Hyper-Scaling SAP Software within the Accounting Classroom using Fiori: One Instructor's Experience

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ABSTRACT

SAP has had a substantial impact on the accounting industry, particularly in the area of audit. The use of preventative and process controls to evaluate the continuous audit process done via an SAP S/4HANA system is key to compliance with financial and reporting requirements. This paper is the result of a project to hyper-scale SAP S/4HANA into Fiori, allowing for direct internet access to the SAP database. A case study is provided to effectively teach SAP system applications in undergraduate/graduate courses in auditing and information systems.

Keywords**:** Risk and Compliance, Business process controls, Fiori, SAP, AIS, Cost Accounting, Design to Operate

INTRODUCTION

With the introduction of SAP to American markets in the 1990s, many business information specialists marveled at the breadth and depth of the SAP software portfolio, and the functional integration of SAP solutions. Over the years, SAP has done much to improve its many modular applications. One area of criticism has been the user experience associated with this software. Even with an emphasis on effective training, the user experience has not improved. Fiori is SAP's primary response to improving user experience. It was developed in close partnership with customers and perspective customers based on a proven approach to use creativity in solving problems. Fiori establishes core principles for applications to make them simpler and more coherent. The visual design is substantially enhanced over current S/4HANA, and Fiori's technology enables the ability to build applications from business logic to user interface. This provides richer user interfaces for business applications.

The purpose of this paper is to identify some of this redesigned methodology, and present it as a user case within the typical accounting systems classroom. This material was developed to compliment application scripts designed by the SAP University Alliance. The University Alliance, which currently consists of over 400 schools in the U.S., was developed in 1997 to encourage the growth and development of SAP capabilities within university programs. The Alliance currently has little to no use cases using Fiori. This case application using Fiori, and integrating the many applications made available through the Alliance with the Global Bike Industries world-wide case, will be a substantial addition to their growing portfolio.

EDUCATIONAL VALUE OF SAP FIORI IN THE CLASSROOM

SAP Fiori Launchpad is a web-based and role-based application, allowing customization to enhance a user's experience, offering a single point of access to SAP applications across multiple platforms. Fiori is the cornerstone of SAP's aspiration for increased user-experience, through its offering of enhanced accessibility and friendless to the end-user. Its tile-based design allows for more efficient use, and a quicker comfort in navigating its many process steps offered. The Fiori Home also allows for customization of its tile-groupings, allowing the user to design their own groupings depending on the functions (process steps) used frequently.

From an educator's perspective, the use of Fiori has many advantages. Fiori's web-based function allows for the bypass of a GUI that requires download to one's computer. By being able to access Fiori through the web, users no longer have to go through the download process associated, and can reach the system from practically any computer at any time. Previous versions of SAP, such as ECC 6.0 that required the GUI, could only function on a Windows computer, which makes the aspect of delivery and teaching in-class difficult with the rising number of Apple computer that cannot run windows.

Another advantage to Fiori is the tile structure, which enables quick access to application nodes and processes. In previous SAP versions (i.e., ECC 6.0), the student would be required to

be familiar with menu-mapping, and application transaction codes. Elimination of this frees up more time for real classroom use of the SAP product.

A major component of SAP is the integrative linkages of master files and business processes. SAP Fiori maintains integration, but adds enhanced reporting and controls. These inherent controls are useful for presentation of the audit trail, and applications of the COSO framework. This is demonstrated in the appendix of this paper, and is particularly useful in the pedagogy of this course.

THE STAR CLOUD CASE

Company Information

Global Bike Incorporated (GBI) manufactures and sells top of the line bicycles for both on-road and off-road use. The wholesale distribution process involves selling to well established retail chains, who further sell to customers around the world. These bikes serve advanced and professional cyclists for touring and off-road racing. GBI's customers demand the highest level of quality, toughness, and performance from their bikes and accessories.

In 2009, GBI adopted SAP Enterprise Resource Planning (ERP) software to integrate all of the aspects of the business. After some analysis, it was determined that the production planning module of SAP would be particularly useful given the nature of GBI's product and the production process.

A typical production cycle in GBI starts with a sales and operation plan. This plan establishes the overall market demand for the product and projects future production needs based on that demand. Upon approval by management, this document is authorized for production, around which a production order is created. The production order is the essential document around which critical information is built. This information includes which plant will be used for production, what assembly line production will occur on, what workstations and labor are required, and projected cost compared to budget. Upon completion of the production process, a goods receipt material document is generated, which allows a transfer of goods from the factory to the warehouse. The role of the accountant comes into play here, as there is a need to ensure that an effective general ledger transfer was done from the factory work in process account to the finished goods inventory account. In addition, SAP also allows the accountant to look at the managerial side, comparing the actual cost to standard budget cost. The variance created will inform the organization as to efficiency of production.

