

# Visual Composer - How to Reduce Development Cost and Improve Time to Market with a Model Driven Development Tool

## Applies to:

NetWeaver 04s, Visual Composer, Enterprise Portal

## Summary

Visual Composer has been a packaged component of SAP NetWeaver 2004 since its release. This whitepaper aims to address the following questions:

- What exactly is Visual Composer?
- Is it really possible to get away with “no coding” – i.e. should you sack all your ABAP and web programmers?
- How does it work?
- What are its limitations?
- And most importantly what are some of the potential opportunities Visual Composer opens up in your organization?

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## Introduction

Visual Composer has been a packaged component of SAP NetWeaver 2004 since its release in 2005. SAP has hailed Visual composer as the tool set that “lets IT Specialists and Business Analysts create model-based, flexible applications - quickly, without writing a single line of code. The result is streamlined business processes, lower IT development costs, and satisfied employees and customers.”

This is a quite appealing statement as lifting the reliance on programmers and having satisfied employees and customers must be every manager’s dream. However, many questions remain.

- What exactly is Visual Composer?
- Is it really possible to get away with “no coding” – i.e. should you sack all your ABAP and web programmers?
- How does it work?
- What are its limitations?
- And most importantly what are some of the potential opportunities Visual Composer opens up in your organization?

This whitepaper aims to help you to answer these questions.

## What is Visual Composer?

Visual Composer is a model driven web based application which is the result of a collaboration project between Macromedia and SAP. SAP adopted Macromedia Flex’s presentation-tier framework to develop Rich Internet Applications (RIAs) and embedded it in its NetWeaver product set. This means it combines the advantage of the design / modeling interface of Flex and tight integration of SAP systems – which is good news for SAP NetWeaver and R/3 customers. What made such collaboration possible is NetWeaver’s adoption of open internet standards, Java and Web Services. This would have not been possible if SAP had continued with its proprietary development in the ABAP stack.

Visual Composer operates within the Enterprise Portal environment and allows application designers to design and deploy iViews (portal applications) without the need to develop code – yes, it is true, there is no coding involved. However don’t go ahead and sack all your developers yet, as there are some drawbacks which are discussed later in the paper.

## How does it work?

Let's start with its architecture which is illustrated below:

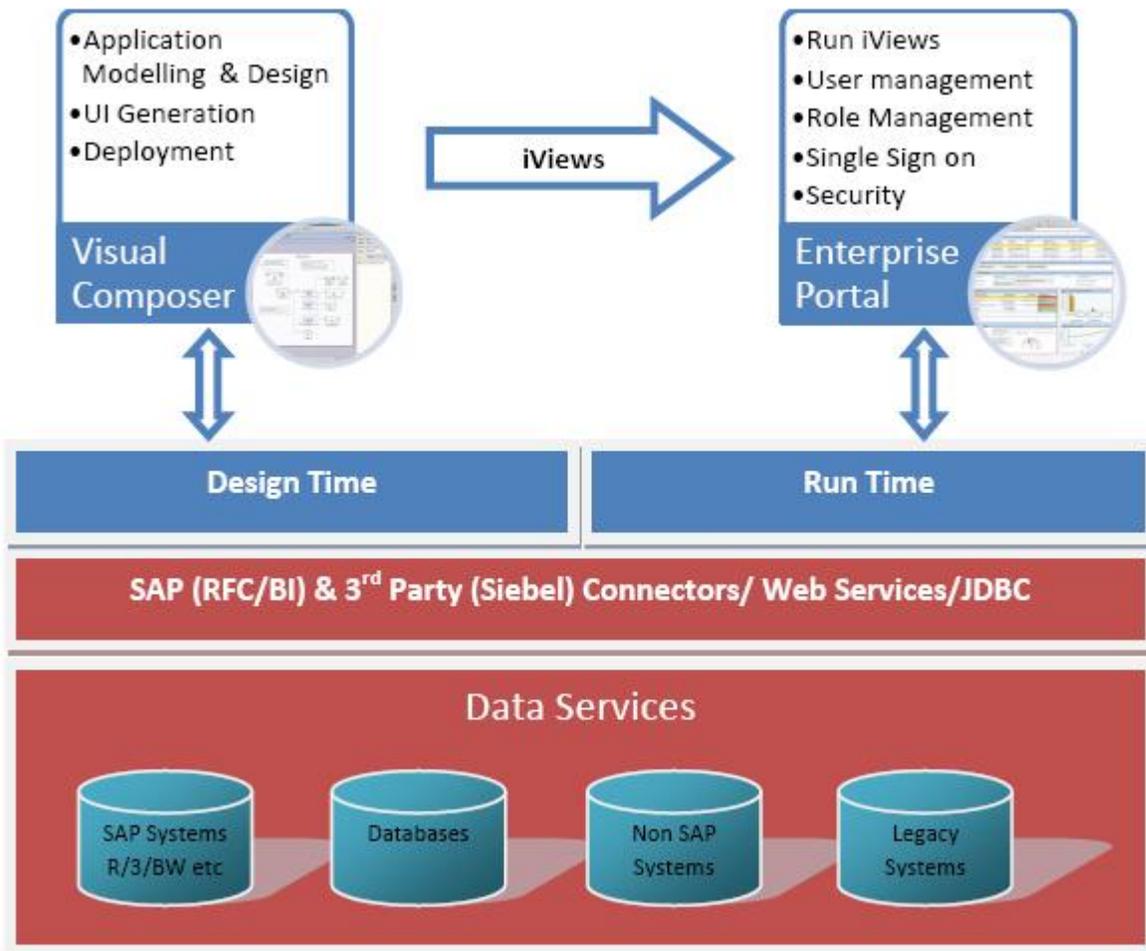


Figure 1 – SAP Visual Composer Architecture

Visual Composer has an intuitive drag and drop “Storyboard like” interface which allows users to model applications with lines and boxes. It introduces the concept of Data Services which are basically a generic term for the various application and backend systems. It utilizes custom connectors (for example SAP’s RFC/BAPI connector) and standard open technologies (such as JDBC and Web Services) to allow users to bring backend functionality to the modeling environment. Take the example of a simple customer self service report where the user would like to view SAP orders online. It typically takes the following steps:

1. Open the data service for the R/3 backend system and search for BAPISDORDER\_GETDETAILEDLIST and bring it into the model;
2. Define an input form which defines the search criteria (e.g. last week, last month);
3. Define an output form which formats the online report; and
4. Compile and deploy the iView into the portal.

From a modeling perspective, the whole process is very simple and intuitive. Please see the screen shot below.

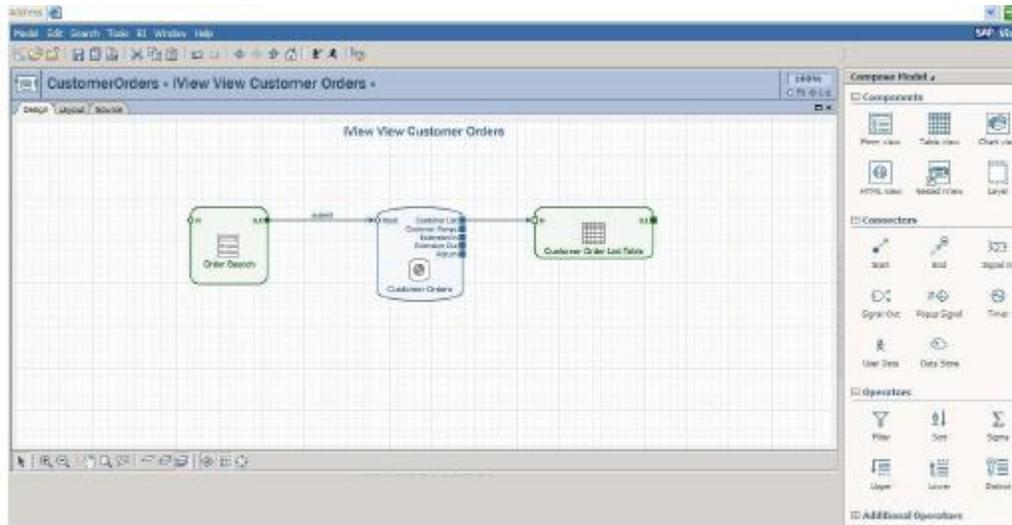


Figure 2 – Visual Composer Design Screen

## Potential opportunities with Visual Composer

As you can see from the example above; the speed and intuitiveness of the tool is evident. So what can businesses use it for? Let's look at a simplified version of a business value chain:

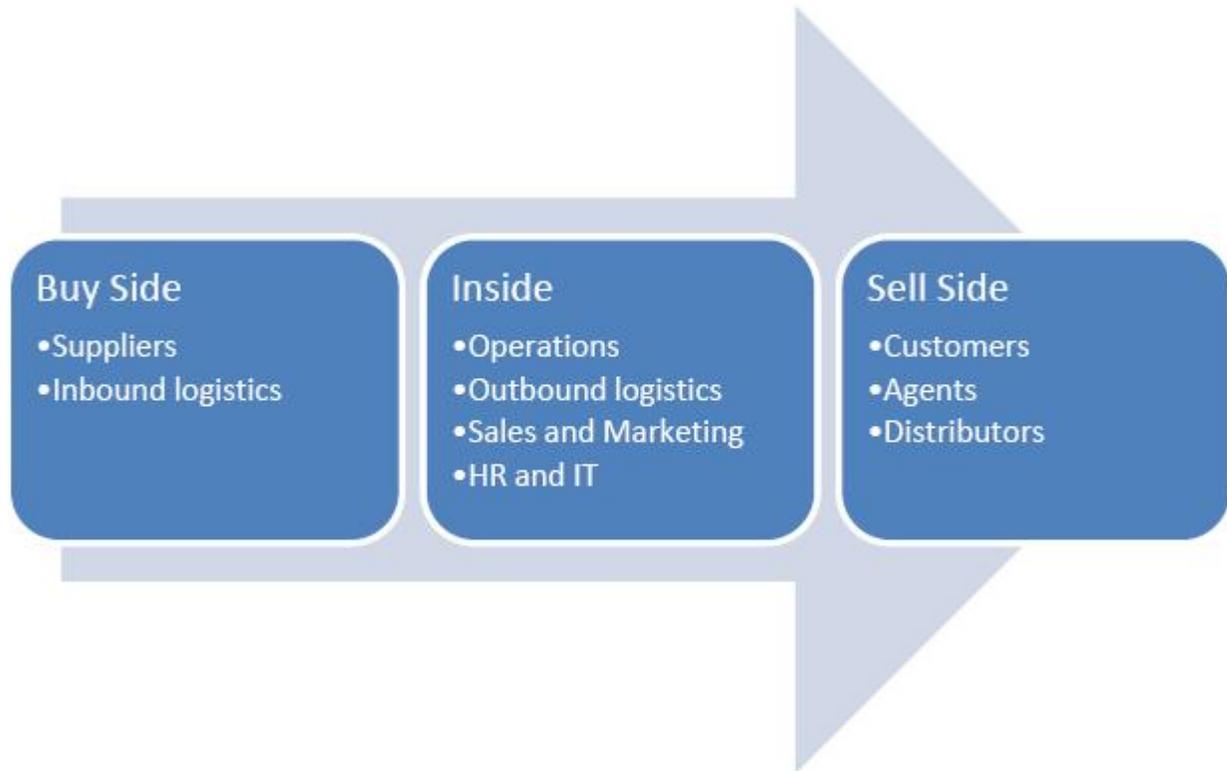


Figure 3 – Business Value Chain

**Buy Side** - from a buy side perspective there are the following possible opportunities:

1. Vendor Management Inventory – quick deployment of portal based reports and applications to allow vendor to view and acknowledge purchase orders, report on stock levels to alert customers potential stock out etc.
2. Customers can connect through web services to vendor system to view the status of the order, track shipping details and stock availability.

