

# **Integrating Plant, Trading and Marketing Data with Refinery Planning - Using an Enterprise Portal**

*K.Balasubramanian & Atul Agrawal  
Infosys Technologies Ltd.*



**AspenTech India**

**Refinery Planning and Scheduling Seminar 2004**

## **The Fact**

LP optimization systems  
are the most popular and useful tools  
for refinery business planning

## The Expectations

### ◆ CEO

*“...should be able to plan the cash flows and manage the risks in my business...”*

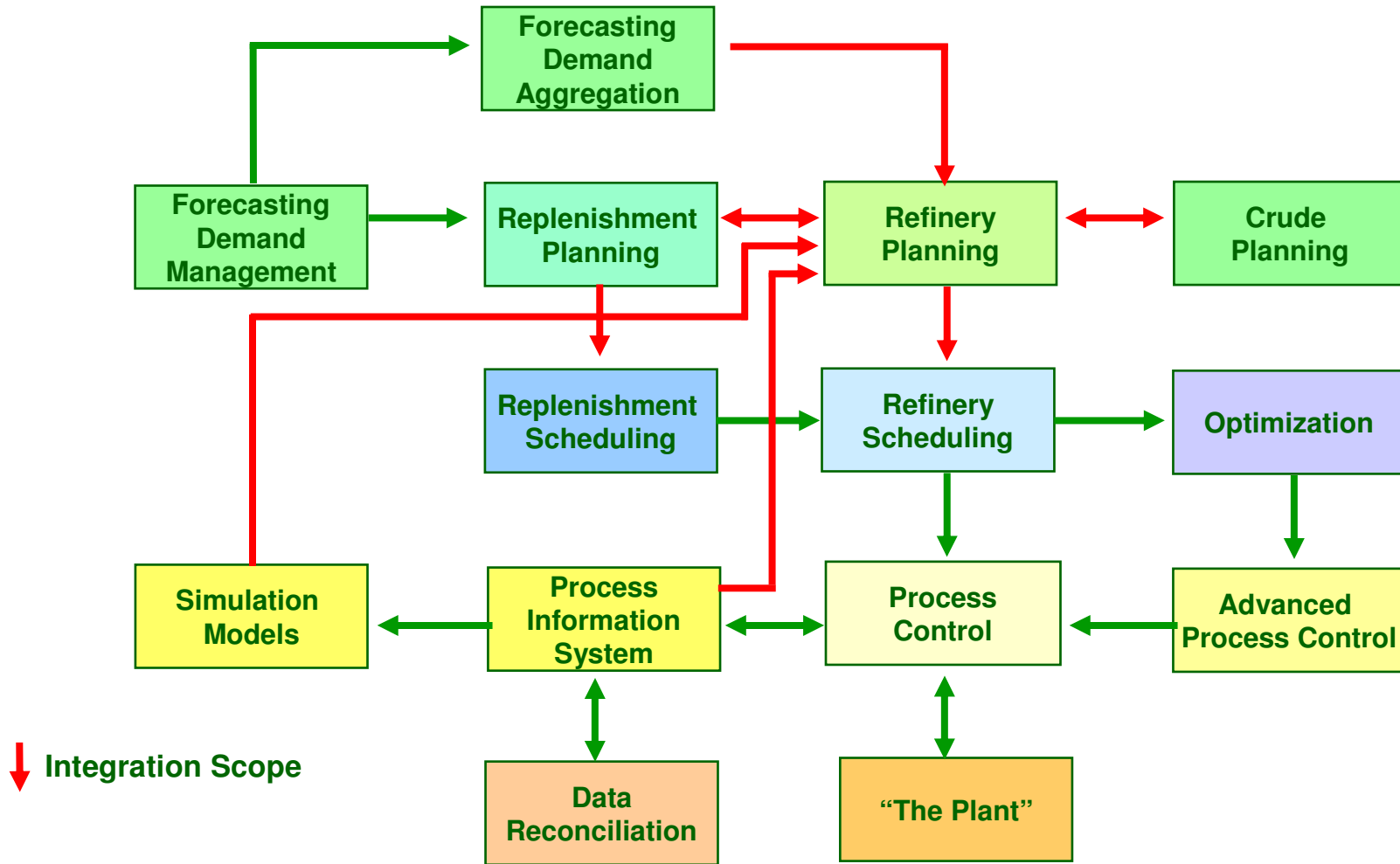
### ◆ Refinery manager

*“...should be able to plan in detail up to the level of blend stream composition and properties...”*

### ◆ Traders

*“...should be able to get robust indifference value for term and spot crudes...”*

