GLOBAL PRESENCE

YOUR PARTNER IN **PROGRESS**

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Manufacturing Facilities
Techpark
Cosmos Impex India Pvt. Ltd., Plot No. 847, 848 Village Ranu, Ta. Padra, Vadodara, Gujarat - 391 445
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cosmos®

digiFAC

Industrial IOT & Paperless Solutions for Industrial Manufacturers

Industrial Problems in Manufacturing

- Inaccurate Manual Data
- Boxes of Paper Reports Daily
- No Real-Time Data Monitoring

SOLUTION

digiFAC

A DIGITAL FACTORY SOLUTION

- Tool Cutting Time Information
- Real-Time Data Acquisition
- Connects all types of Controllers
- Improve OEE
- Availability of Key Report for Utilization & Downtime
- Machine Monitoring (Part Count Query)
- Multiple branches controlled via the single Dashboard
- Link Production / Maintenance / Development & Marketing
- Work - Order Tracking (Optional)
- Detailed Live Dashboard
- OEE Calculation
- CNC Program Upload / Download
- Minimal Human Intervention
- Web / Mobile Applications
- Daily Production Data Report
- Maintenance Alarm Analysis
- Downtime Analysis & Classification

BENEFITS

- 20% Increase in Productivity
- 99% Data Accuracy
- 3 Month Return on Investment
- 25% More Efficient Programs

What is digiFAC ?

The digiFAC is an IIoT (industrial IoT) platform that can integrate various signals from all kinds of controller-based machines, including CNCs, Injection Moulding Machines, and Press Machines, and analyze them automatically to generate accurate real-time reports. With the least human intervention, it collects the information directly from the machines and helps you get the maximum benefit from your assets and enhance productivity.

Why is digiFAC ?

- Industry-Leading: Production efficiencies and agility.
- Highly expert team members.
- Phenomenal solutions to take your company to the next level.
- User-friendly Interface; use features as per dedicated roles/users.
- Transparent, quick, and real-time data availability that can help you make fast decisions
- To improve OEE.
- Increase your productivity by 20%.
- ROI within 3-4 months.
- To maintain your OTD.
- To reduce lead time, setting time, and deliver on time.

How can the digiFAC improve OEE?

Overall Equipment Effectiveness (OEE) is a measure of machine performance that provides visibility to options for progress. OEE is used by manufacturers to specify, monitor, and then reduce production failures. Knowing the OEE value is important for one particular reason: it allows you to find out about your losses and identify the bottlenecks in your value stream. If you know exactly where you are wasting time on your assets and why this is happening, you can take the necessary actions to improve your overall performance.

10~25%

- Automate data collection and reporting.
- Imagine and display real-time OEE on the shop floor.
- Execute cross-functional everyday reviews and conversation sessions.
- Use Root-Cause Analysis.

An OEE increase is achievable by digitizing production & planning, asset monitoring (cycle-times), reducing losses (program transfer, downtimes, breakdowns), etc.

digiFAC Features

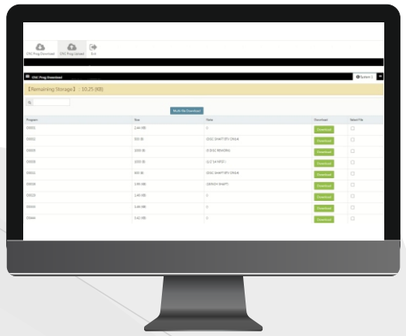
dF+ lite

Dashboard Monitoring

- Live information of the entire factory.
- Categorize machines (Unit-wise).
- View regular Utilization of the machine.

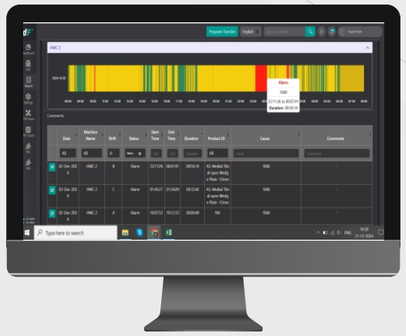
Program Transfer

- Upload programs from computer to machine remotely.
- Download programs & edit them from anywhere around the globe.



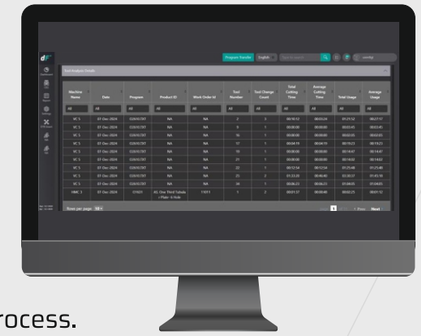
Alarm Analysis

- Alarm History by code/machine.
- Time & duration of all alarms generated by a separate machine.



