Content

	etEngine-Manufacturing ERP	
	Solution to Foundry & Casting Industry - Overview	
Domain	Foundry Domain specific solution Decade of expertise in providing solutions to most of the verticals of foundry like auto component, steel, industrial, jobbing, investment & etc.	✓
	Provides the solution to core manufacturing problems -Material Requirement Planning against metal grade, Scheduling, Subcontracting, foundry specific production work flow & etc.	✓
Costing	Estimation & Costing with product profitability analysis	✓
Planning	Material Planning & Schedule with customer delivery priority and complexity of Production	✓
Design	Design & Engineering change request of pattern, method card & history	✓
Capacity	Capacity analysis & fine tune the bottle neck of melting, molding & core making capacities	✓
Energy	Energy Utilization monitoring and variance analysis against each heat wise	✓
Production	Work order wise production tracking with cost/time/quantity & performance analysis with work center wise production status	✓
QA	Control of Quality cost	
	-Rejection analysis with range of parameters-Heat, product, grade wise & etc	✓
	-Inward raw material & WIP material	✓
	-Quality plan, Non confirmation analysis with correctively action history	✓
Automation	Automatic Integration with Spectro, electrical meters, UTI & quality tools	✓
Tooling	Tools life cycle management & history card	✓
Plant Maintenance	Complete solution for Maintenance to ensure optimum utilization of Plant	✓
Control	Solution to control cost	
	Manufacturing cost variance analysis –Online estimation & production cost	✓
	Drilldown costing variance analysis with breakup of Labor, machine & overhead cost analysis.	✓
	Raw material consumption control-with online issue against work order.	✓
	Planning for better utilization of capacity-machine, material & manpower	✓
	Better management of customer Order cycle time	✓
	Electricity consumption control	✓
	Quality cost reduction-inward & outward materials	✓
	Implementation Expertise	
	Successful implementation in 50+ companies all over India	✓
	Functional Engineers with 5 to 10 years of domain expertise	✓
	Flexible training option for top management to lower end labor team	✓
	Shortest possible implementation cycle	✓
MIS	MIS on Business plan & achievement	✓
BI	One Point truth any time, any place, any where & any device	
QMS	Solution of APQP,PPAP, document management & Audit management	

