

MOSAIC+: Finished good fulfillment process for HP's CM/ODM/Suppliers

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Introduction

During the HP-Compaq merger, the Personal Systems Group (PSG) and Enterprise Solutions Group (ESG) -- now Technology Systems Group (TSG) -- used processes and systems from both companies to manage the direct shipment of finished goods from manufacturers to customers, distribution centers, and other distribution channels. Not only was this attempt exceedingly complex (each business unit, region and procurement model had its own set of systems and processes), it was extremely inefficient as well resulting in -

- Longer order cycle time (OCT)
- Less responsive and inefficient supply chain
- Reduced customer satisfaction
- Increased support costs

There were number of factors that contributed to the inefficiencies. Primary among these were the sheer number of processes and a system that had to be mapped each time a new vendor or supplier was to be onboarded. These factors also made it difficult to track orders, resolve issues, and make changes. In addition, more impromptu “quick fixes” were needed which added to the inefficiencies.

Recognizing that an immediate response was needed to address the multiple problems emerging from these merged processes and systems, the Direct Ship Leadership Team (LT) began looking at future business requirements of a company-wide direct shipment fulfillment program. Naming the new program Mosaic+, the LT set some preliminary goals for the work:

- Ensure that everyone worked toward the same solution pan-HP
- Reduce the amount of short-term solutions, rework, and retrofitting
- Develop a roadmap of future capabilities
- Begin reducing the number of processes used
- Enable standardization

The rest of this paper describes the process and methodology used to define the scope and current state of this important program.

What is Mosaic+?

Chartered by SC Council and hosted by PSG, Global Operations Planning and IT formed a team in April 2003 to develop the Mosaic+ program with the charter “to establish a consistent, standard CM/ODM finished goods fulfillment process that gives HP a competitive advantage by reducing CM/ODM set up time and standardizing and improving business processes.” Figure 1 provides a high level view of the Mosaic+ program scope.

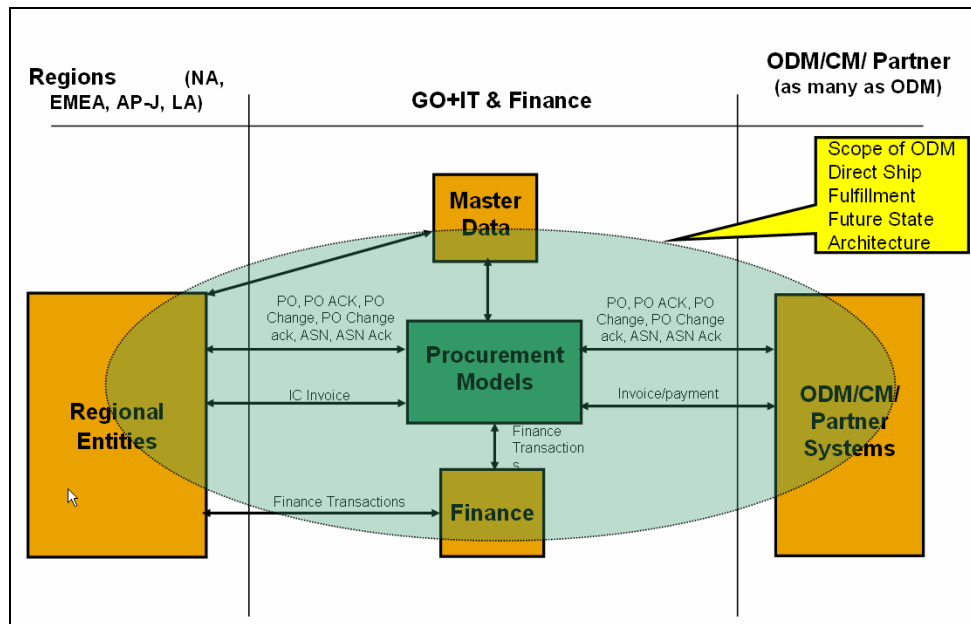


Fig 1: Scope of Mosaic+

Once fully deployed, Mosaic+ will deliver the following key business functionality:

- messaging support for CTO functionality, driven by BU's
- automatic change order / cancellation process
- automated alerts and exceptions-based reconciliation tools

The program planned to provide the process simplification and enhancements that would reduce the current 15 models to one simpler and consistent model (enabling resource savings). It would provide one HP face to partners and reduce deployments from four to five per outsourced design manufacturer (ODM) to only one. The program also would enable stronger financial controls and audit trails

Mosaic+ would also create a standard IT baseline by:

- standardizing and streamlining finished goods fulfillment processes pan-HP incorporating business requirements from BU, Region and product perspective
 - focused on finished goods fulfillment from CM/ODM to HP or its customers
 - categorized automated direct ship, merged and replenishment capabilities
 - developed a solution requiring common code and configuration pan-HP
 - strengthened financial and inventory posting enabling proper audit and maintenance controls
 - provided end-to-end transaction and workflow visibility
 - recorded transaction record product fulfillment parallel with the physical shipment process
 - recorded product ownership externally from the CM/ODMs as well as internally between purchasing factory and the sales office which owns the relationship with the customers
- driving message content standardization beyond integration abilities and providing end-to-end monitoring including resulting transaction postings
- providing multiple "options" for connections (RosettaNet, Web-based, EDI etc)
- and reducing B2B connection lead times - from six months pre-merger HP, to twelve weeks post merger, and six to eight weeks in the future; further improving HP bargaining power

From a Finance and Procurement domain perspective, Mosaic+ will migrate to a standard SAP model for procurement and finance activities. Mosaic+ will also drive savings in procurement and financial processes across multiple HP legal entities, supporting corporate strategies

The Mosaic+ team includes an overall program manager, solution architect and subject matter experts with an extended team drawn from the program's stakeholder community.

Methodology

Mosaic+ had two distinct development phases. The first was the business definition phase utilizing HP Global Method for IT Strategy and Architecture (ITSA). The second was the architecture and IT scoping phase which overlapped with the business definition (figure 2). The program adopted standard tools and methodology for definition and deliverables of the program phases. These included THINQ methodology for project definition and TeamPlay for project management and company-wide management reporting.

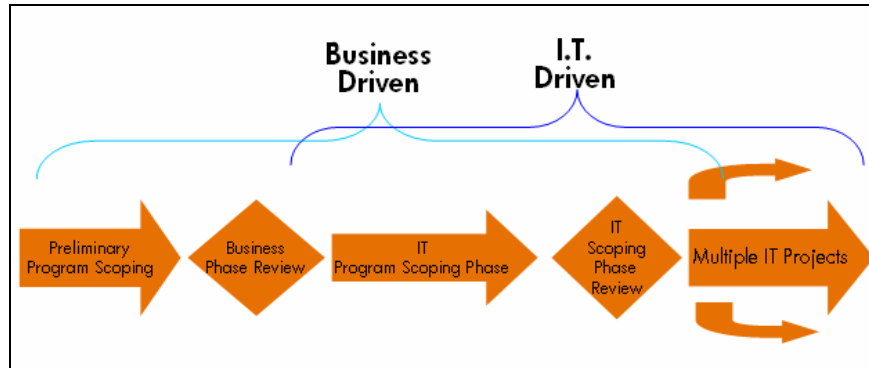


Figure 2: Mosaic+ scoping phase

Mosaic+'s technical architecture was based on the functional definition derived from the business phase review. Figure 3 provides the overall methodology used in the business and IT scoping phases.