Tool Cutting Time Information

- No more unidentified dry-runs.
- Program path optimization in-sight.
- Tool usage clarity.
- Shorter cycle-times (if modified).
- Eliminate NVA air time and improve your process.



dF+ lite

All-in-One Dashboard

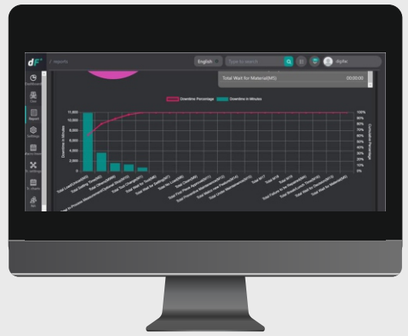
- Overview of all data of one machine on one screen.
- Find out the machine's status right away.
- One machine's information is displayed on a single screen.

Production Information (Utilization)

- Detailed production information report: An automated daily production report.
- All reports are available in Excel format.

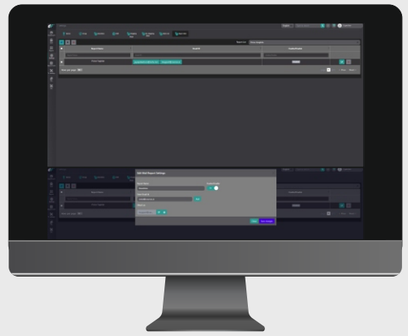
Downtime Analysis

- See total machine downtime.
- Monitor downtime and the reasons for it (Macro Downtime Feature).
- Focus & can easily get the classified major losses/downtimes and work on Optimization.



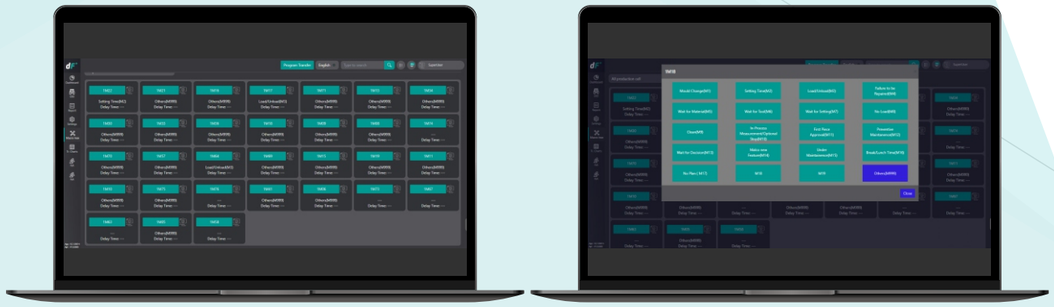
Email Alerts

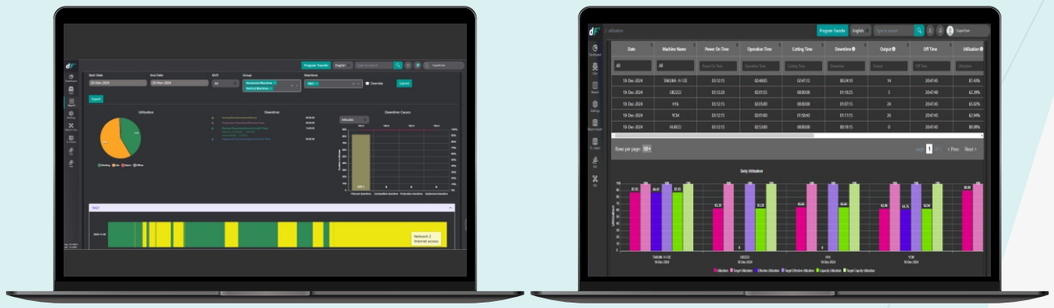
- Set a time for machines' idle condition and receive or get alarm notification on email.
- Management Reporting: Receive daily production report and downtime analysis report by email on daily basis.



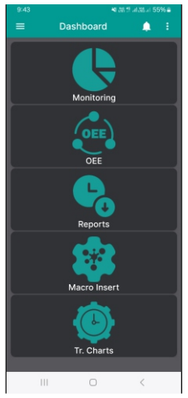
digiFAC *for Plastic Injection Moulding*

- A single platform where you can see all of your machine's live status, i.e., if it is working, idle, in alarm, or in offline mode.
- More excellent efficiency: Firms will experience minor downtime and improve tracking and tracing.
- Best productivity: It facilitates businesses' ability to deliver better outcomes quickly.
- Via the PIM system, we can get an Alarm notification with span.
- The PIM system can provide a part count with cycle time for each item in detail.
- Timestamp record: we can get a whole time stamp bar chart and a detailed description of the time your machine runs.
- Get everything in a single click, Operation time or Run time, Ideal time, with the standard reason.