etEngine-ERP Foundry specific work flow

Customer

Vendor

Sales & Service
{Sales Invoice
Domestic & Export}

Materials
{material request
to
Purchase Order
processing}

Marketing
{Enquiry
to
Order processing}

Estimation & Costing
{Feasibility
to
Product Costing}

Production
Moulding
Melting
Pouring
FVI
QA

Inventory
{material request
material Issue}

Planning
{Raw material Plan
M/c scheduling}

Excise , service & VAT
{Inward
&
Outward}

Finance & Control
{payables
Receivables
Cas & Bank}

Quality
{Inward material
WIP material
Outward material
Jobber Quality Check}

Sub Contract
{Work Order
material Issue
material
Inward}

Plant maintenance
{Schedule Plan
Break Down record
Machine History}

Payroll

3/14

etEngine-ERP foundry industry production specific solution

- ✓ Pattern Shop & tool management
- ✓ Melting-Cupola/Induction/Arc
- ✓ Core making
- ✓ Moulding
- ✓ Pouring
- ✓ Fettling
- ✓ Shot Blasting
- ✓ Heat treatment
- ✓ Packing
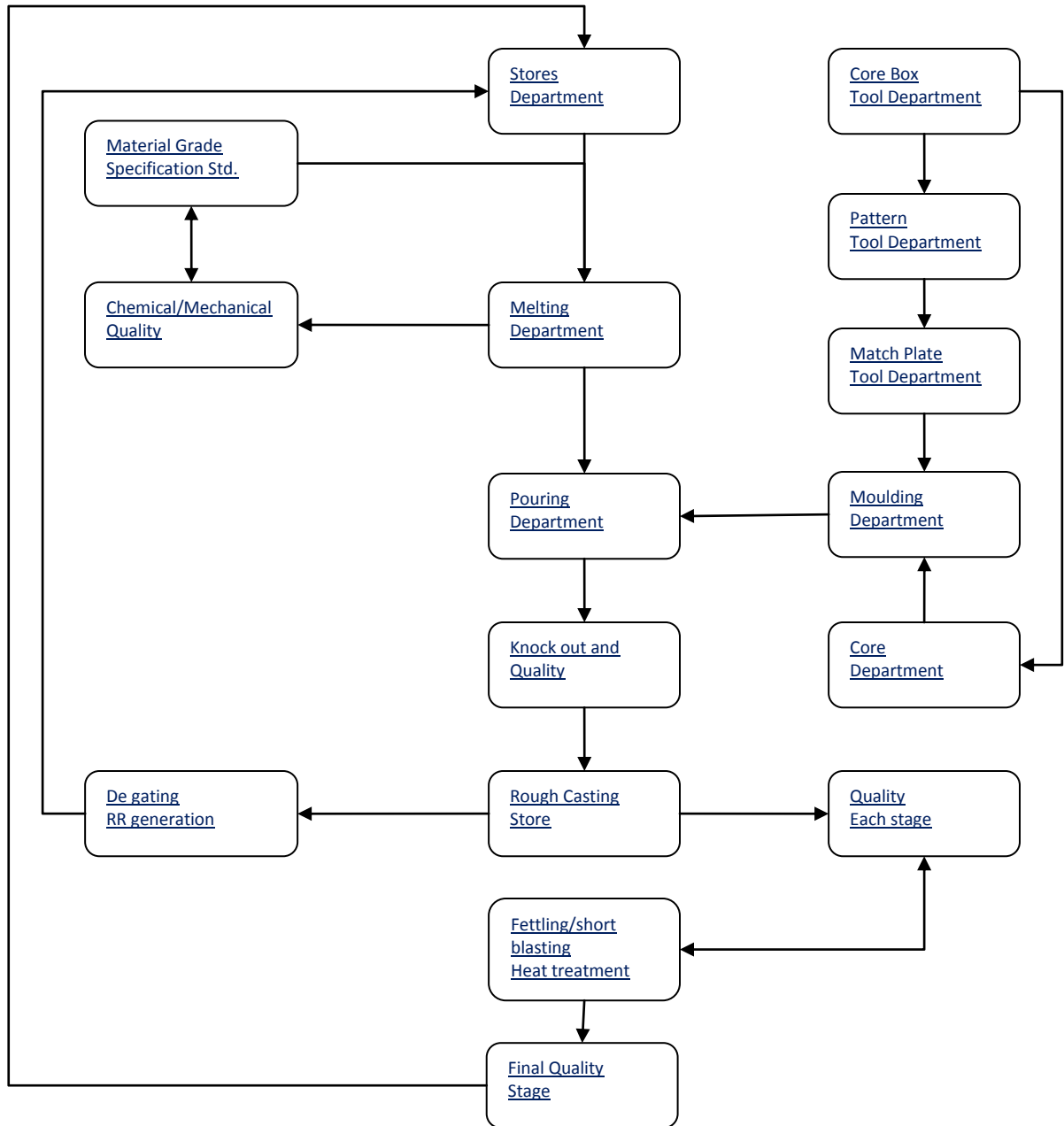- ✓ Machine Shop
- ✓ Quality in each stages

etEngine-ERP foundry industry specific solution

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Stores                          Core Box
Department                      Tool Department

Material Grade                  Pattern
Specification Std.              Tool Department

Chemical/Mechanical   Melting   Match Plate
Quality               Department Tool Department

