

# Workfront Management: l'integrazione tra Material Management, Planning e Costruzione



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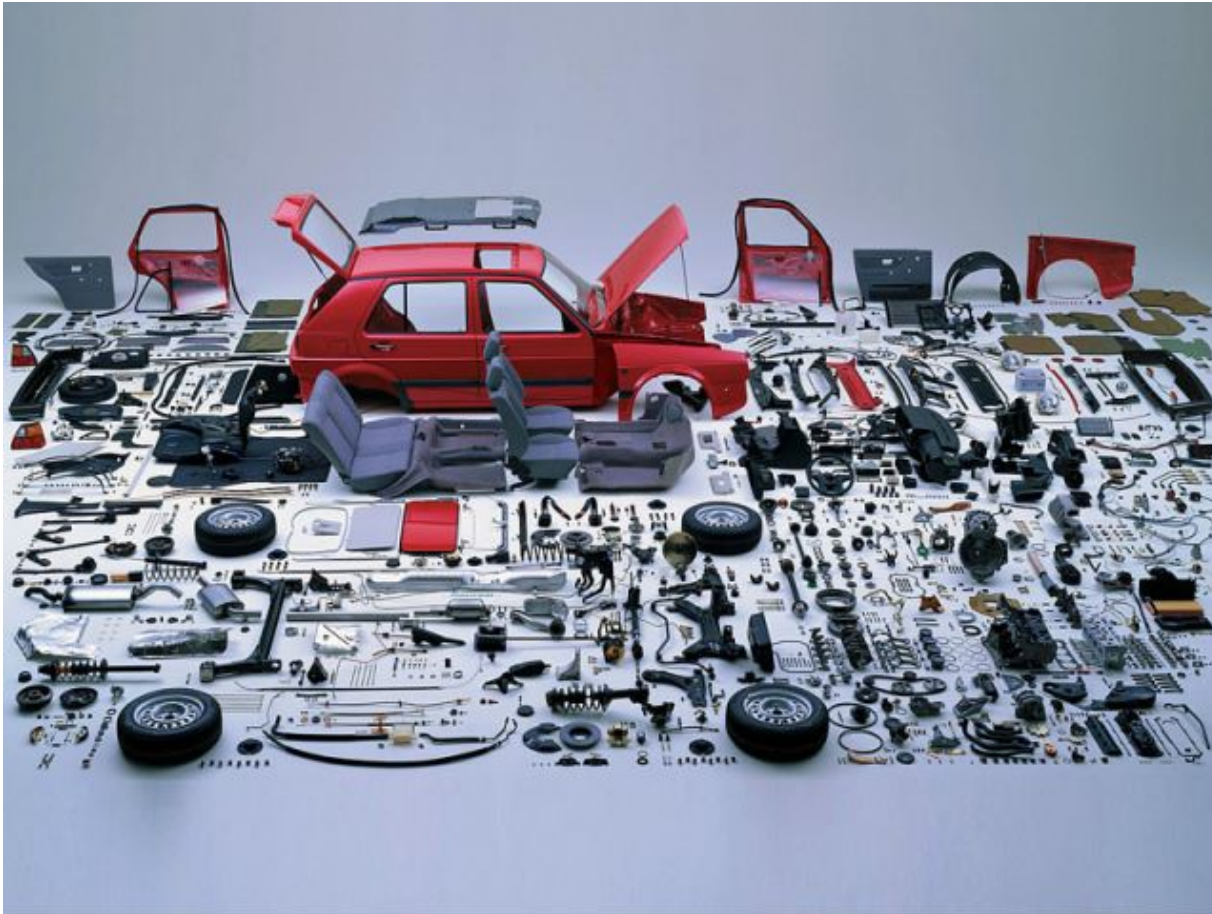
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**Federico OLEARI** - Planning Manager

**Stefano MINGARDI** - Piping Material Manager

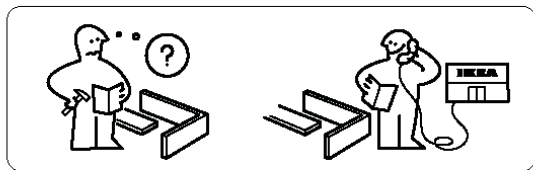
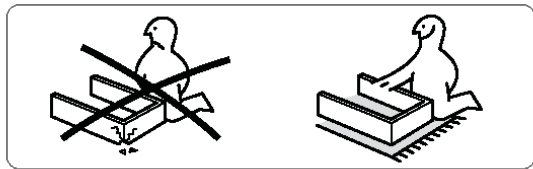
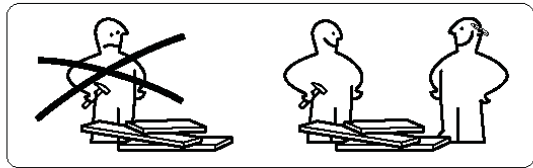
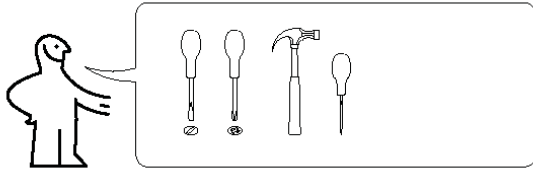
Rome 22 July 2013 – IPMA Italy Seminar

# Site Managers' Dream....

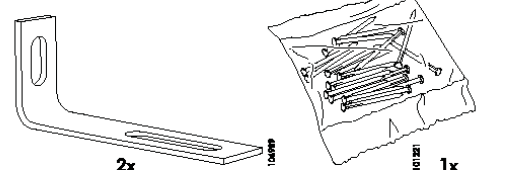
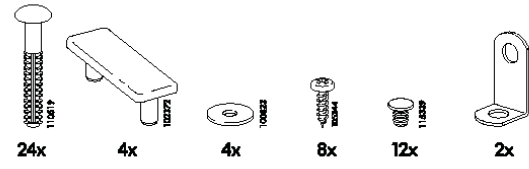
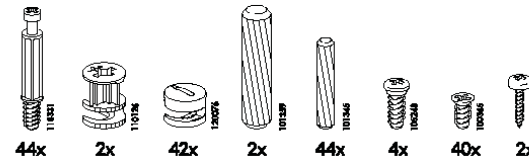
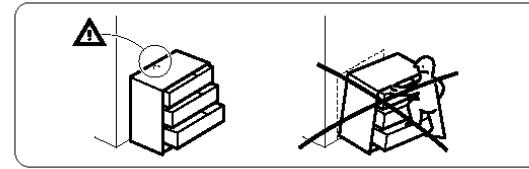


[ Full availability of all materials

# Site Managers' Dream....



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AA-90155-9

[ General Instruction (including needed TOOLS and QHSE)