Mobile Application



This is the main screen of mobile application

Features of our package

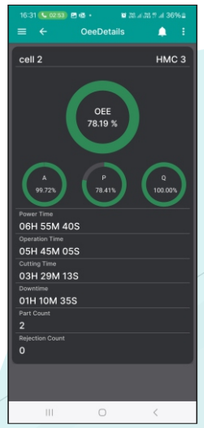
- Monitoring
- Utilization rate analysis
- Machine Downtime
- Work order Tracking*
- Downtime classification using Marco

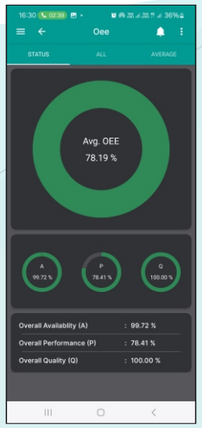
Machine Monitoring

- Summary of machine status (Whole factory).
- Alarm notification including the duration of the current alarm & alarm code.
- Monitoring of machine work condition & parameter values.

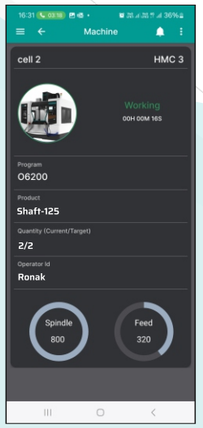
Machine Monitoring

OEE



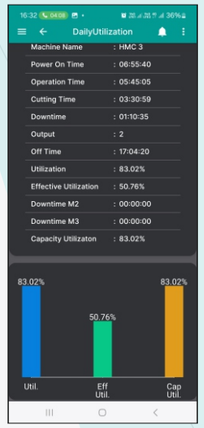


Machine Data (Parameter)



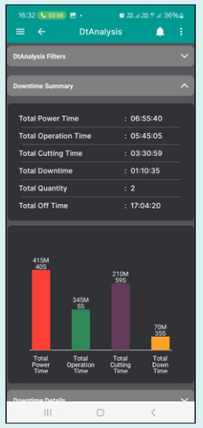
Utilization Analysis / Machine Downtime Analysis

Daily Utilization Report



Monthly Utilization Report

Downtime Analysis



digiFAC Case Study

Challenges

- Inaccurate Manual Data
- Low Utilization
- More Air-Time Gap
- Inefficient Program
- Low Production rate
- Boxes of paper reports DAILY
- No real-time data monitoring

Solution

- Cosmos - DigiFAC Industry 4.0/5.0

Result

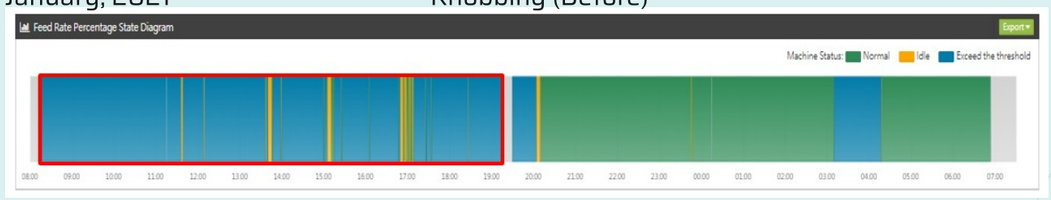
- 25% More Efficient Programs
- Effective Utilization Gained up to 7%
- 20% Gained in Production Rate
- 15% Reduction in Downtime
- 99% Data Accuracy with realtime monitoring

Know exact capacity of your Machine Shop

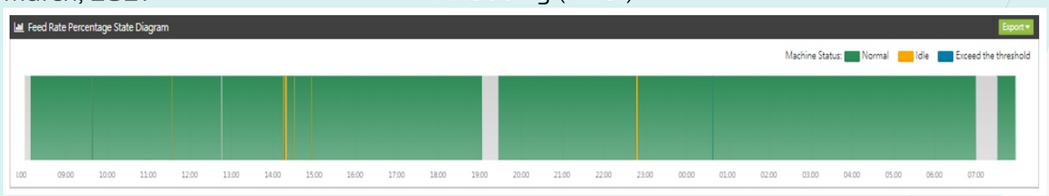
- We are providing a case study of one of our customers machine shops between January 2021 and March 2021. Earlier, when we were having lots of bottlenecks, like a low production rate with unwanted downtime, our mission was clear: reduce downtime and increase production rate.
- We have compared the data & improved the production with the help of several reports, such as Utilization Analysis, Downtime Analysis, Tool Usage, Feed & Speed Knobbing, and Part Count Query reports.
- Here we have some comparisons between the data reports for January, 2021, and March, 2021.