                      Pouring   Moulding
                      Department Department

                      Knock out and  Core
                      Quality        Department

De gating    Rough Casting    Quality
RR generation  Store          Each stage

             Fettling/short
             blasting
             Heat treatment

             Final Quality
             Stage
```

Pattern & methoding department

- Pattern life cycle management-Sample, production, repair & history
- Cavity wise production analysis: *Analysis of weight variance against each cavity*
- Performance analysis of each pattern: number impression produced & life of pattern.
- Methoding & gating system performance with revision history
- Cost of pattern development
- Dimensional variance

Cupola

- Lining consumption cost analysis
- Bed coke consumption pattern
- Cost of liquid metal production
- Raw material consumption variance
- Supervisor performance against the LM target/good casting

Induction furnace

- Lining cycle against the LM produced.
- Electricity cost against each heat production
- Cost of liquid mental production
- Raw material consumption variance
- Supervisor performance for the total LM production from
- Additives consumption pattern

Core department

- Core rejection analysis in supervise and shift wise
- Core production planned and actual
- Cost of production shift wise / day wise
- Rejection analysis defect wise
- Supervisor performance analysis
- Item wise mould box production analysis
- Consumption variance with respect actual & norm.

Moulding department

- Moulding Sand quality analysis
- Sand Mixer performance analysis: Muller wise
- Moulding machine idle time analysis reason wise
- Cost of production shift wise
- Supervisor performance analysis
- Item wise mould box production analysis hourly/ shift wise / day wise
- Core rejection analysis in modeling department
- Planned and actual production analysis
- Filter and sleeve consumption pattern.
- Mould box rejection analysis defect wise

Pouring department

- Pouring performance analysis
- LM temperature analysis for boxes poured
- Supervisor performance analysis
- Item gap analysis b/w pouring and knockout to monitor the casting hardness
- Trace ability mould box hard ness
- Planned and actual production analysis
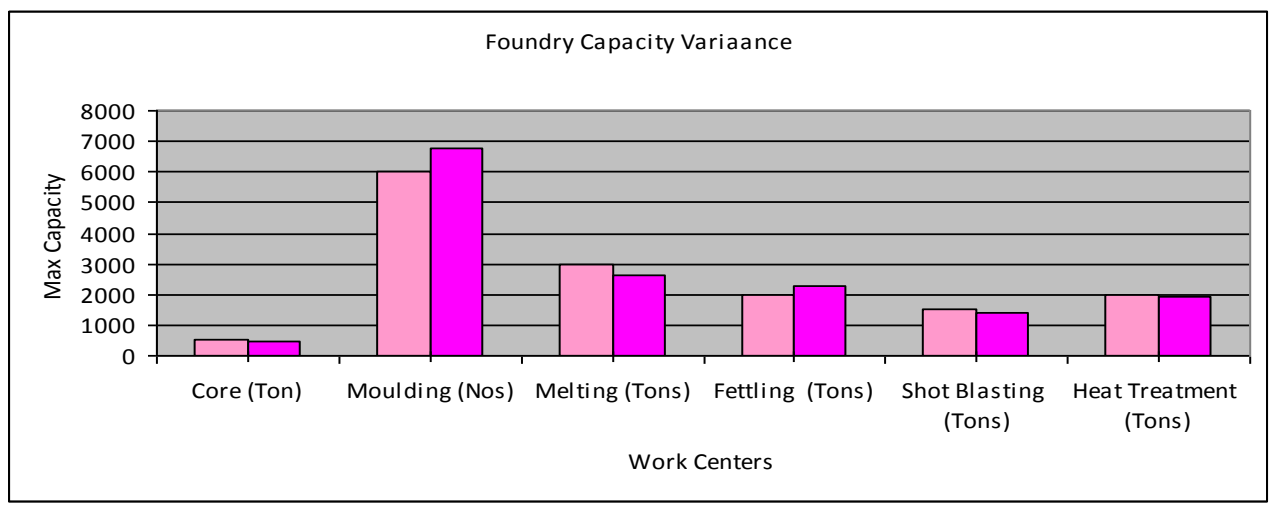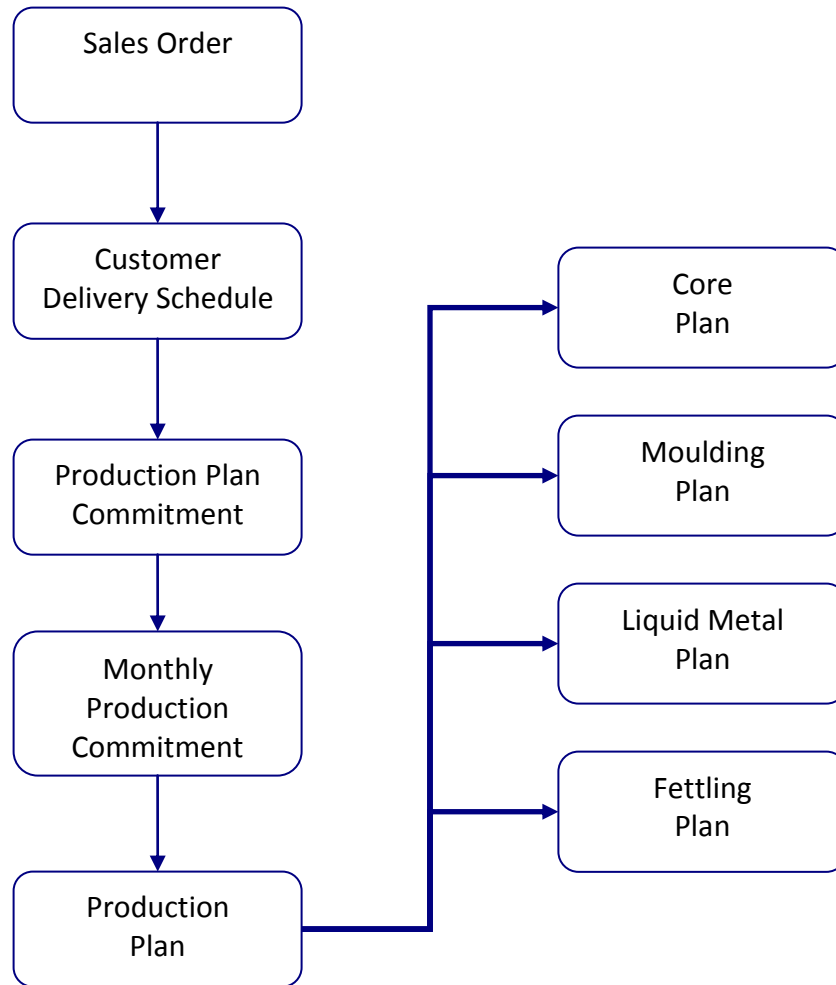