# Site Managers' Dream....



## ISTRUZIONI DI MONTAGGIO

TECHNICAL ADVISE FOR ASSEMBLING

**TEL: 080/4553211**  
**CEL.: 329/0069349**

UTENSILI OCCORRENTI <small>REQUIRED TOOLS</small>	ACCESSORI CONTENUTI NEL KIT <small>ACCESSORIES CONTAINED IN THE KIT</small>	1. Rilevate la misura del bordo del piatto doccia o della vasca da bagno. <small>1. Verify the right size of shower plate or bath.</small>	2. Tagliate le guide di scorrimento, inferiore e superiore, già millimetrata, in base alle misure rilevate. <small>2. Cut the already millimetred lateral jambs (the upper and the lower) on the basis of the verified size.</small>
			
<p>4. Poggiate i montanti laterali sul bordo del piatto doccia o vasca da bagno, segnate e fate i fori. <small>4. Lean the lateral jambs on the bases of the shower plate or bath, mark and perforate.</small></p> 	<p>5. Mettete i tasselli nei fori e bloccate i montanti laterali con le viti, siliconando le squadre inferiori. <small>5. Put the fishers into the hole and after blocking the lateral jambs with the screws, put the silicon in lower and near the wall angles.</small></p> 	<p>6. Inserite le guide di scorrimento nelle squadre dei montanti e siliconate la guida inferiore. <small>6. Insert the two terminal profiles into the wall-angles and put the silicon in the lower terminal profile.</small></p> 	<p>7. Bloccate con le viti tutte le squadre. <small>7. Block the wall-angles by screws.</small></p> 
<p>9. Montate la maniglia sul porta-maniglia. <small>9. Apply the handle into the handle bearer.</small></p> 	<p>10. Sganciate il profilo a scatto dall'ultimo pannello e inseritelo nel montante laterale. <small>10. Take off the spring profile near the last panel and insert it into the lateral jamb.</small></p> 	<p>11. Agganciate l'ultimo pannello nel profilo a scatto. <small>11. Put the last panel into the spring profile.</small></p> 	<p>N.B. Per il modello CUBA vanno montate due squadre di rinforzo. <small>P.S. For CUBA model must be mounted two wall-angles.</small></p> 
			

[ Clear and complete Instructions

# Site Managers' Dream....



[ The PM shall grant this and Make It Happen!

# Starting the Project....

Define the project Strategy on the basis of the contractual basis and constraints

- **Defining Workfronts, considering:**

- WBS
- Design Activities
- Procurement campaign
- Construction activities sequence
- Site Milestone
  - Site Prep.;
  - Civil (Foundations & U/G)
  - Steel Structure and Equipment,
  - Piping Prefabrication and Erection

**Finally in the first period the Schedule and the Workfronts Curves shall be defined to set the Baseline of the Project**



# Workfront Management

- **Workfront Analysis is essential for all critical chains in the projects:**
  - Piping Prefabrication work process
  - Piping Erection work process
  - Steel structures erection work process
  - Electrical/Instrument cables: installation (in case of underground cables)
  - ...
- **Workfront Analysis needs to be executed during the life of the project:**
  - At Planning Stage
  - During Control and Review phase
  - During Construction phase at Site

# Workfront Management by Planning during Project life

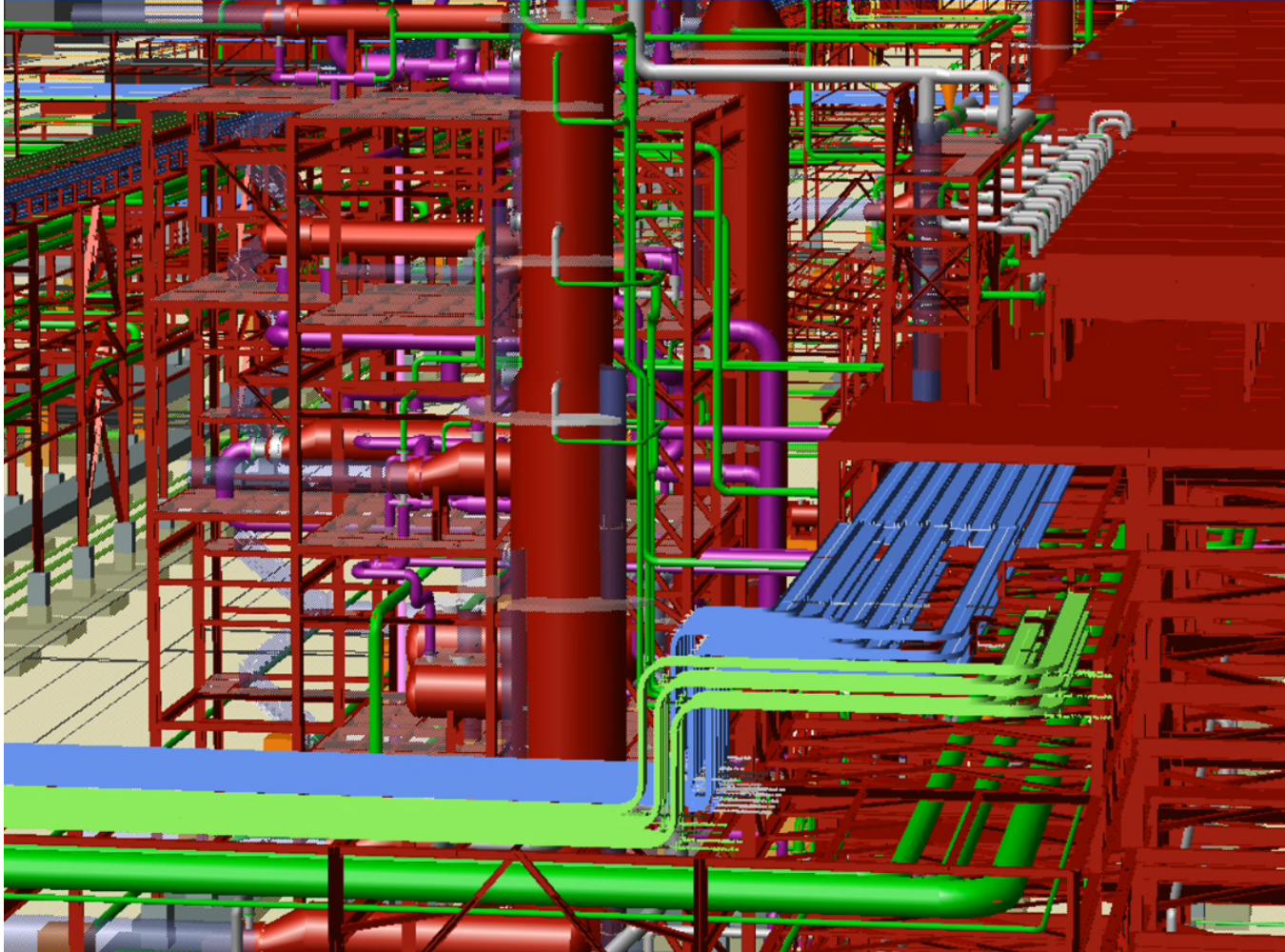
## Planning stage

- **Work process strategy is defined in the Baseline Schedule, based on:**
  - IFC design documents plan (quantitative info, i.e. issued quantity % curve)
  - Material purchasing and availability plan (quantitative info, i.e. availability % curve)
  - Construction plan (quantitative info, i.e. physical progress % curve)
  - Conditions (in terms of quantitative info) to be fulfilled in respect of Project Execution Plan implementation:
    - Target workload availability for starting construction
    - Minimal back-up requirement
    - ...
- **Then Baseline Schedule clarifies sequences that support Workfront**