Feed & Speed

January, 2021 Knobbing (Before)



March, 2021 Knobbing (After)



Knobbing on machine is real headache, we have control over feed speed knobbing on machine.

Utilization Analysis

January, 2021

Average effective utilization rate : 50.80%

Query Result

Overview : Average Utilization : 67.73% Average effective utilization rate : 50.80% Total output : 1726

Show / Hide columns Export

Machine	Date	Power Time	Operation Time	Cutting Time	Downtime	Off Time	Output	Utilization	Effective Utilization	Downtime (M2)	Downtime (M3)	Capacity Utilization
VMC - 1	2021/01	540:55:29	366:21:18	274:48:37	174:34:11	35:05:31	1726	67.73%	50.80%	32:02:05	49:36:10	82.82%

March, 2021

Average effective utilization rate : 64.78%

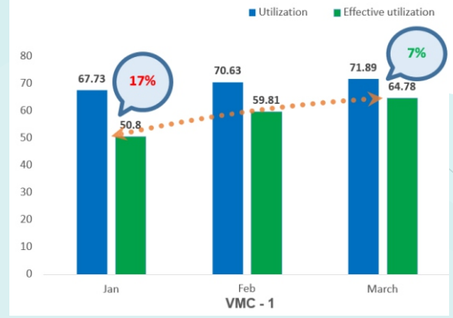
Query Result

Overview : Average Utilization : 71.89% Average effective utilization rate : 64.78% Total output : 2077

Show / Hide columns Export

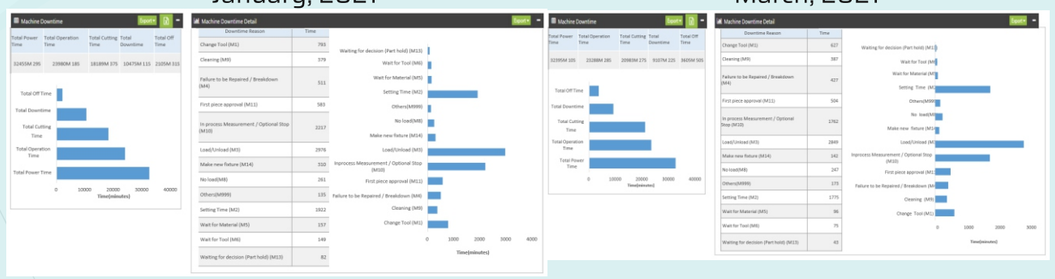
Machine	Date	Power Time	Operation Time	Cutting Time	Downtime	Off Time	output	Utilization	Effective utilization	Downtime (M2)	Downtime (M3)	Capacity Utilization
VMC - 1	2021/03	539:54:10	388:07:48	349:43:27	151:46:22	60:05:50	2077	71.89%	64.78%	29:34:15	47:28:07	86.16%

- Utilization for the machine in Jan, Feb and March is 67.73%, 70.63% and 71.89% respectively.
- We have achieved 10% of improvement in Air-Time gap over two months.

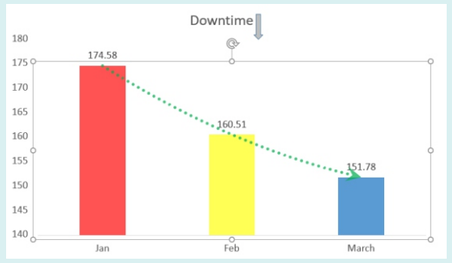


Downtime Analysis

January, 2021 March, 2021



- We have successfully reduced 15% of the downtime from the machine shop.
- we have achieved 23 hours of reduction in downtime over 2 months.



Cycle-Time Reduction

- We have improved the cycle time for a product using the tool usage report.
- We have reduced 26 seconds for one particular tool, Tool was taking 2:27 min initially for one operation; reduction of air time travel by 26 seconds leads us to a reduction in our cycle time, and with reduction in downtime, our cycle time has reduced by 3.33 min per part, and we have got a 20% gain in production.
- Earlier Production Efficiency for this product was 63.57%; by Data analysing and implementing for two months, we can raise our production efficiency up to 80%.