Fettling department

- Fettling performance analysis, Labor target
- Labor billing monitoring
- Consumption monitoring for grinding wheels and welding rods
- Planned and actual production analysis
- Rework analysis, monitoring the casting rework.

Quality department

- Dimension check based upon the sample size/quality plan
- Test certificate preparation and tracking for casting
- Spectro data management with variance analysis with master data
- Composition planner with integration of spectro and melting reading
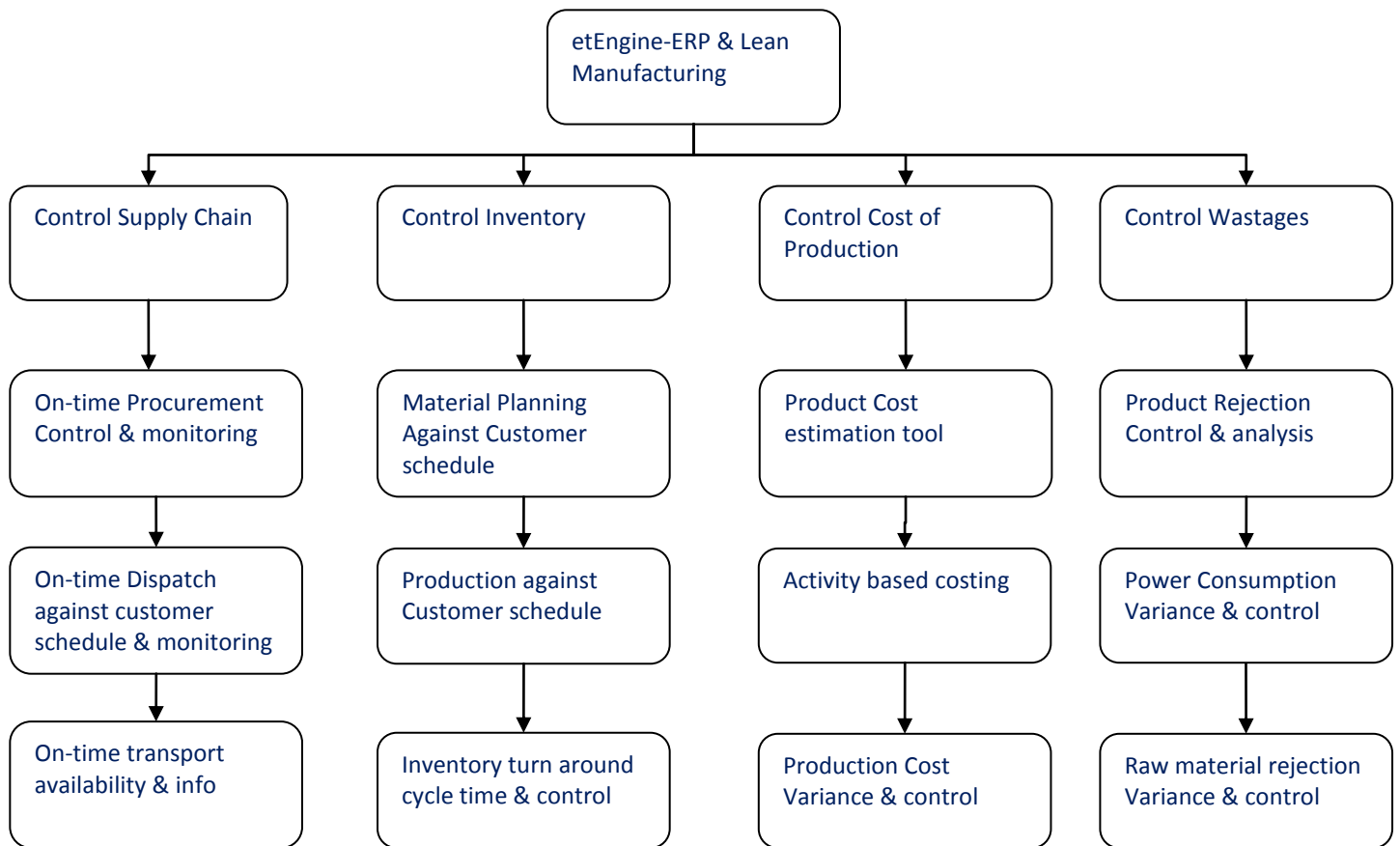- Quality plan and variance analysis for incoming raw material

etEngine-ERP for constrain based planning

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┌─────────────────┐
│   Sales Order   │
└─────────────────┘
        │
        ▼
┌─────────────────┐              ┌─────────────────┐
│    Customer     │              │      Core       │
│ Delivery Schedule│             │      Plan       │
└─────────────────┘              └─────────────────┘
        │
        ▼                        ┌─────────────────┐
┌─────────────────┐              │    Moulding     │
│ Production Plan  │             │      Plan       │
│   Commitment    │              └─────────────────┘
└─────────────────┘
        │                        ┌─────────────────┐
        ▼                        │  Liquid Metal   │
┌─────────────────┐              │      Plan       │
│    Monthly      │              └─────────────────┘
│   Production    │
│   Commitment    │              ┌─────────────────┐
└─────────────────┘              │    Fettling     │
        │                        │      Plan       │
        ▼                        └─────────────────┘
┌─────────────────┐
│   Production    │
│      Plan       │
└─────────────────┘
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Foundry Capacity Variaance

Work Centers	Max Capacity
Core (Ton)	~500 / ~450
Moulding (Nos)	~6000 / ~6800
Melting (Tons)	~3000 / ~2600
Fettling (Tons)	~2000 / ~2300
Shot Blasting (Tons)	~1500 / ~1400
Heat Treatment (Tons)	~2000 / ~2000

etEngine-ERP for lean manufacturing

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                            ┌─────────────────────┐
                            │ etEngine-ERP & Lean │
                            │ Manufacturing       │
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Control Supply Chain	Control Inventory	Control Cost of Production	Control Wastages