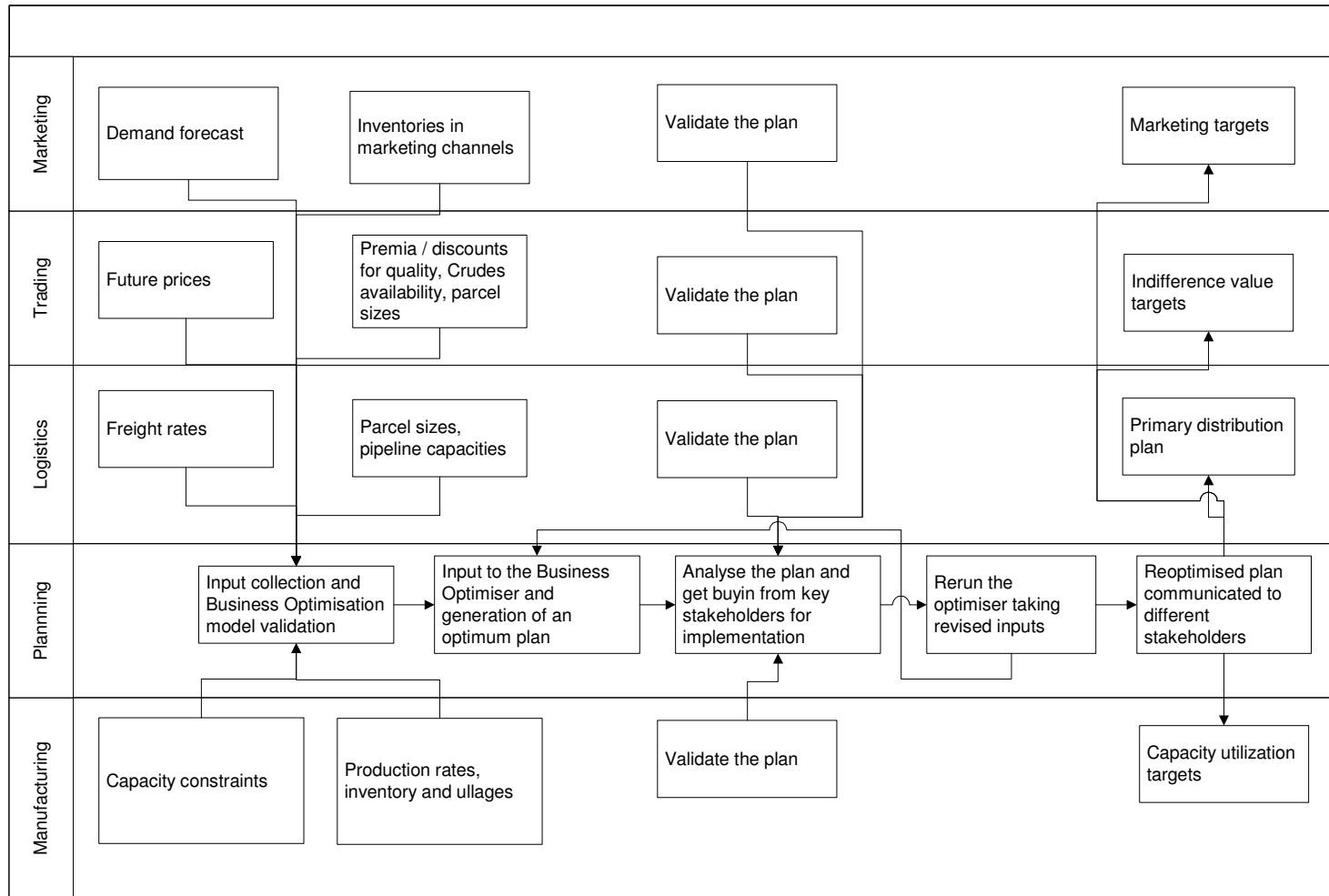
## Refinery Planning Context



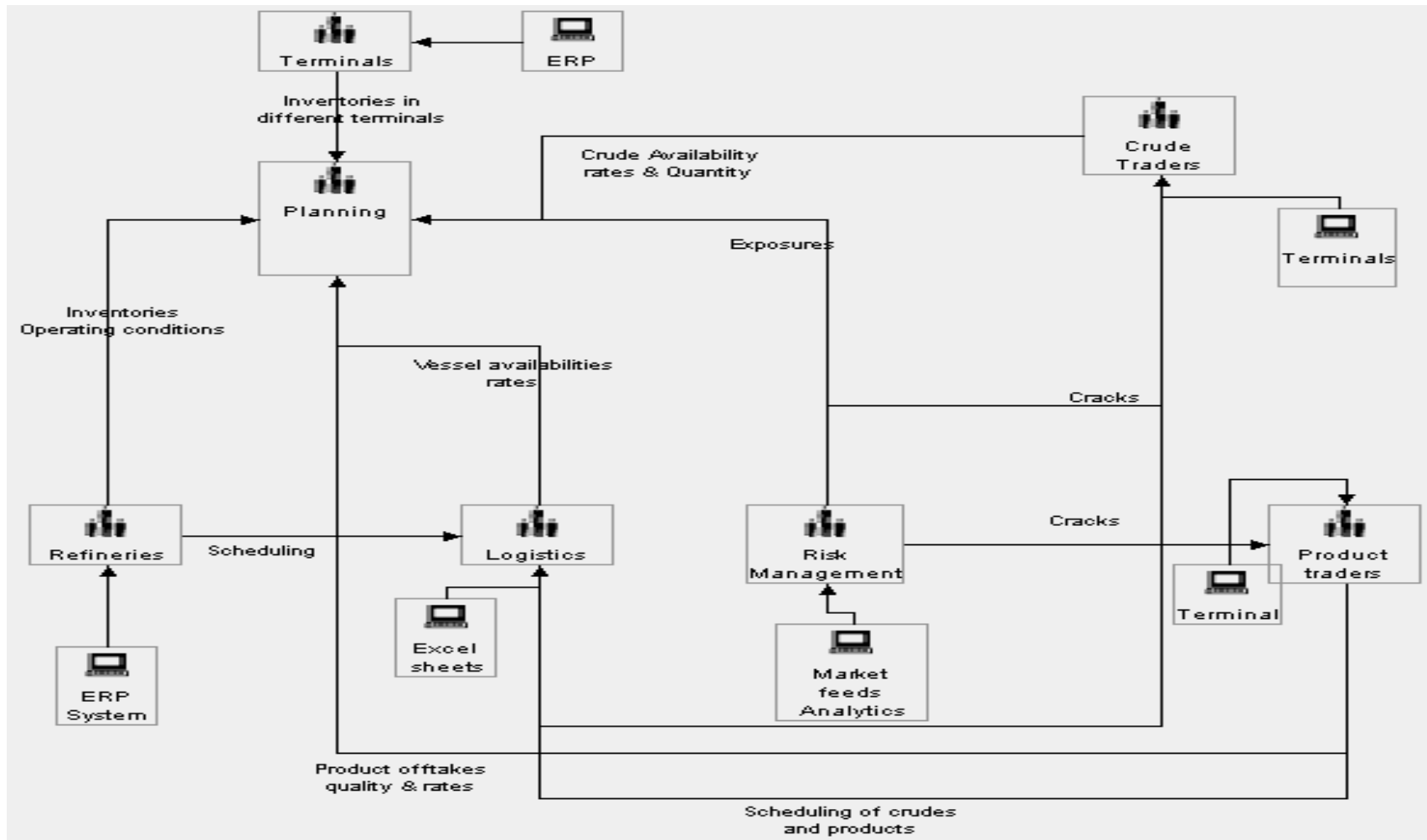
## Current business process - Steps

- ◆ Collection and consolidation of Inputs
- ◆ Cleaning and validating of the inputs
- ◆ Inputting of data in the model
- ◆ Running the model
- ◆ Publishing the reports
- ◆ Communication of the reports
- ◆ Storing of the reports and the models