Tool Usage

Before

Query Result

Show / hide columns | Export

Machine	Date	Shift	Program	Tool Number	Start Time	End Time	Power Time	Operation Time	Cutting Time	Downtime
VMC - 1	17/01/2021	B	O7914	11	2021/01/17 17:05:10	2021/01/17 17:07:37	0:02:27	0:02:27	0:01:33	0:00:00
VMC - 1	17/01/2021	B	O7914	11	2021/01/17 17:20:22	2021/01/17 17:22:49	0:02:27	0:02:27	0:01:33	0:00:00
VMC - 1	17/01/2021	B	O7914	11	2021/01/17 17:36:20	2021/01/17 17:38:37	0:02:27	0:02:27	0:01:33	0:00:00
VMC - 1	17/01/2021	B	O7914	11	2021/01/17 17:51:46	2021/01/17 17:54:13	0:02:27	0:02:27	0:01:33	0:00:00

After

Query Result

Show / hide columns | Export

Machine	Date	Shift	Program	Tool Number	Start Time	End Time	Power Time	Operation Time	Cutting Time	Downtime
VMC - 1	05/03/2021	A	O7914	11	2021/03/05 10:33:20	2021/03/05 10:35:19	0:01:59	0:01:59	0:01:33	0:00:00
VMC - 1	05/03/2021	A	O7914	11	2021/03/05 10:46:10	2021/03/05 10:48:09	0:01:59	0:01:59	0:01:33	0:00:00
VMC - 1	05/03/2021	A	O7914	11	2021/03/05 10:59:02	2021/03/05 11:01:01	0:01:59	0:01:59	0:01:33	0:00:00
VMC - 1	05/03/2021	A	O7914	11	2021/03/05 11:12:10	2021/03/05 11:14:09	0:01:59	0:01:59	0:01:33	0:00:00

Work Order Tracking

January, 2021

Overall Work Order

Hint The following informations are summary for work order from first appeared in the system to now.

Production Id(N1)	Work Order Id(N2)	Start Time	End Time	Total Power Time	Standard Cycle Time Per Part(N1)	Actual Cycle Time Per Part	Work Time Achievement Rate	Expected Quantity(N8)	Actual Quantity Produced	Production Efficiency
3HT479-14502	2985	2021/01/10 00:33:20	2021/01/18 22:50:32	8540M 12S	12M 00S	18M 48S	63.57%	711	452	63.57%

March, 2021

Overall Work Order

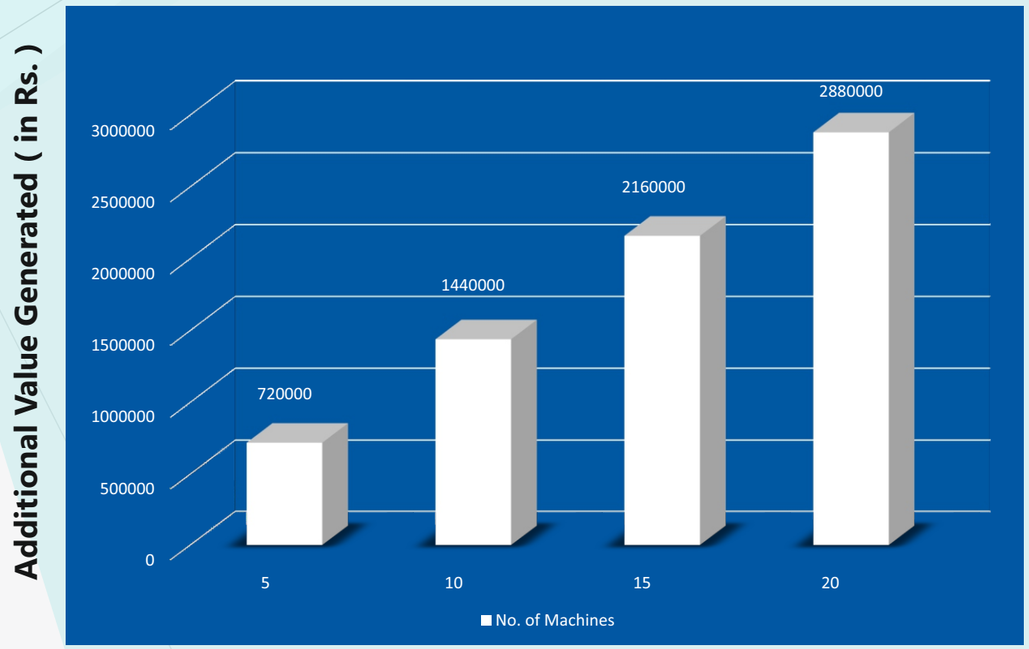
Hint The following informations are summary for work order from first appeared in the system to now.