On-time Procurement Control & monitoring	Material Planning Against Customer schedule	Product Cost estimation tool	Product Rejection Control & analysis
On-time Dispatch against customer schedule & monitoring	Production against Customer schedule	Activity based costing	Power Consumption Variance & control
On-time transport availability & info	Inventory turn around cycle time & control	Production Cost Variance & control	Raw material rejection Variance & control

Foundry Automation with etEngine-ERP

Automation1

Integration of live furnace consumption info with spectro heat analysis for better consumption control to avoid material losses by manual calculation

- ✓ **etEngine-Composition planner** automatically gets the raw material consumed in furnace heat and integrates with spectro of bath reading to get accurate input of high value material to furnace.

Automation2

Automation of raw material consumption in each furnace with the ladle tapping information to calculate exact melting loss and better pouring information to increase material accountability

- ✓ **etEngine-Melting log** integrates with digital weighing system to get the exact charge of raw material and metal tapped to ladle with out any manual intervention for easy traceability between raw material consumed and metal poured.

Automation3

Bar code to trace test bar & heats of the day

- ✓ **etEngine-QC log** integrates with bar code sticker will be attached with day wise heat info with each grade. Storage bag of test bars will be attached with bar code for easy & faster traceability of test bar when ever customer complaint

Automation4

Automated estimation tool for accurate and faster product cost estimation for faster quotation generation

- ✓ **etEngine-Estimation tool,** gets accurate cost with live transaction data
    - o Metal cost with accurate grade chemistry with raw material chemistry
    - o Moulding cost with accurate box size with sand density
    - o Electricity cost for melting and other overheads
    - o Live financial general ledger tagging
   - o Variance of cost with % of rejection

etEngine-ERP with work flow integration & automation for system driven process

Module	Integrated work Flow	Alerts & drive	Customer benefit