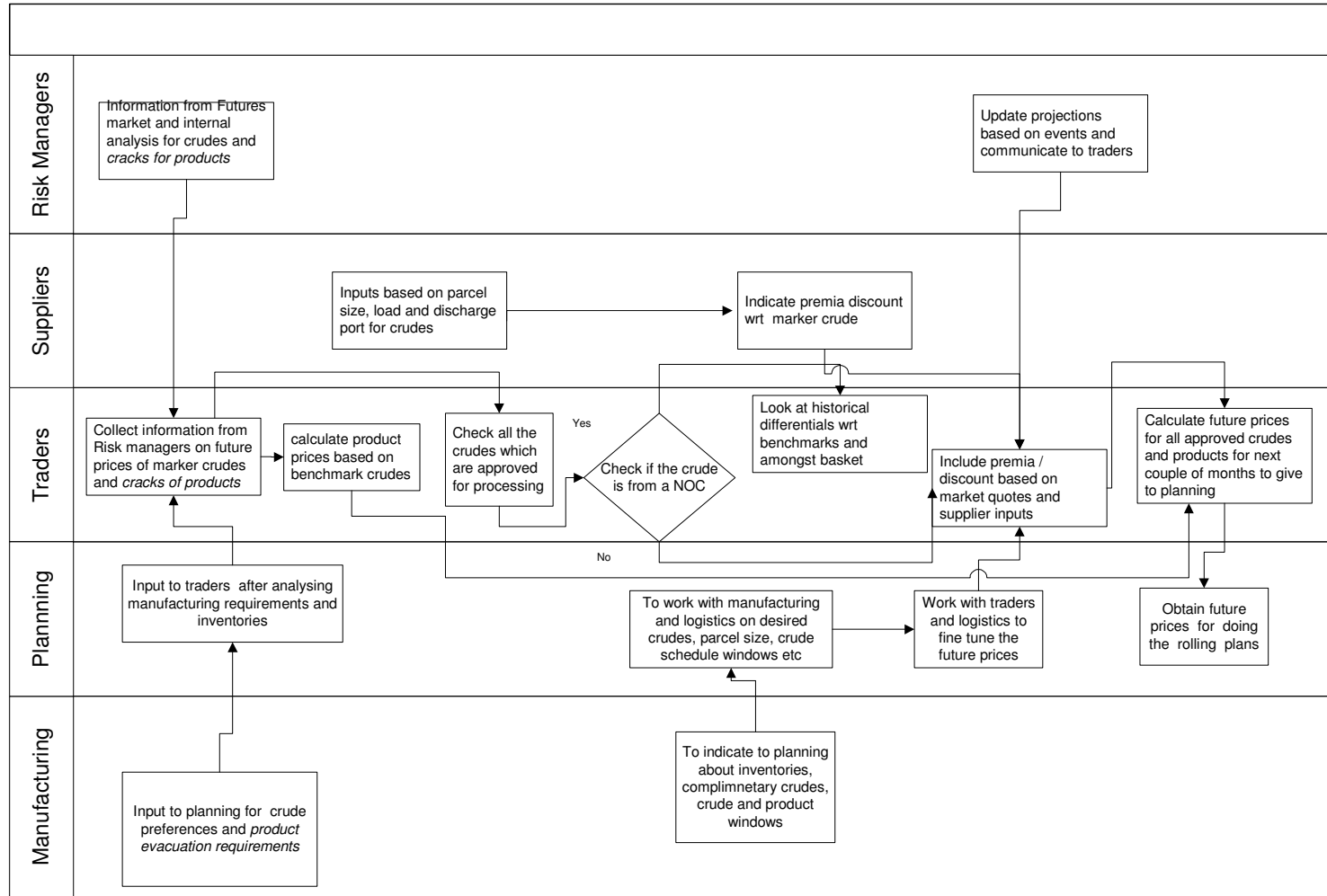
## Sample Current business process



## Sample Current business process – Data collection process



## Sample Current business process – Future price calculation process



## Now, consider some “events”...

- ◆ A new crude parcel becomes available
- ◆ A spot crude is suddenly available at a cheap price or there is an arbitrage opportunity for a particular product
- ◆ A conversion unit breaks down
- ◆ A marketing channel is down due to problems in pipeline or terminals

## The Expectations

### ◆ CEO

*“...should be able to understand the \$ implication of any such “event” in the oil market on my business...”*

### ◆ Refinery manager

*“...should be able to plan minutely and quickly react in case of any variation from the plan...”*

### ◆ Traders

*“...should be able to react quickly to come out with indifference values for spot crudes...”*

## Issues with current business process

- ◆ Very time consuming process with need for extensive follow ups.
- ◆ More time spent in data gathering and follow ups and less time available for data validation, results interpretation and scenario analysis
- ◆ Difficulty in storing, archiving and accessing previous input data. Plans and models
- ◆ Stale data used for planning process resulting in inaccuracies
- ◆ The productivity gets compromised
- ◆ And the planning effectiveness is undermined
- ◆ *Thus the organization can not take advantage of “events”*

## The Solution Requirement

### ◆ *Data Integration*

- so that the plant information system, tank information system, ERP system can send updated information

### ◆ *Planning Data Storage*

- so that planning input data can be viewed, processed and validated.

### ◆ *Fragmented and Unstructured Data Storage*

- Like Marketing and Trading Data – So that Updated data is available.