CASE FRAMEWORK

To enable this case with classroom activity, it is necessary to configure the SAP database in a way that enables linkages between the various master files and organizational structure.

A critical aspect of working within SAP is recognition of the need for a defined structure within which the process occurs. Students need to be aware that accessing SAP starts with a client, followed by the company code, which designates the general accounting ledger. Without this information, the student would have no database to work from. The production must take place in a plant, hence the plant becomes a critical piece of information. In this particular case, the company ledger is US00, as production occurs in the US, and the plant is DL00, which is where product is made and maintained. The production process in GBI must now be presented to the students. That process starts with a sales and operation plan. Students must define projected sales and desired ending inventory to determine the budgeted level of production for each month. Once approved, the system will check MRP, the material requirements plan, to determine the availability of raw materials. When materials are needed for the production of bikes, they will be automatically ordered from a vendor. When there is a sufficient level of material, production can then begin and be monitored, as it is necessary to track completion in terms of units produced and cost. Upon completion, the product is stored in a storage location defined by plant management. Much of the information for the automated process is contained within critical master files. The finished good itself, in this case STAR11###, requires a material master, as do each of the raw materials and semi-finished goods. Master files are also maintained for work centers and labor components, as well as a bill of materials and routing. These components are reviewed with the students prior to the SAP rollout.

Within SAP Fiori, there are many reports available. These can be done on a basic or analytic basis. The Cost of Production Report is the primary report to summarize all information pertinent to the production process.

- Cost of Production Report – Displays details and the standard & actual costs of the Direct Materials, Direct Labor, and Manufacturing Overhead used to produce the material.

A major advantage of SAP is its integrated, and inherent control system. Aspects of that can be seen in a cost of production report, and the following key components should be reviewed:

- Where is the Audit trail in the Production Order?
- Why is the Goods Receipt step so important to the Production Planning process?

STARCLOUD: CLASS OUTCOMES

The following rubric is used to grade project submissions. In the first rollout of the course, the overall summary of outcomes should an 85% performance rate, with some variation among the specific attributes of the rubric.

Proficiency and Skill	Methodology	Assessment of Learning	Performance
Students will be able to:	Students, along with the professor, will be able to:	Students will be assessed by:	
1. Become aware of the business processes managed through SAP Fiori	1. Identify and explain the use of inherent controls within SAP Fiori	1. Explanation of each control and how well it worked within SAP Fiori	1. 90% of students scored average to excellent
2. Generate reports in production planning inherent to the SAP Fiori system	2. Analyze each report and explain its impact from a financial and managerial accounting perspective	2. Send the report to corporate control and explain the implications of unusual variances and impact on product pricing	2. 80% of students scored average to excellent
3. Examine each process step and determine how this process can be reconfigured more effectively and efficiently	3. Create a critical analysis report on ways to enhance the system to make it more effective	3. Evaluate the overall effectiveness of controls, reporting, and process and send report to corporate control	3. 85.4% of students scored average to excellent 4. Overall Score: 85%

STARCLOUD: INSTRUCTOR NOTE – WHAT WOULD I DO DIFFERENTLY?