Marketing	Enquiry to Delivery schedule	Pending quotation alert Pending Order alert Pending delivery alert Pending authorization alerts	"Biggest Foundry in east India" has reduced quotation generation cycle with increased numbers in quotation generation. From earlier 10 quotation/day to 60 quotation per day
Estimation	Product feasibility to product cost estimation	Automation in cost calculation	Most of customer's accuracy in production cost estimation has increased to 98% and quote generation is faster without any manual intervention.
Production Planning	Delivery schedule to production planning	Alert in deviation of plan Vs actual production Alert in deviation of plan Vs dispatch	All our auto component casting suppliers are able to man-over the planning sheet with automation of forward planning and capacity matching (moulding/melting)
Foundry	Automated Data capture and online integration Planning	Alert on excess consumption Alert on excess rejection beyond the standard norm. Alert on high-energy utilization beyond the standard norm. Alert on inventory accumulation beyond the standard norm. Alert on variance of planned Vs production Rejection cost analysis	With proper root cause analysis, rejection is reduced to 0.5% with saving of Rs 25,00,000/- for companies doing 20Crs turnover. With power consumption analysis report, saving was Rs 5,00,000 cost for companies doing 20Crs turnover. With proper inventory control, non-moving inventory was reduced to 20%, with lot of maintenance materials was involved. Reduction of stage wise inventory blockage to 30%
Financial Accounts	Seamless integration of purchase/stores/sales with MIS	Alert on pending receivables Alert on pending payables Cost center expenditure monitoring Quality cost analysis-vendor Rejection & sales return Cash flow plan for payables Inflation on raw material analysis Alert for pending work-Filing of returns	Faster year end closing cycle has reduced 70% of repeated documentation and can save 50% finance personnel salary Payment collection cycle time has reduced to 40% Undue expenditure is reduced by 60% Profitability has increased by 3%

etEngine-ERP for APQP,PPAP, FMEA & Quality audit

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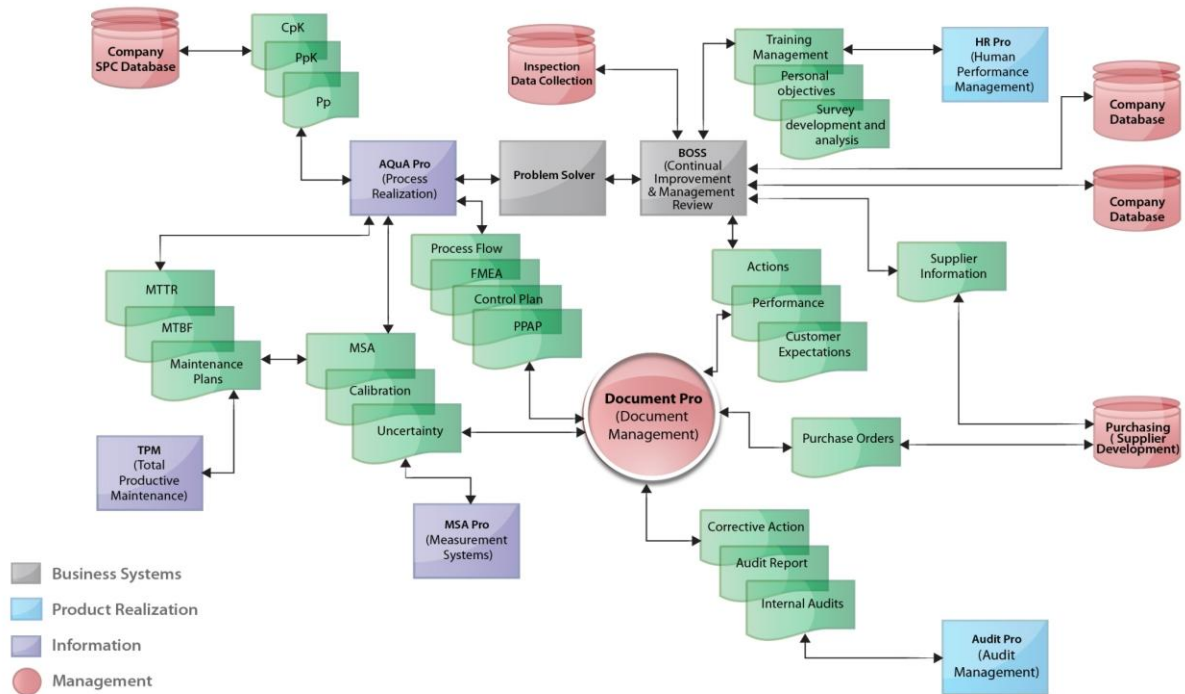
etEngine-ERP is partnered with Omnex for quality solution to enable below solutions

✓ Standardizes your APQP processes and documentation in all of your plants to allow for consistency