## The Solution Requirement

### ◆ *User Interface at Multiple Locations*

- so that users can update, view and validate unstructured data

### ◆ *Automation of the Planning Input Sheet Preparation*

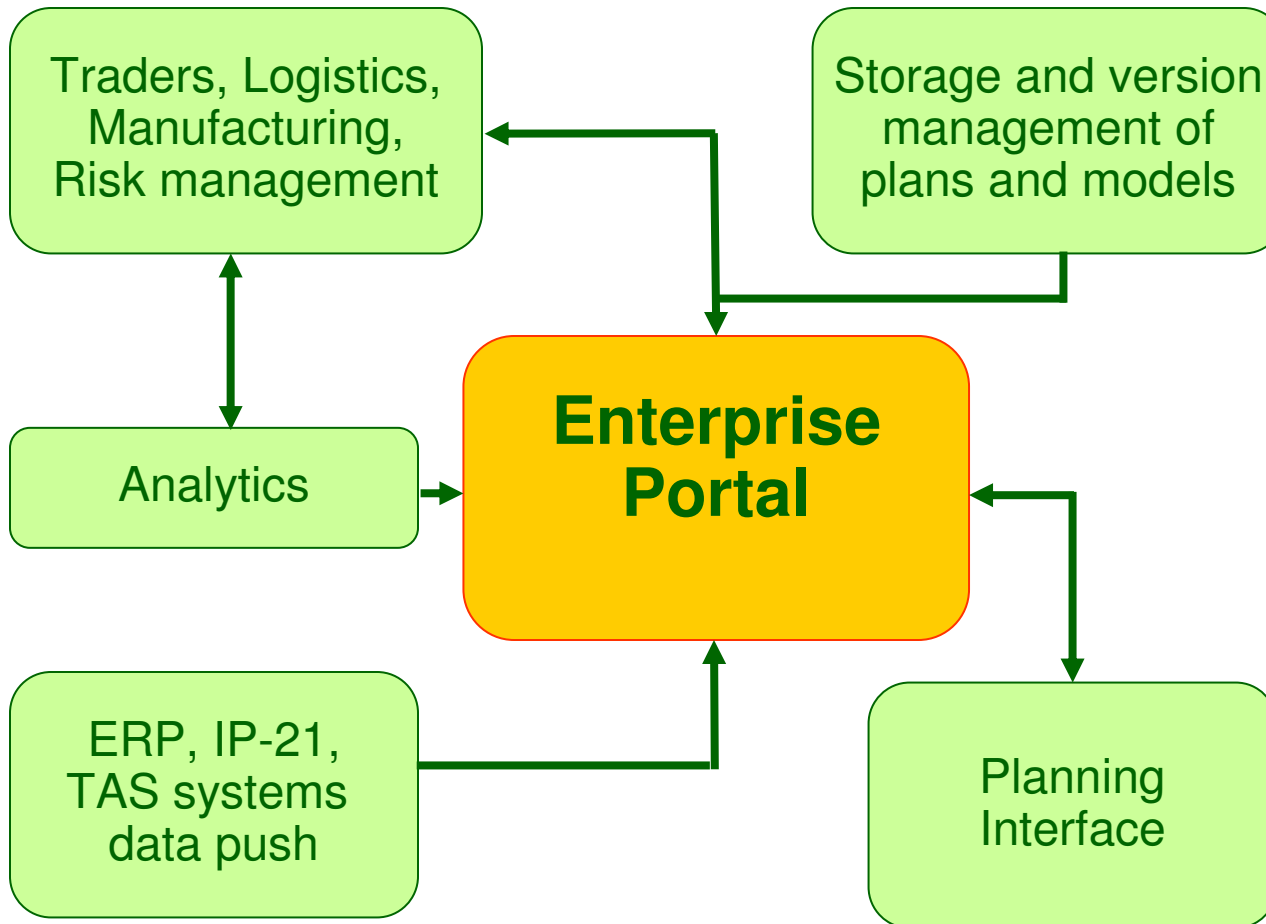
- so that the planning resource can spend more time in planning output interpretation

### ◆ *Results Analytics*

- so that the planning inputs, outputs as well as operating data, external data etc. can be viewed and analyzed together