Production Id(N1)	Work Order Id(N2)	Start Time	End Time	Total Power Time	Standard Cycle Time Per Part(N1)	Actual Cycle Time Per Part	Work Time Achievement Rate	Expected Quantity(N8)	Actual Quantity Produced	Production Efficiency
3HT479-14502	2985	2021/03/18 07:05:35	2021/03/23 23:43:45	7120M 10S	12M 00S	15M 15S	80.05%	593	475	80.05%

Result

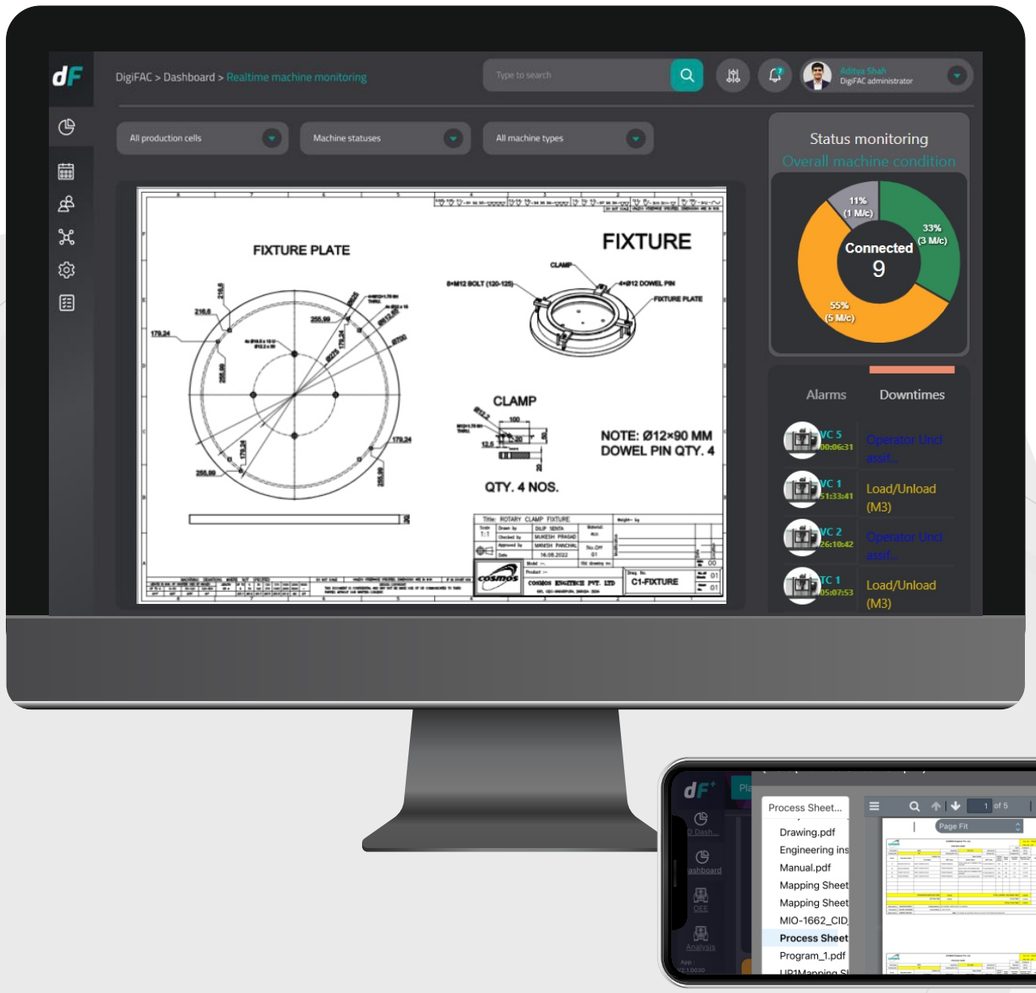
Here; **Factory is using VMC at 3 Shifts / day** **Average hourly rate realization**	**= 24 hours** **= Rs. 400 / hr**
Benefit Assumed : 5% of 24 hours	**= 1.2 hrs / machine / day** **= Rs. 400 x 1.2** **= Rs. 480 / day**
Amount generated in Month (25 Days)	**= Rs. 12,000 / month**
Assumption for 5 machine :	**= Rs. 12000 x 5 machine** **= 60,000 / month**
ROI :	**= Rs. 1,80,000 / 3 months**
Total Per Year	**= Rs. 7,20,000 / 12 months** **= Rs. 1,44,000 for One Machine**