# Piping Prefabrication work process

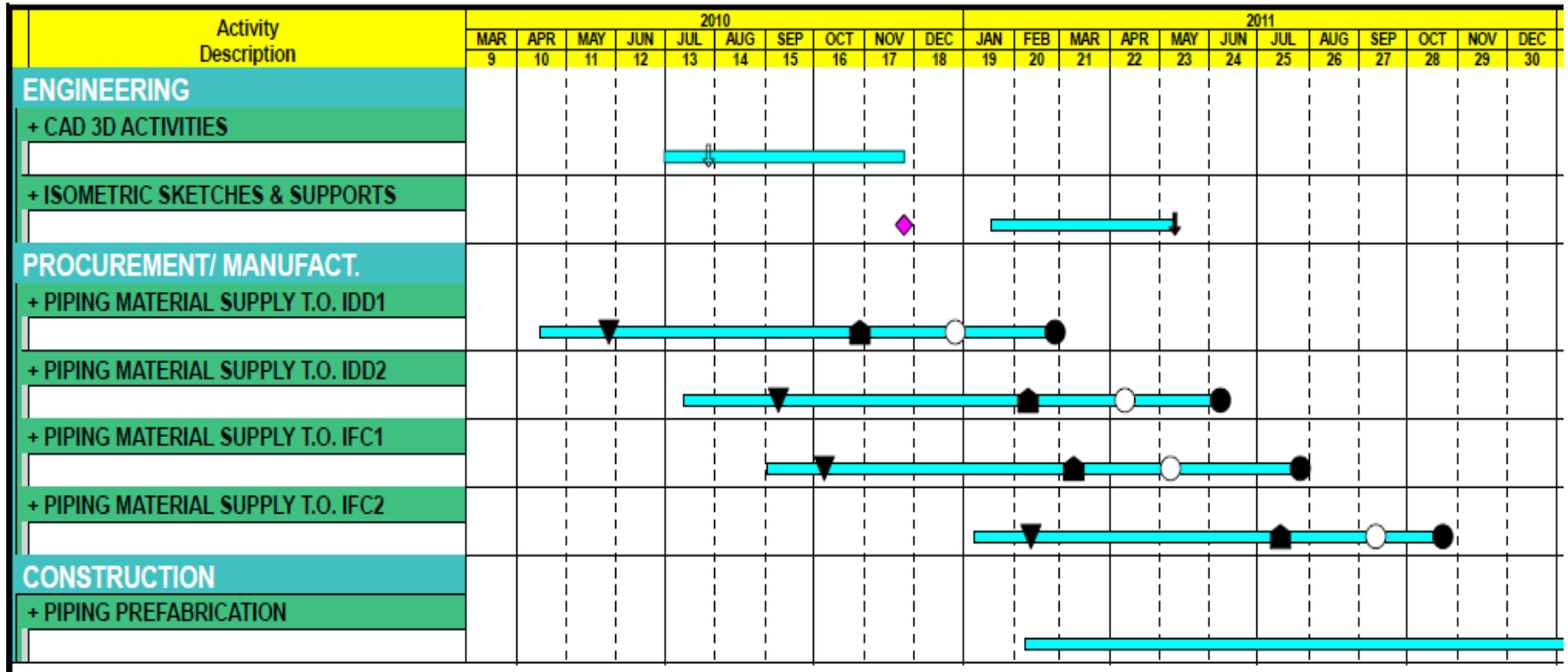
## A typical case



# Piping Prefabrication work process

## A typical case

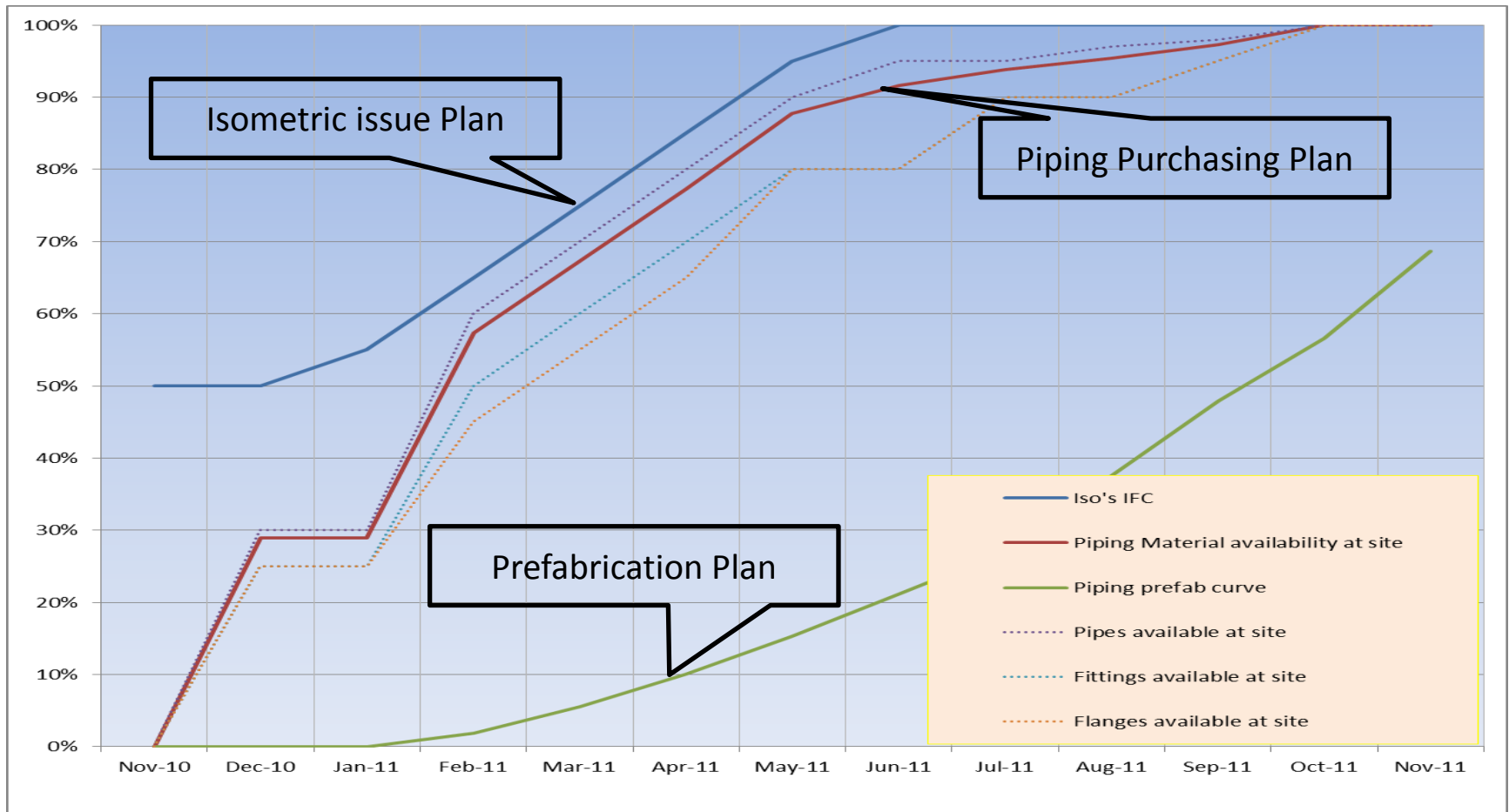
### Baseline Schedule – Work Process Sequences