**An Effective Solution  
is  
An Enterprise Portal**

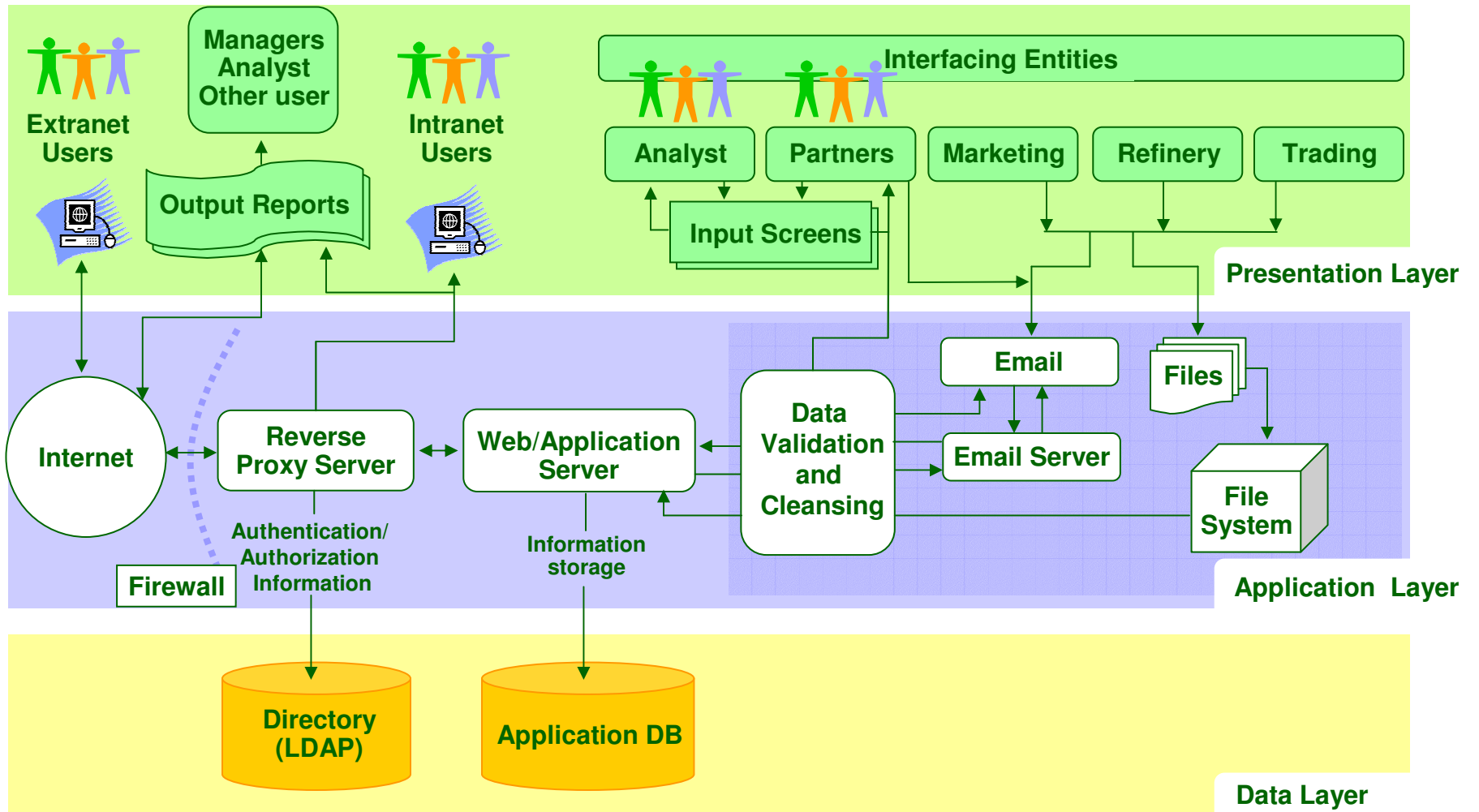
## Business process with an enterprise portal solution