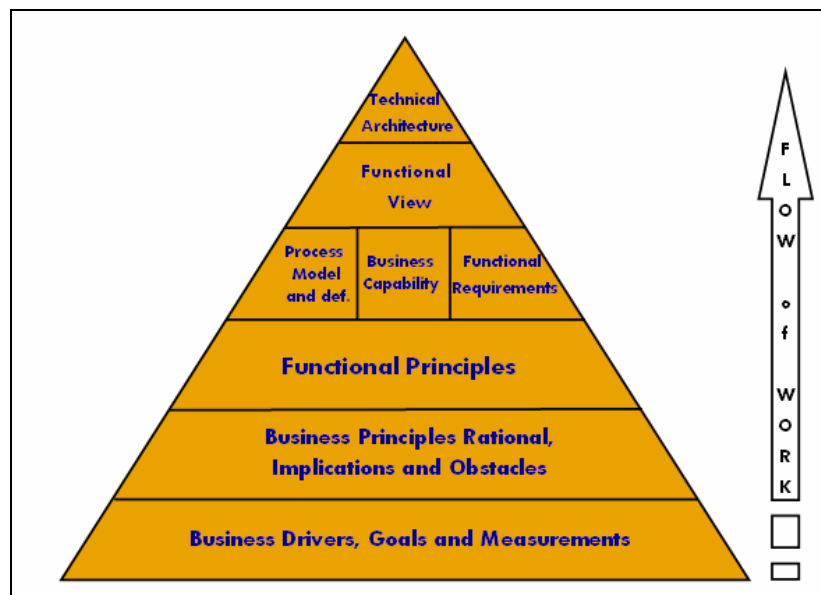


Figure 3: Scoping phase methodology

Technical Architecture

The Mosaic+ business definition phase provided a functional view of the solution. Three solution architecture components were identified during this phase.

1. ODM/CM finished goods fulfillment process
2. Procurement and finance process models
3. Messaging standard
 - Order/invoice/payment and related transactions
 - Business definition and standard message content
 - Standard message format
 - Connectivity methods
 - Partner integration management

The process and the functional requirements of the components were dependent and required integration with other supply chain domains within HP including Order Management, Master Data, Finance Planning, Logistics and Global Trade. Figure 4 provides an overview of the functional and integration requirements including the scope.