# Piping Prefabrication work process

## A typical case

### Quantity Plan at Initial Stage



# Workfront Management by Planning during Project life

## Control and Review phase

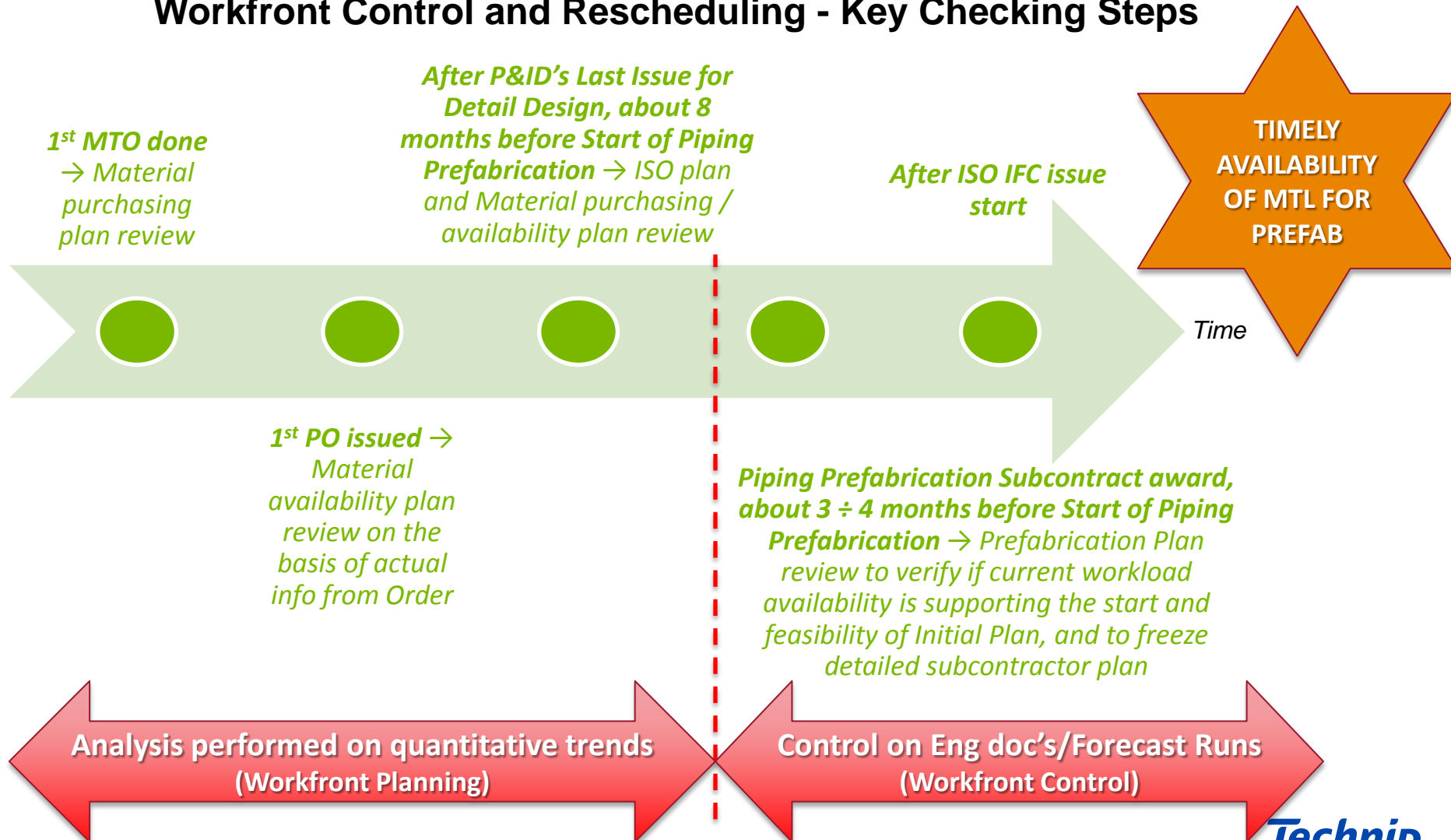
- During project execution, with progressing of information, Workfront Quantity Plan shall be updated and monitored to insure the consistency at a specific moment of the current workload availability with that one defined at initial stage
- Workfront Analysis shall be performed at key steps during the life of the project for all critical chains