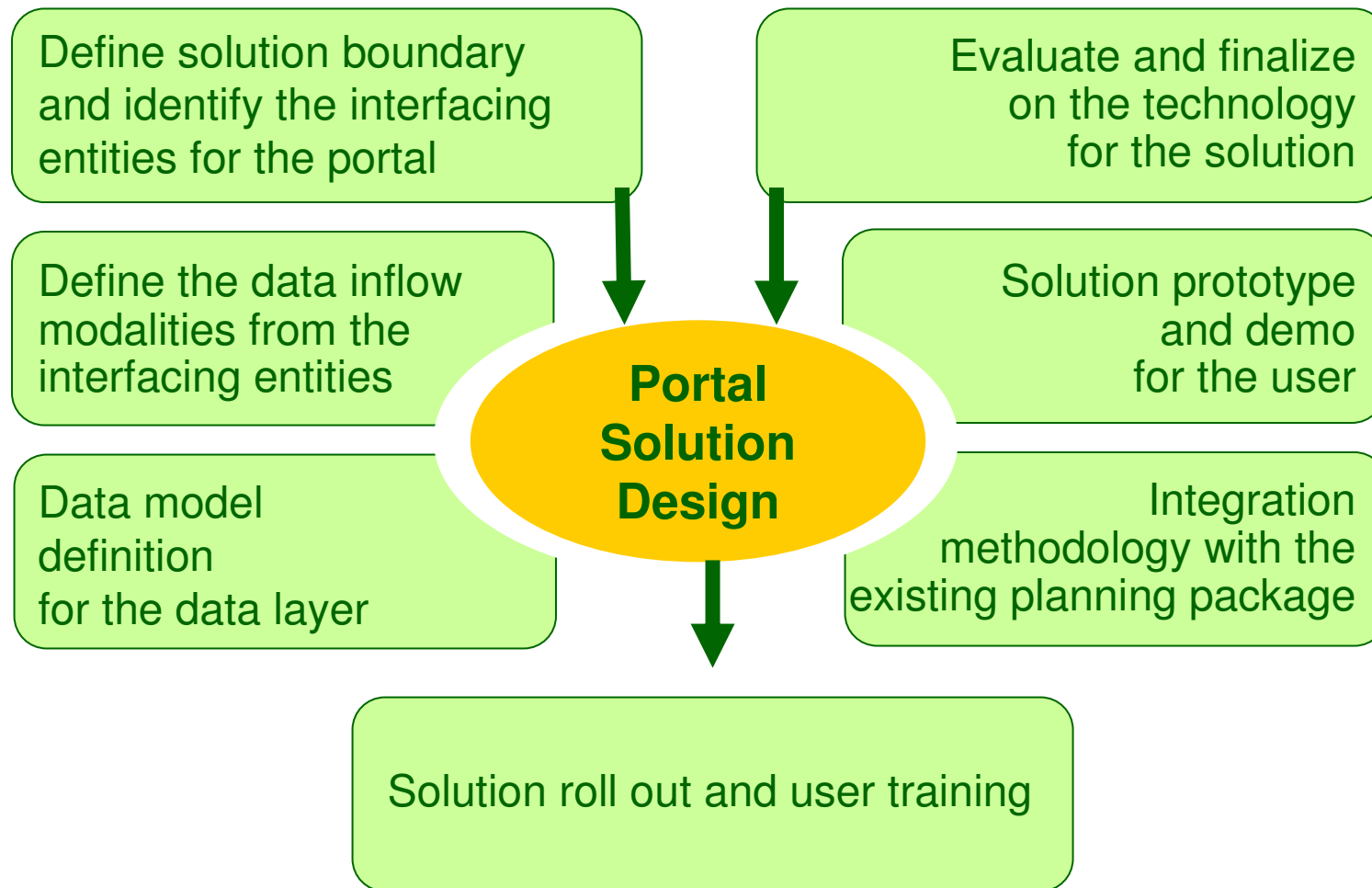
### Salient points

- *Email / sms alerts*
- *Step wise notification*
- *Analytics*
- *Web interface*

## Logical architecture



## Implementation approach



## Advantages of an Enterprise Portal in Refining Planning Business Process

- ◆ A Portal brings in automation at data collection and consolidation stage of the refinery planning, thus enabling quicker and more accurate decisions.
- ◆ Reminders and follow ups for data updation
- ◆ Event based Planning
- ◆ Archival and storage of plans and models
- ◆ Version control of plans and schedules

## Advantages of an Enterprise Portal in Refining Planning Business Process

- ◆ Data for LP sub model update
- ◆ Consolidation of refinery planning related data would help to build in business intelligence around the refinery planning process.
- ◆ Modeling capabilities can be built in by extrapolating historical data.
- ◆ Effectiveness of the planning can be measured / analyzed after the execution and thus decision making model can be fine tuned over a period of time.
- ◆ Portal would provide a 360 degree view into the entire planning process.