**Inside** - with benefits of low cost and rapid development, it opens up a whole host of opportunities for the inside of the organization:

1. With the pre-packaged Business Intelligence (BI) Kit that provides tight integration with SAP Business Warehouse (SAP BW), enterprises can utilize Visual Composer to provide dashboard based analytical information to executives, sales / marketing / operations managers.
2. Visual Composer can also be used to deploy simple workflow-based applications such as absence approval, purchase process automation (the creation and approval of purchase requisitions), timesheet and expenses approval.

3. For Enterprises that have an R/3 backend, Visual Composer can also be considered to simplify areas of the R/3 system which are considered to be complex for certain groups of users. For example, for occasional / casual users who do not need the full range of R/3 transactions and reports, they could benefit from simplified and web-based iViews developed in Visual Composer. This can reduce SAP deployment and training cost, and improve user satisfaction.

**Sell Side** - For customers, agents, distributors, resellers, VC opens up a whole set of opportunities:

1. Customer self service – the order history report example above demonstrates how easy it is to create simple self service transactions / reports which can be deployed to customers. Other potential examples include:
  - a. Invoice history/details;
  - b. Maintain my details (allow customers to maintain their own information);
  - c. Online payment; and
  - d. Check stock availability.

For major / strategic customers, Visual Composer can also be very useful in terms of developing transactions / reports which are specific to the needs of the major customers. For example, a report which provides the purchasing department with the up-to-date information on its spend on specific products.

2. For agents, distributors and other resellers, VC can be utilized to develop portal based solutions. For example, in an enterprise with thousands of distributors / agents, it may not be cost effective to give them all a SAP R/3 client and connect them up to your core business' internal network. A cheaper alternative might be a web portal with applications developed in Visual Composer.

Another great benefit / usage of Visual Composer is that it can also be utilized as a general Rapid Application Development tool for prototyping and proof of concept in a large implementation project to allow business analysts to test drive new processes, ideas and concepts very quickly without the need to invest large amount of time and efforts upfront and subsequently cut down development time / cost later on during the project.

## What are its limitations?

The story so far has been very positive. However, it is also very important to understand how and where Visual Composer should be positioned and its limitations as a rapid application development tool. The figure below tries to position Visual Composer against developing custom web based applications with SAP R/3 and NetWeaver.