**Workfront Management is a tool to support Project Manager decision: confirm the plan or implement corrective actions**

# Piping Prefabrication work process

## A typical case

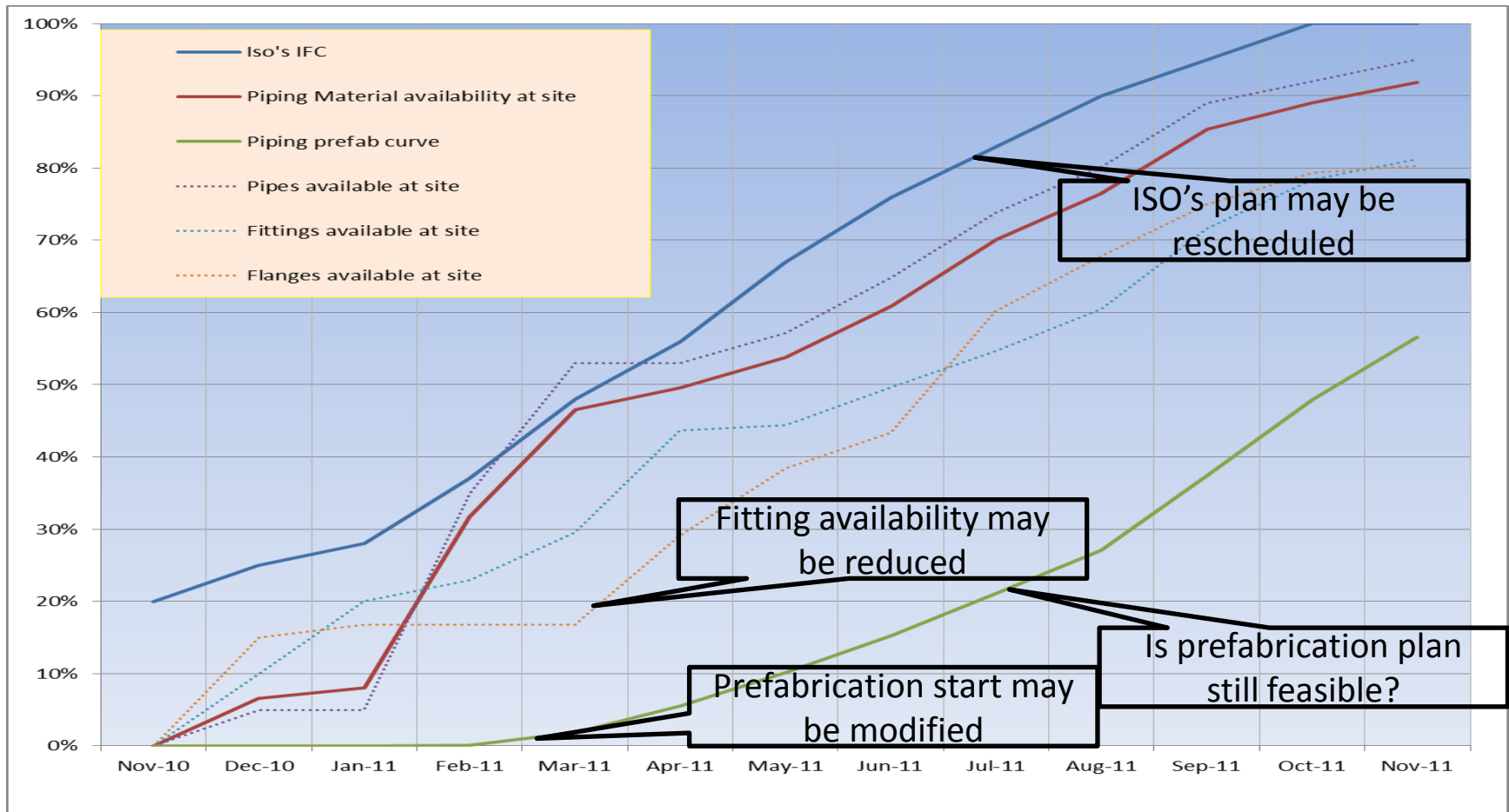
### Workfront Control and Rescheduling - Key Checking Steps



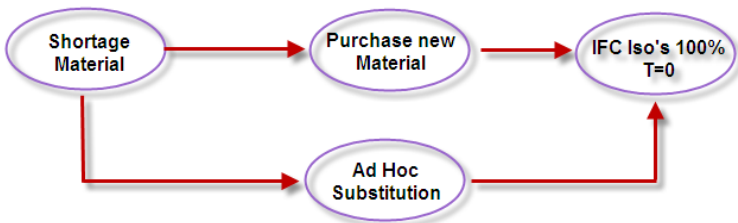
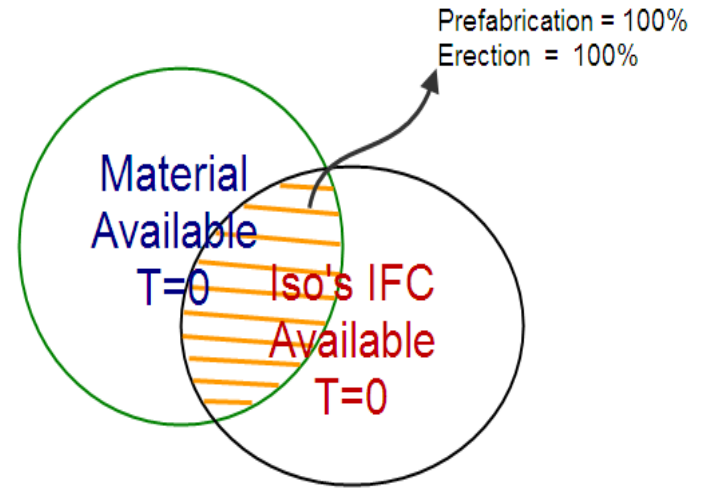
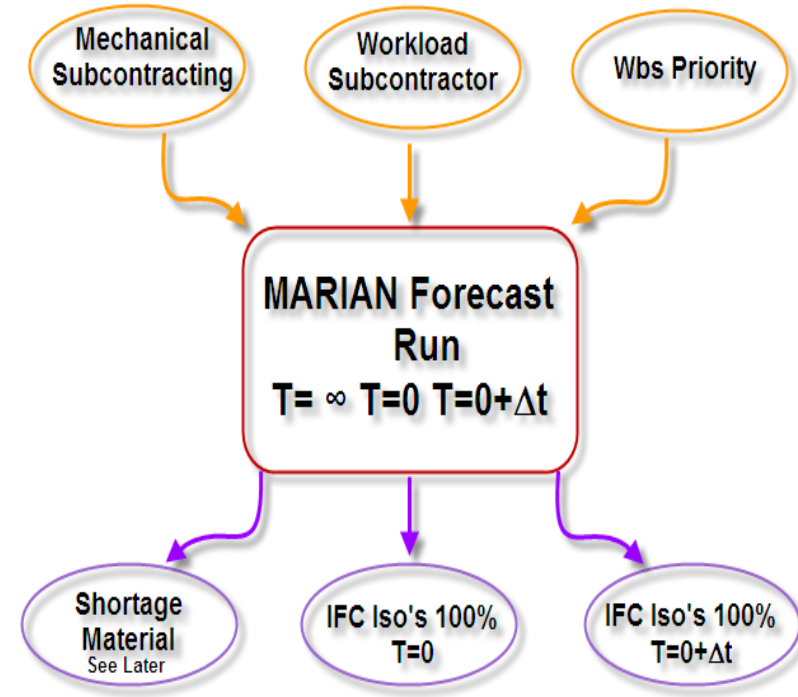
# Piping Prefabrication work process

## A typical case

### Updated Quantity Plan



# FORECAST RUN: process



Possible other split by :  
 Priority,  
 Areas,  
 Materials,  
 Destination,

.....