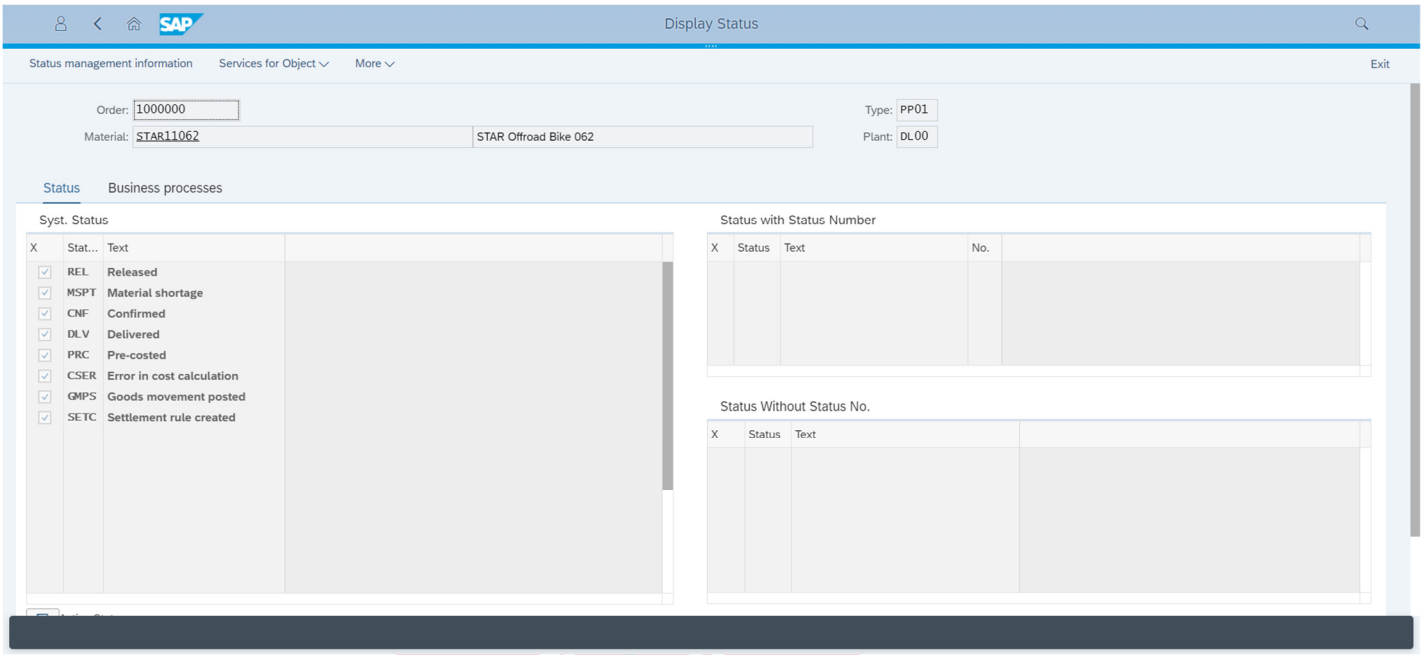
As with any teaching experience, there are many lessons learned that can be incorporated in future iterations of this course. First and foremost, special attention must be paid to explaining the many aspects of the production process, as designed and configured by SAP. Details tend to overwhelm the students, so one should try to explain this as generically as possible. In some ways, this could be accomplished by students working within groups. Groups could work in different aspects of the production process, from design and development of bill of materials, to helping to configure the sales operation plan. In this way, they see the power of integration, and not all decisions are made by a monolith, by rather configured through team effort. We have found that when students work alone, the process appears to them to be very mechanical. When they work in groups, they sense a more holistic approach and learn the material better.

Another component of the course that is critical is to encourage and ensure that students analyze the information correctly, and communicate key issues in writing, or by presentation, to corporate management. Within SAP, there is an email system which allows you to communicate and attach documentation and reports. We have found this most useful, and plan to expand its use in upcoming semesters. Given the nature of an accounting systems course, which usually features an overview of systems controls, the focus on students' reporting should be an overall evaluation of the effectiveness of these inherent controls.

As with any system, reporting and analysis of information is most critical. SAP Fiori affords many opportunities to examine inherent reporting in action. The important thing for the student is to evaluate what those reports means for financial and managerial accounting users. To merely present the system without reporting would create overly mechanical applications. The best synergy is to ensure that both process integration and reporting are viewed holistically around which use managerial decisions can be made.