✓ Connects the Design FMEA to the Process FMEA.

✓ Automated "three click" APQP document creation builds FMEAs and Control Plans in minutes, not hours.

✓ Engineering changes made to the specifications of a product family will automatically update the Process FMEAs, Control Plans, and Check Sheets of all of the parts that are within that product family.

✓ Builds PPAP templates for each customer to meet unique document requirements.

What Management Need?

- ✓ Real time Payables / Receivable info
- ✓ Pending order beyond deliveries dates
- ✓ Sales team efficiency analysis
- ✓ Daily dispatch info - value and qty
- ✓ Monitoring of efficiency with planned V/s actual
- ✓ Quotation required to be process for pending enquiry
- ✓ Pending quotation required to be followed up for order
- ✓ Raw material availability
- ✓ Daily rejection variance
- ✓ Availability of labor with daily attendance sheet
- ✓ Daily breakdown and corrective action report
- ✓ System driven work flow & better controllability

Modules:

1. Marketing
2. Sales
3. Material Management
4. Inventory
5. Planning
6. Production
7. Quality [Optional]
8. Accounts
9. Central Excise
10. Sub-contracting
11. Admin & company policy
12. Estimation & Costing
13. Plant Maintenance
14. etEngine-BI platform[Optional]

Project implementation plan & time schedule-template

No	Task	From	To	Days	Responsibility
1	System requirement study Phase				
1.a	Project Initiation & Kick off meeting				Joint
1.b	Requirement Study & Gap analysis				Joint
1.c	Report Formats Finalization				Joint
2	Installation of etEngine				
2.a	Database creation and configuration				SPS INTRAD
2.b	User creation and rights configuration				SPS INTRAD
2.c	Installation in machines				SPS INTRAD
3	Training of Masters				
3.a	Masters training-Commercial record				Joint
3.b	Masters training-Technical record				Joint
4	Data Entry				Customer
5	DB Configuration / Customization*	At-actual–Parallel activity will be concluded after SRS sign off		At-actual	SPS INTRAD
6	Installation of customized module	As per development schedule			SPS INTRAD
7	Department wise transactions & reports training (common training for common modules)				
7.a	Sales & Marketing				Joint
7.b	Purchase, Stores, excise & accounts				Joint
7.c	Production, Planning				Joint
7.d	Subcontract				Joint
7.e	Plant maintenance & Payroll				Joint
8	Dry/Trial Run				Joint
9	Go Live				Customer