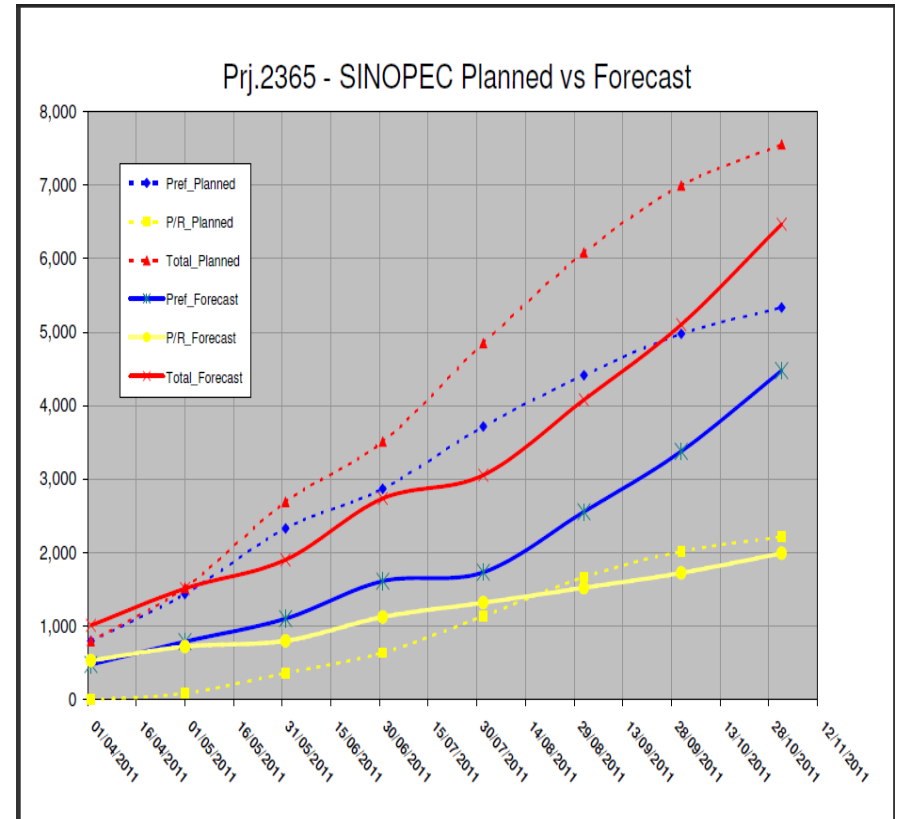
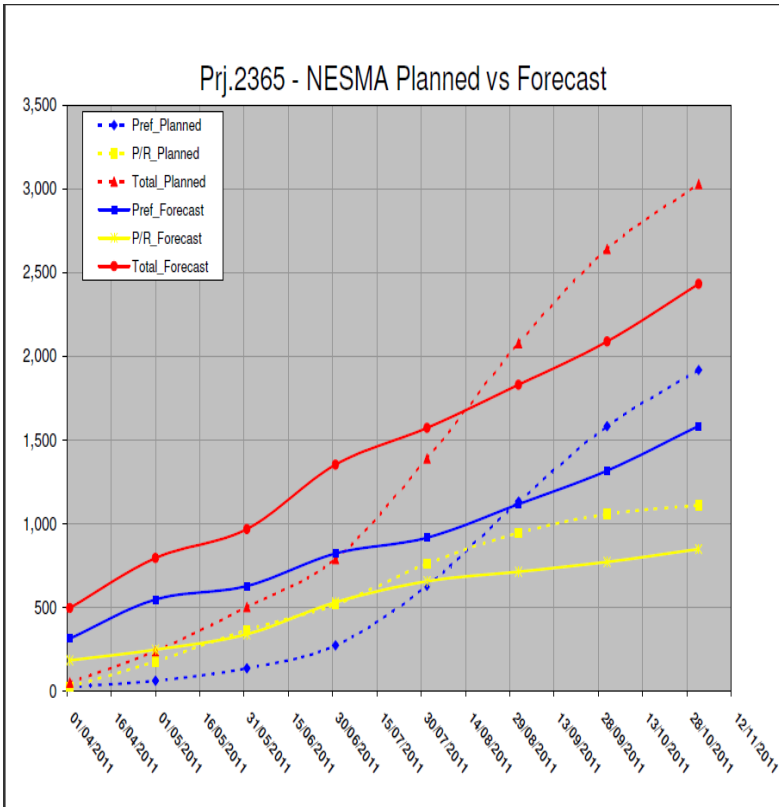
# FORECAST RUN: process

- **Forecast Run  $t = \infty$** 
  - The Forecast Run at  $t = \infty$  compare the MTO (relevant to the selected portion of work) with all the purchased materials (regardless the delivery time)
  - The scope of this Forecast Run is to identify any missing materials (Shortage)
- **Forecast Run  $t = t + \Delta t$** 
  - The Forecast Run at  $t = \infty$  compare the MTO (relevant to the selected portion of work) to the material with ETA Site at  $t + \Delta t$
  - The scope of this Forecast Run is to identify the «theoretical» additional workforce at  $t + \Delta t$ , giving information to define any necessary action to correct and improve to reach the planned workforce (dedicated purchasing, air freight delivery...)
- **Forecast Run  $t = 0$** 
  - The Forecast Run at  $t = 0$  compare the MTO (relevant to the selected portion of work) to the material available in the Site Warehouse
  - The scope of this Forecast Run is to identify the «actual» additional workforce and the relevant ISO list (ready to be handed over to the Subcontractor)

**The Workfront is calculated counting ISOs with 100% of materials available only**



# FORECAST RUN: samples of reports

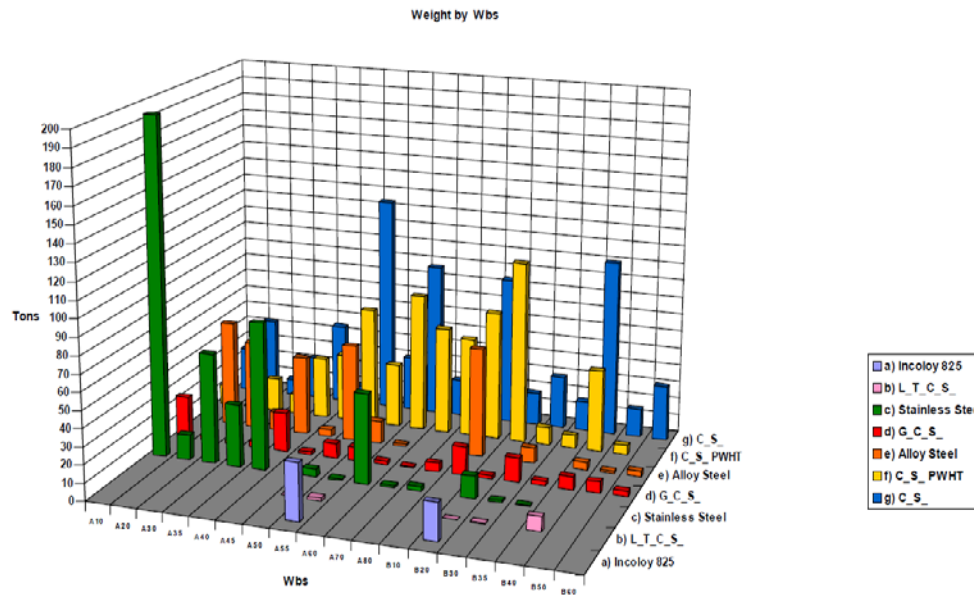


Other types of report can be generated with deeper details down to the single missing piece