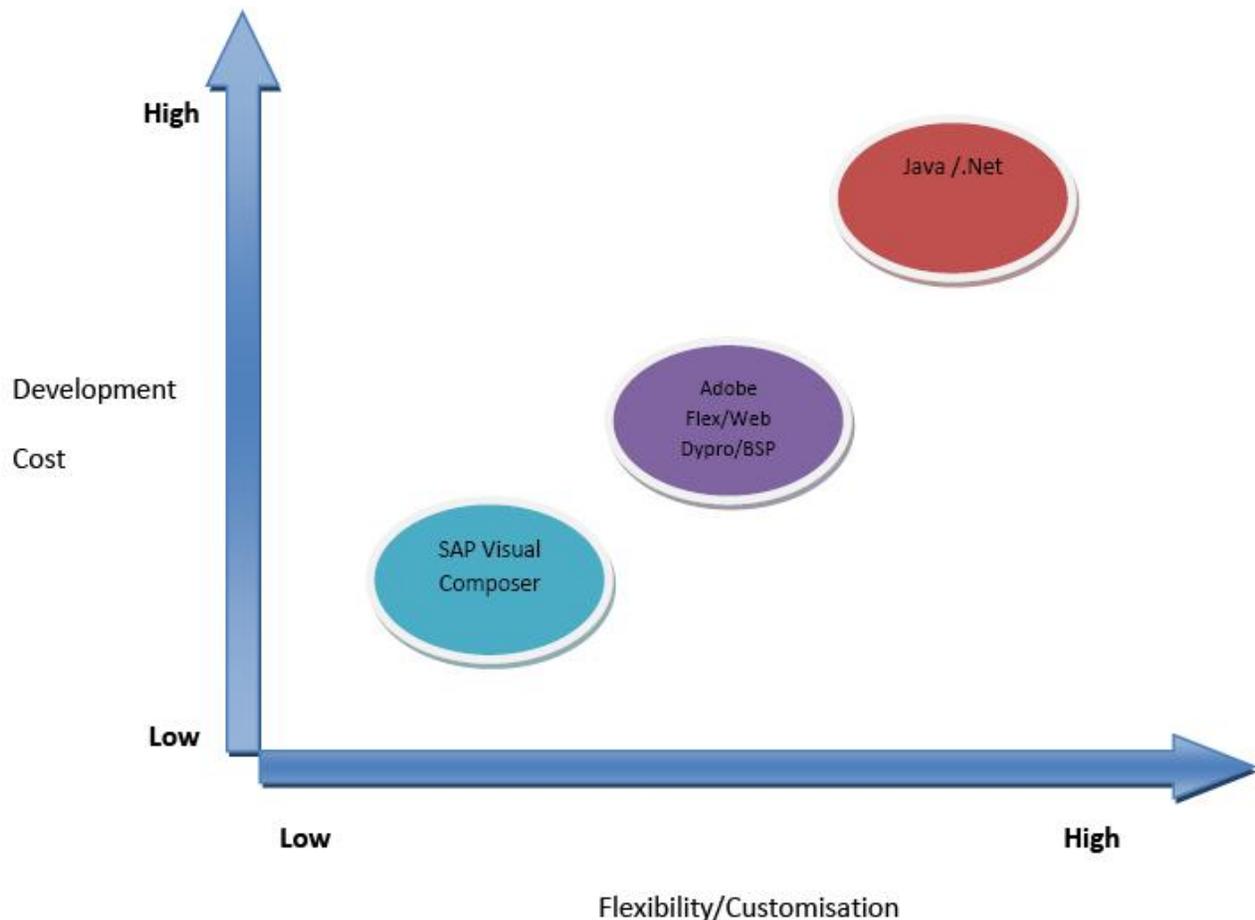


Figure 4 – Visual Composer Positioning

The figure above illustrates one of the key limitations of Visual Composer – the lack of flexibility. However, this is also a key enabler to allow Visual Composer to model and develop applications quickly.

The concept is very similar to SAP R/3. A packaged solution such as SAP R/3 is likely to meet your business' broad needs, with the implementation and customization of R/3 costing less than having to build the application from scratch. However, you are likely to change your existing business processes to fit with some of the pre-packaged ones in R/3, and you are stuck with the user interface that it provides. Visual Composer has similar limitations.

Firstly, you will need to be a big fan of the color "blue" if you want to use Visual Composer. Marketing Managers will gasp in horror when looking at the standard ("out-of-the-box") stylesheets. Similarly to R/3, Visual Composer comes with its predefined user interface and even color scheme. To change the color of your applications, you will have to customize the application by editing the stylesheet file on the server – which is clearly not recommended from a development "best practice" point of view. This means Visual Composer may not be most suitable for developing applications which have a strong branding focus and

require a complex / flexible user interface. However, this may be addressed / improved in future releases of the tool.

Secondly, Visual Composer applications are based on the SAP Enterprise Portal and SAP NetWeaver infrastructure. This means that you will need to have SAP NetWeaver installed in order to utilize Visual Composer (not the case when you are using the standard Adobe Flex development suite).

Thirdly, Visual Composer relies on connectors and web services to interact with different data services. Developing connectors can be expensive and there are not too many available – apart from what comes delivered with SAP NetWeaver. In the absence of connectors, if your backend systems do not support Web Services, it may not be possible to fully utilize Visual Composer.

Lastly, Visual Composer operates on the assumption that the backend functionality (BAPI, RFC, Web Services etc) has already been developed or existing out-of-the-box connectors meet the business' need. However, if this functionality does not exist, it will have to be built before business analysts / designers can use Visual Composer to model the application.

## Summary

Visual Composer has been an excellent addition to the SAP NetWeaver platform. Combining Adobe Flex's model driven RIA design and development capability with SAP NetWeaver's integration platform has created a very intuitive and yet powerful application. Pre-packaged SAP Business Intelligence and BAPI/RFC connectors allow Visual Composer to open up various opportunities with the one of the most popular ERP system in the world – SAP R/3. If your business already has NetWeaver 04 and finds that the user interface it provides does not meet your requirements, Visual Composer can potentially save you a lot of time and money in developing custom applications.

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