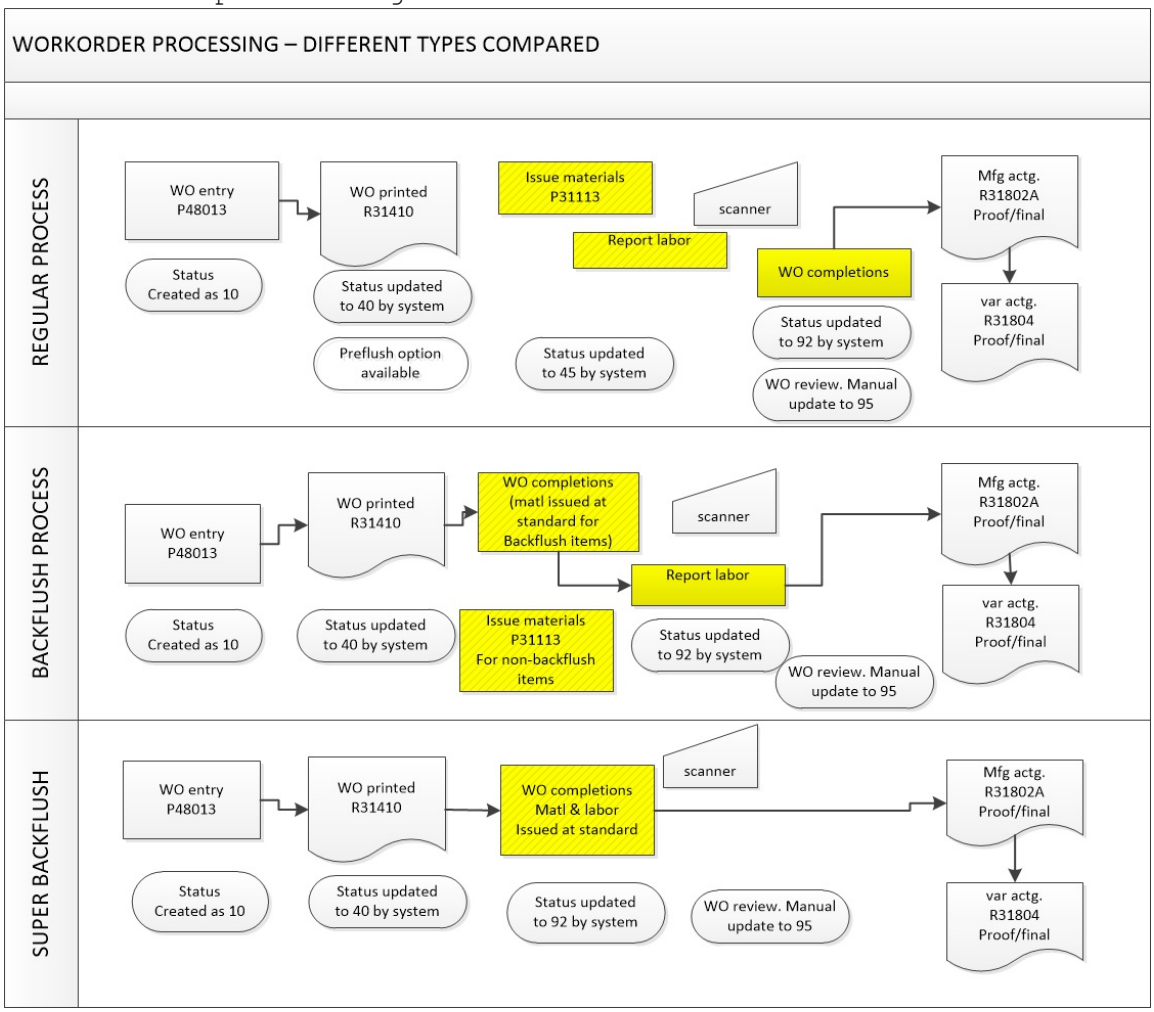
DRP-MRP Explained



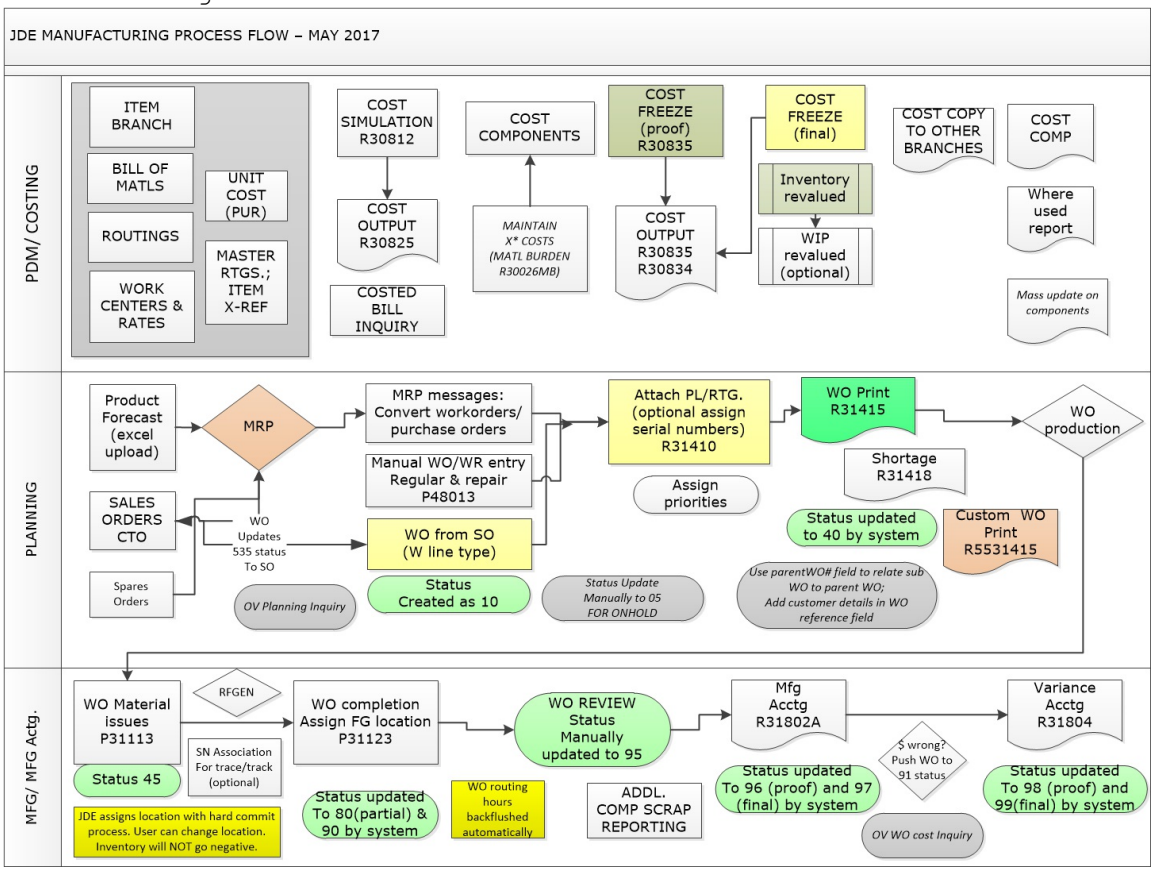
Workorder processing



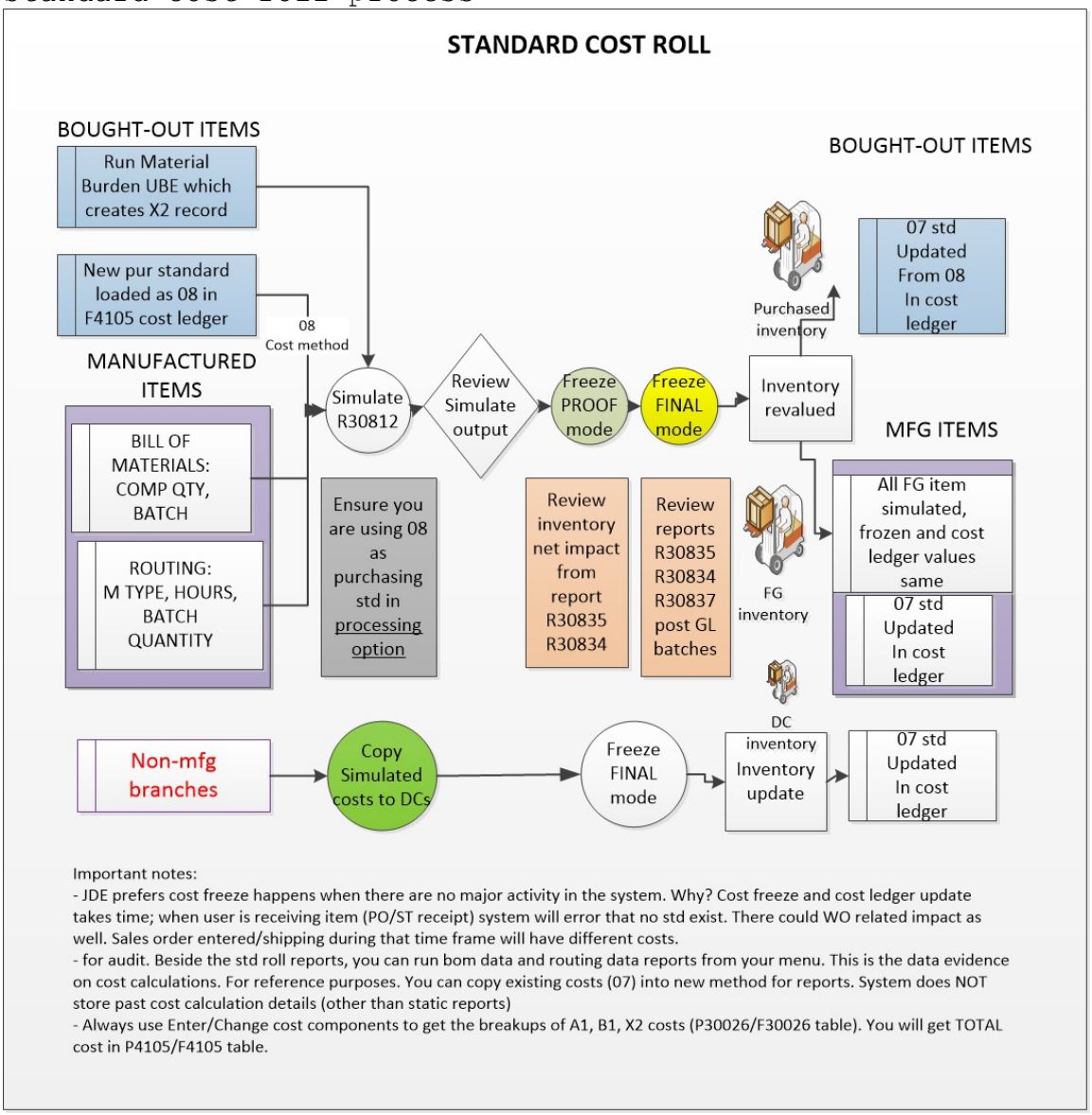
Work order processing - more flows



Another high level flow



Standard cost roll process



Important notes:
- JDE prefers cost freeze happens when there are no major activity in the system. Why? Cost freeze and cost ledger update takes time; when user is receiving item (PO/ST receipt) system will error that no std exist. There could WO related impact as well. Sales order entered/shipping during that time frame will have different costs.
- for audit. Beside the std roll reports, you can run bom data and routing data reports from your menu. This is the data evidence on cost calculations. For reference purposes. You can copy existing costs (07) into new method for reports. System does NOT store past cost calculation details (other than static reports)
- Always use Enter/Change cost components to get the breakups of A1, B1, X2 costs (P30026/F30026 table). You will get TOTAL cost in P4105/F4105 table.

About the Author:

Mathur (matt) Ravikumar holds a bachelor of engineering degree and have done post-diploma work in management/accounting. He has worked in manufacturing and information technology field for more than three decades.

He has written business white papers, newspaper articles and published content in professional magazine 'Performance Advantage' by APICS (Association for Operations Management- with 30000 industry professionals). He has presented paper two times in the world-wide Oracle User conference Collaborate.

He was a speech-writer to a company CEO and still love to hear great speeches. The acquired and published material content are available at his website. He frequently blogs at blogger websites and also in linked-in.

He is a regular meditator and trekked to Himalayas (Mount Kailash) towards a spiritual journey in 2016. His publications are available in Amazon.com and in kobobooks. (Search: matt ravikumar) He lives near San Francisco/California and can be reached by email, mattravikumar@gmail.com (or) matt@enterpriseprojects.com

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