# Piping Prefabrication work process

## A typical case

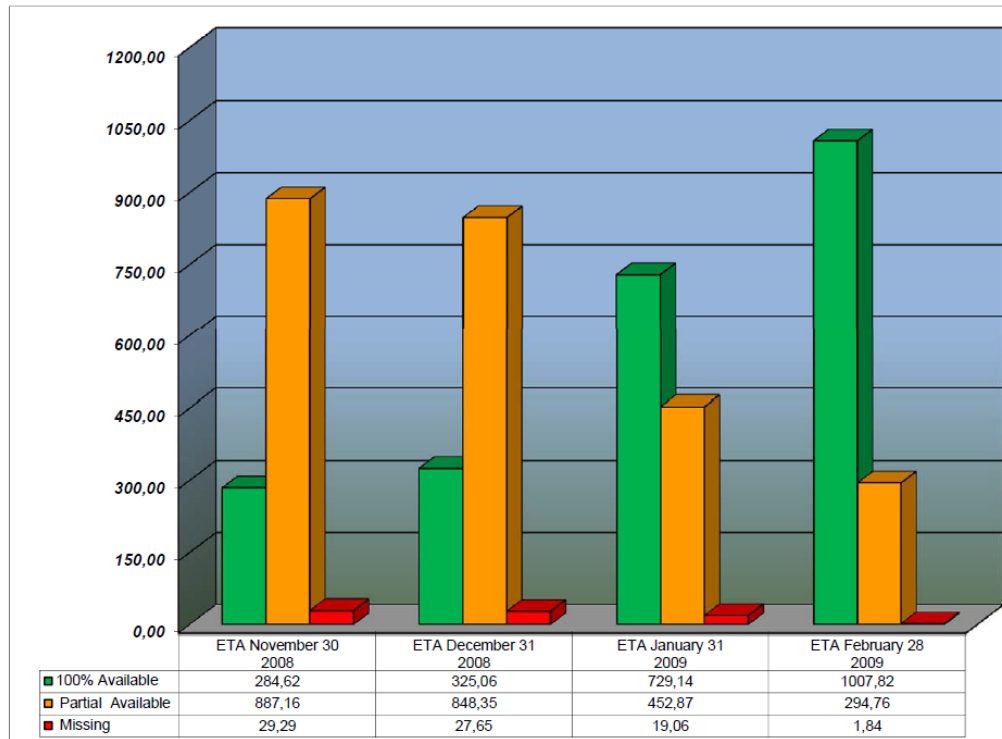
- At time of Piping Prefabrication Subcontract award, FORECAST RUNS are used to:
  - Confirm the target workload on selected work packages for the early stage of Prefabrication
  - Prioritizing the ISO batches issue focusing on weight volumes per Priority Area



# Piping Prefabrication work process

## A typical case

- **Before ISO's IFC issues: forecast runs based on:**
  - Estimated Time of Arrival at Site of purchased material
  - Bill Of Materials by 3D Model
  - Time window of 3 ÷ 4 months



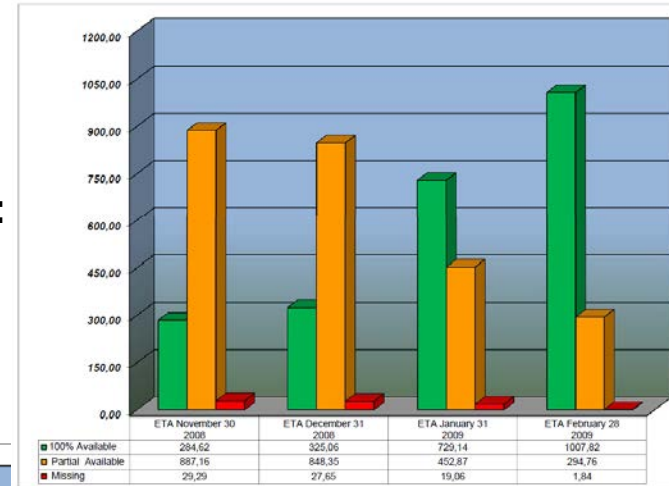
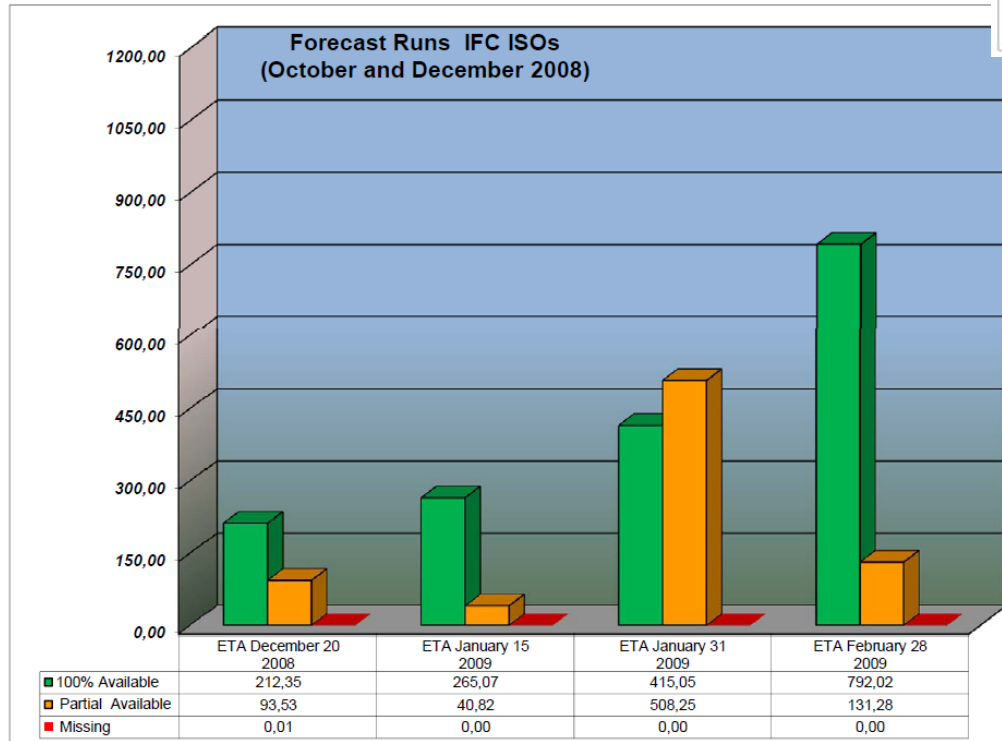
Forecast Contractual  
Prefabrication Start  
date: *end January*  
*2009*