Savings / Year



digiPLF *Paperless Factory*

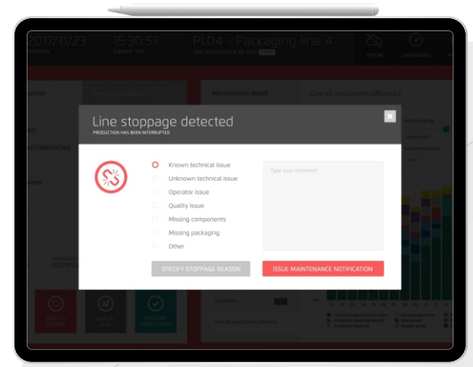
- One of the main attributes of a Smart Paperless factory is eliminating printed documents.
- Digitizing documentation supplies incredible flexibility, reduces mistakes associated with manual data handling, and allows alliances to save time, effort, and funds.
- With the Cosmos Paperless Factory, our customers have been able to eliminate or minimize paper-based documents from their production units. Thanks to this modification, they can handle and view all the documentation online to make conclusions in real time.
- The Cosmos Paperless Factory model replaces traditional paper-based procedures and eliminates paperwork in manufacturing.
- By improving the methodologies and stopping manual entries of record data, it frees the operators from tasks that do not add importance and helps introduce improvements in the operational management of the company.

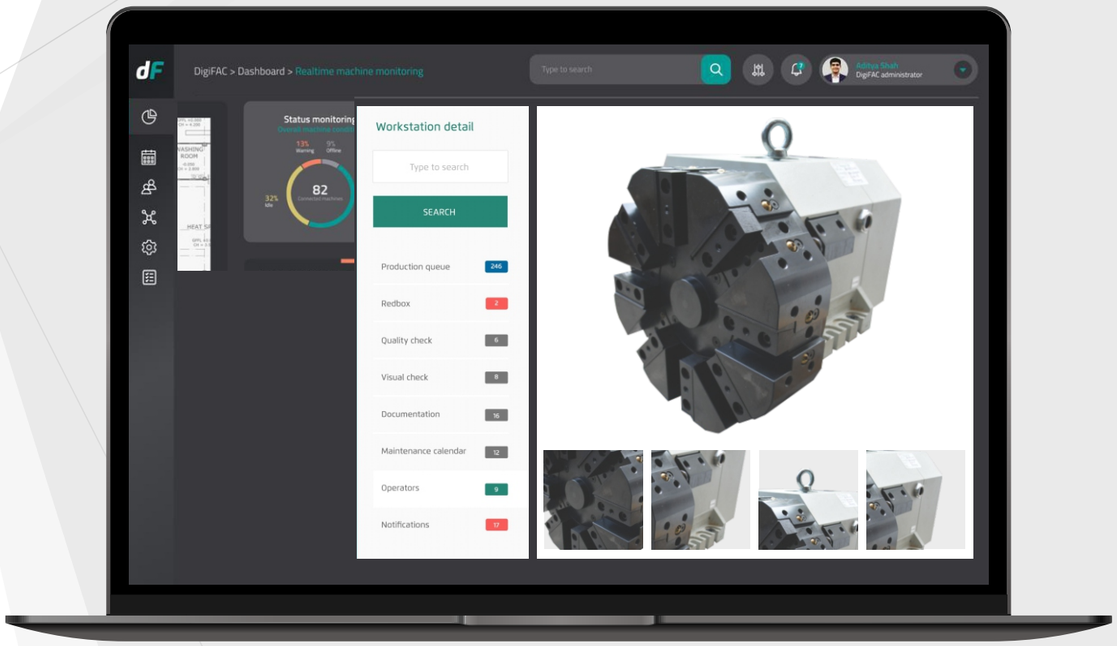


digiPLF *Benefits*

The paperless factory model connects every component of the shop floor to the manufacturing ecosystem, improves quality control and production efficiency, and also helps to:

- Increased operational flexibility in real-time.
- Cost & Time savings with the data's accuracy.
- Reduce errors in data collection.
- Environment-friendly: We create a better climate for innovation and data sharing in a faster way.
- Paperless factories can be stored in numerous virtual places and have tiered access to details depending on the role and responsibilities.
- One of the keys to any manufacturing facility's success is understanding and studying the shop floor data, and Paperless Factory gives you the data in real time without any delay or loss of accuracy.
- Paperless factories have the benefit that they can consult all types of information linked to the production plant at any time and place.