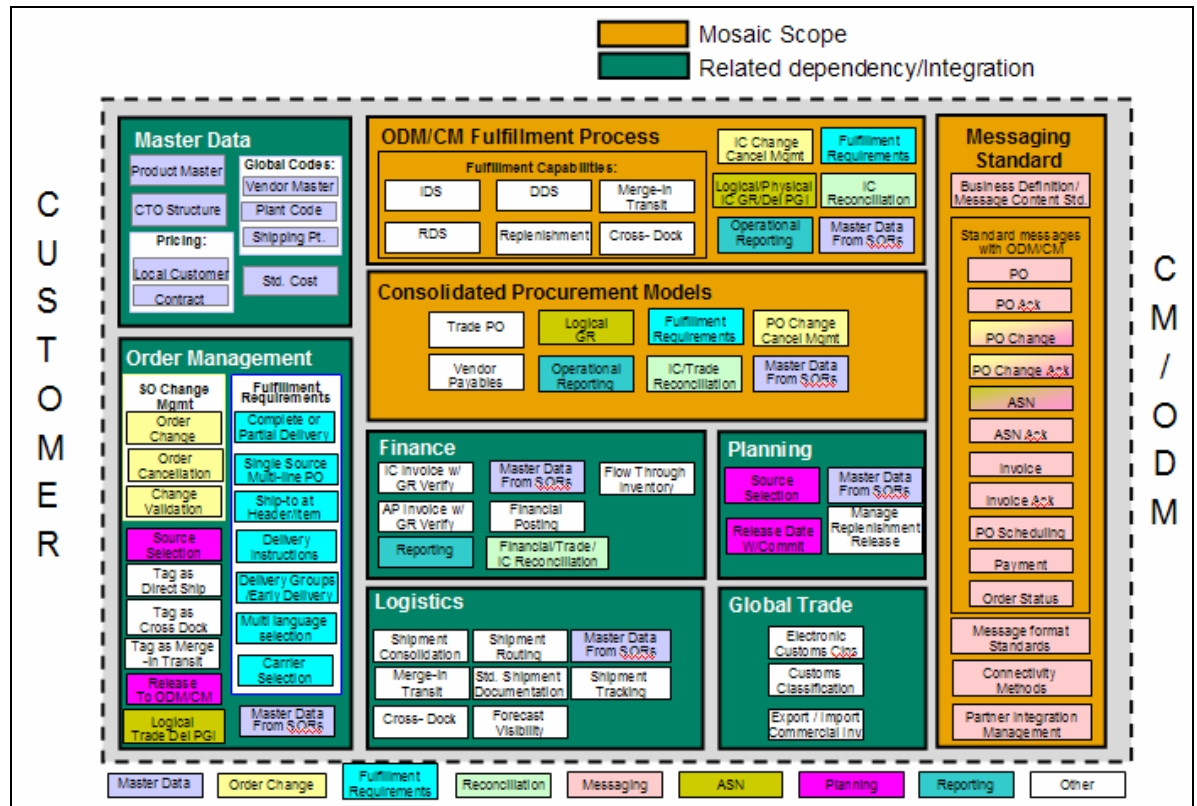


Figure 4: Functional View

Based on the functional view, the Mosaic+ core team determined that the technical architecture could be developed using SAP R/3 configuration or the existing Nexus/Baan system used in Direct Ship process. Mosaic+ identified five IT architecture alternatives for various procurement and finance models for evaluation.

1. Consolidate procurement and finance activities on an existing SAP R/3 Platform
2. Consolidate procurement and finance activities on a new SAP platform
3. Build procurement and finance processes on every OM/Replenishment entity
4. Specific procurement and finance processes on specific SAP entity
5. Modify existing Nexus/BaaN to support business requirement

The goal of the architecture evaluation process was to assess the alternatives from an end-to-end process perspective and on known parameters and experience in working with the existing systems. The evaluation was not intended to compare technical feasibility between SAP and the existing BaaN system used in the direct ship process. The following criteria were used in the evaluation and selection process:

- Pros and cons of each architecture alternatives on specific technical qualities. Examples of technical qualities are implementability, manageability, interoperability and performance etc.
- Relative comparison based on adherence to derived functional principles and requirements
- Business consideration for supporting International Direct Ship (IDS) transaction/Process within a given architecture while domestic direct ship (DDS) and regional direct ship (RDS) processes are transacted within a region SAP instance
- BU IT feedback on business consideration, feasibility, cost and platform availability
- Current and future Plan of Record (POR) impact

Architecture Recommendation

The architecture team decided to use the Analytic Hierarchy Process (AHP) to evaluate candidate architecture for Mosaic+. AHP is a quantitative decision-making methodology that uses pair-wise comparisons to:

- Determine relative evaluation criteria importance
- Determine relative strengths of decision alternatives

AHP is particularly useful in situations where difficult decisions between complex alternatives must be made. In these situations, decisions cannot be solely based on subjective or intuitive consideration. AHP uses pair-wise comparisons to consider all aspects of the complex problem and their relative importance to the decision making process. This allowed the architecture team to rationally choose between otherwise confusing alternatives.

Using a five step methodology, the program determined the relative strengths of the candidate architecture and came up with the weighted score.

While alternative 1 (consolidated on a single existing SAP R/3 platform) was evaluated as being possible best, it would have required routing the regional and domestic fulfillment processes through the central SAP instance, increasing the cost and managing the complexity. In contrast, alternative 4 (specific procurement model on specific entity) allowed regional and domestic fulfillment to remain within the respective regional SAP instance. Also, alternative 4 would require international fulfillment to be routed through the same regional entity supporting purchases from CM/ODM within the region, which allowed for central management of cost and control.

These assumptions were verified by a subsequent detail architecture evaluation which adopted the recommended architecture (alternative 4).

It was also decided to merge Mosaic with TSG's Synergy program and called the merged program Mosaic+. The program also included PSG's business requirements and was used as the basis for further IPG direct ship implementations from the leads. The business and IT teams rationalized milestones, plans, design, approach, etc. within this new context. Key benefits of the program leveraged ongoing work with taking advantage of the existing POR and cost reduction.

Summary

Mosaic+ is currently in its release 2.1 and is moving towards realizing the program objectives as planned. The program today provides significant capability which enables HP to fulfill customer orders from third party suppliers saving costs, reducing cycle time and enhancing customer experience.

This program also highlighted the need for taking a business-driven approach to scoping and delivering architecture for complex pan-HP programs. The key objective of driving consistency and standards based approach has been the highlight of this effort.