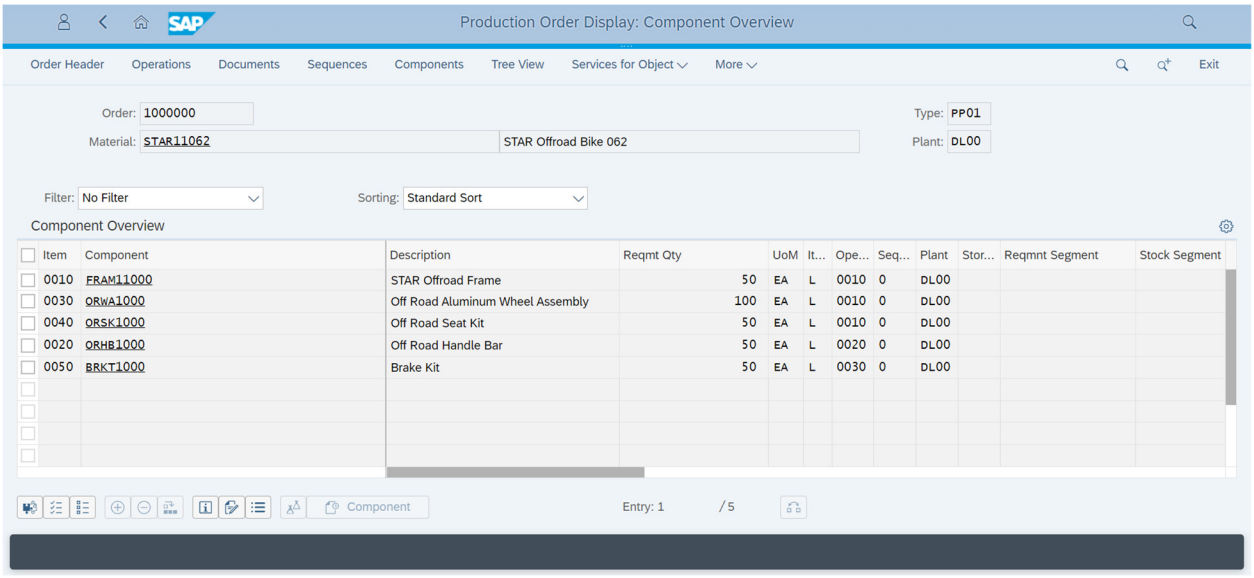
Appendix

THE AUDIT TRAIL FOR PRODUCTION PLANNING PROCESS USING SAP FIORI



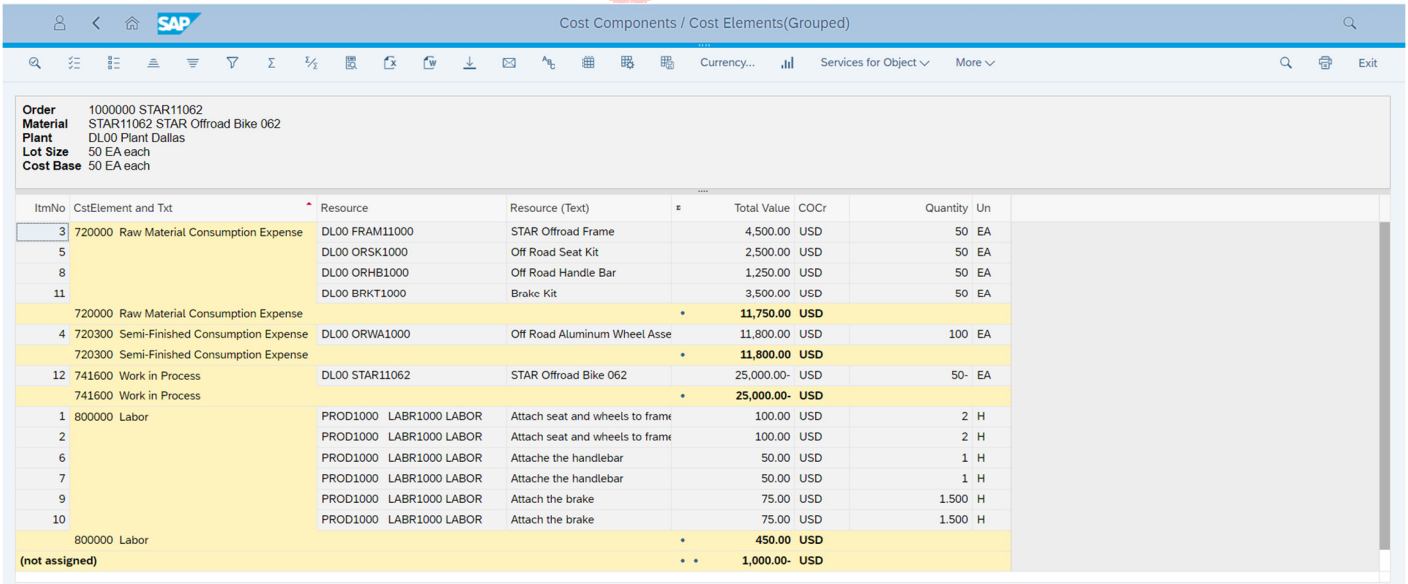
Appendix A – Identify Controls within SAP Fiori Production Planning Process

Segregation of Duties	Authorization	Reporting
The status report provides auto-generated information as each step in the process and whether that step was successfully completed or not	Each step must be successfully completed before the next process step can be initiated	The status reporting which is done automatically as each process step is completed identifies where follow-up activity might be needed, such as error in cost calculations



Appendix B -

Field Control Check	Validity Check	Limit Check
This control check determines that the field consists of proper type characters. The use of PP01 for type and plant DL00 are examples of this	Compares the transaction data scheduled in the production order with the master file to determine that the material component exists	This requirement quantity lists in numerical amount the product to be used in the manufacturing process. In this case, 50 bikes are being manufactured. 50 material components should be used. Since a bike has two wheels, 100 material components should be used



Appendix C

Data Matching	Reasonableness Test	Data Reconciliation
This processing control verifies that the cost of production report summarizes all of the key material components in the manufacturing of a bicycle, and that this is consistent with the master file	A test for reasonableness looks at costs assigned to each component of material of labor and considers whether they appear reasonable and consistent with standard cost sheets	Database totals should be periodically reconciled with data maintained both inside and outside the system. In this case, actual costs of $24,000 were offset with a standard cost of $25,000 yielding a $1,000 favorable production variance.

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