**1<sup>st</sup> Assessment  
positive**

# Piping Prefabrication work process

## A typical case

- After IFC issues start: forecast runs based on:
  - Estimated Time of Arrival at Site of purchased material
  - IFC Bill Of Materials



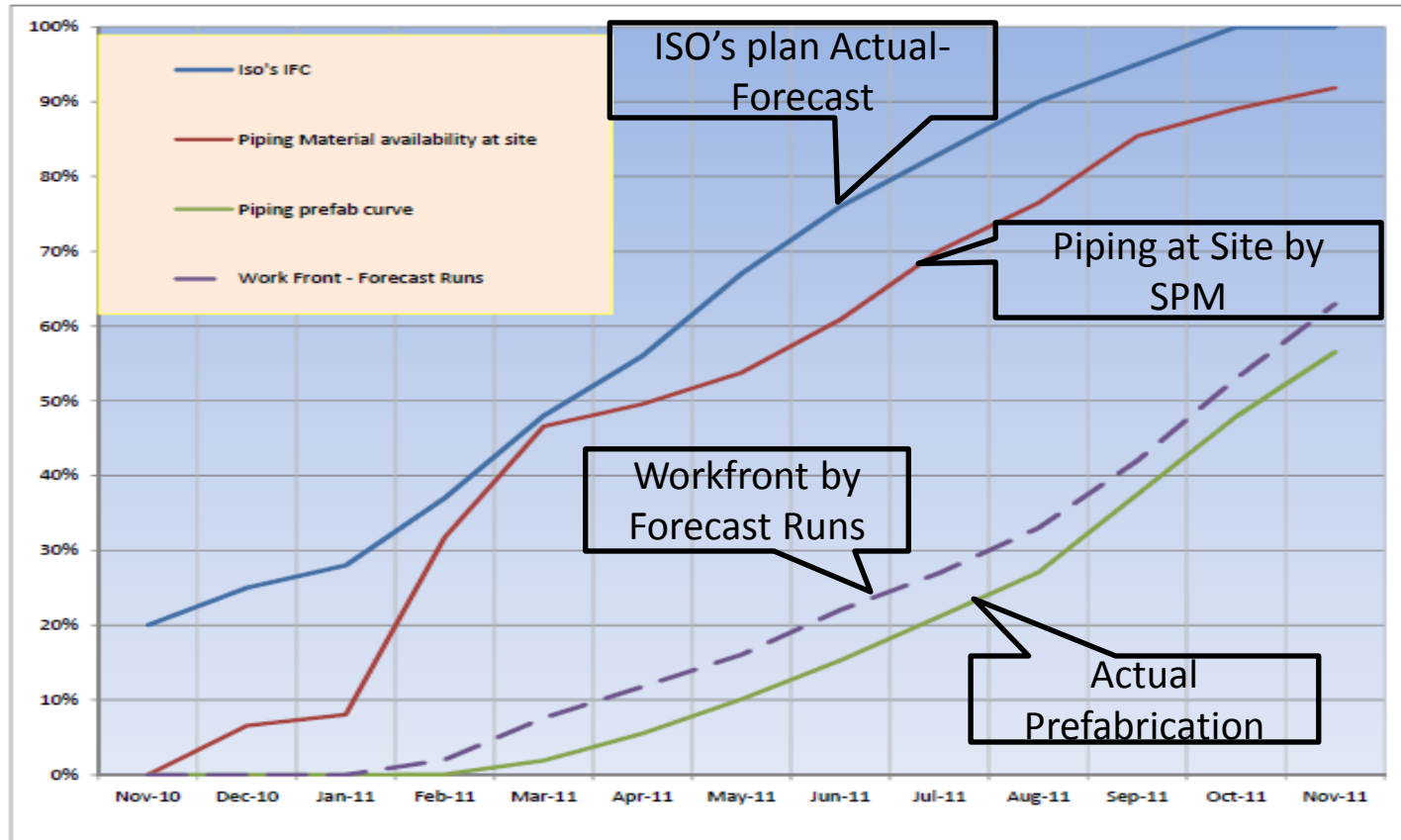
Forecast Contractual  
Prefabrication Start  
date: *end January  
2009*

**2<sup>nd</sup> Assessment  
positive**

# Piping Prefabrication work process

## A typical case

### Final Quantity Plan



The Workfront Planning by Materials, by Areas creates the best conditions to have, during Construction phase, positive Forecast Runs at Site and to support a selective appropriate Workfront availability

# Workfront Management

## What under development

- As of today, Execution and Management Data on same subject are still spread in several tools
- The final objective is to develop an user friendly IT tool able to consolidate information from both “Execution” systems and “Planning” ones, and to produce reports suitable to manage the overall Workfront Planning and to allow Project Manager to make the most effective decisions in a timely manner

Input each data one time, at one location, for the use of everybody

Project Data 360° Browser aims at consolidating E P C tools together and also with planning and project management tools

Make decisions based on more quantitative data quickly accessible on a single interface



# Project Data 360° Browser

Provide various browsing capabilities for details or overviews

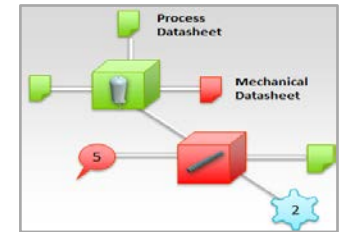
## Lists

Classic search of plant items, documents, comments or actions lists with detail pages with key information



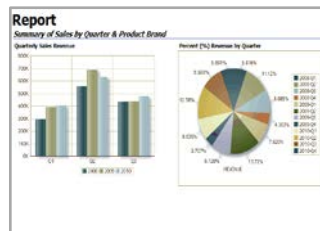
## Molecular view

Designed to navigate easily thanks to relationships between plant items, documents, actions & comments



## Reports

Produce curves, bar charts, pies based on predefined queries with some flexibility in defining the parameters



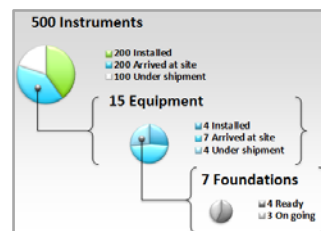
## “Colored” 3D reports

Provide plant items status with their surroundings in the plant 3D model



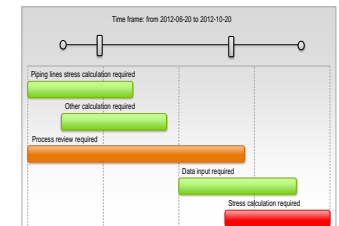
## Constellation reports

Give at a glance Work Load status and help identifying key actions



## Calendar view

Allow to see actions coming from any complex search on a schedule view



# Thank you