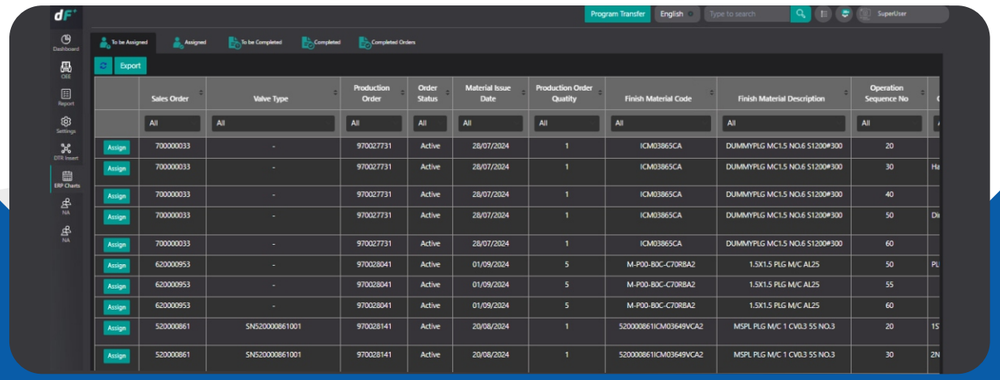




digiPLN *Plan & Schedule with ERP/SAP Integration*

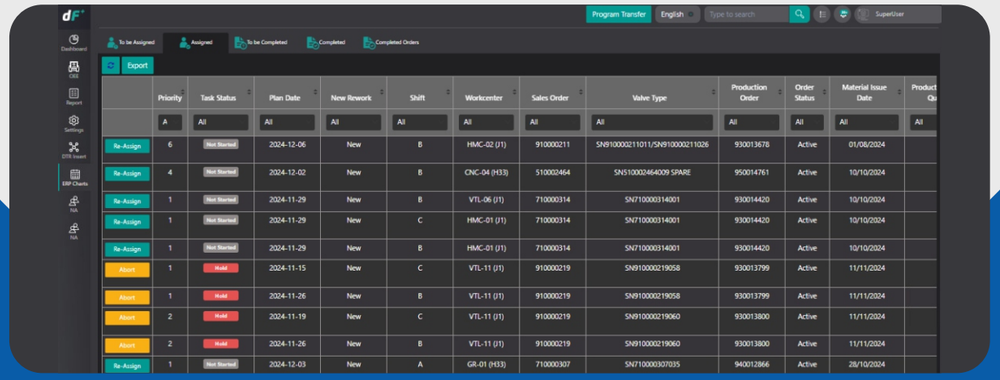
- Planning and scheduling go hand in hand. They are two distinct but crucial aspects of managing work effectively. They need each other in order to achieve maximum results.
- Planning may involve creating a business plan, setting goals for the year, or listing tasks that need to be completed. When you plan, you map out your next course of action.
- The next step involves setting a time-line. It's not enough to identify what needs to be done. It's equally important to figure out when these things need to be accomplished. This is where scheduling comes in. When we talk about scheduling, we're dealing with specific dates and specific time-frames.
- It can be a very daunting task for the entire company, and that's why we're making it easier for you with the Cosmos Planning & Scheduling solution.
- It will help you stay organized in terms of operations by analysing large volumes of data. It also helps keep your costs under control, makes you prepare for unexpected occurrences, helps you finish your work earlier than expected, and gives you more time for problem-solving.

Planning Screen For Supervisors/Engineers



Your supervisor can see all the WO has been created just by Login their ID and Password.

Scheduling For Supervisors/Engineers

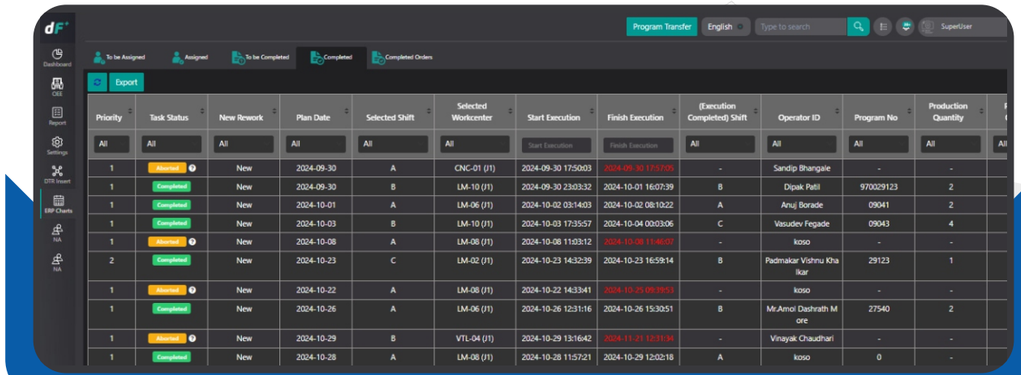


Schedule Chart: Supervisor then can assign a specific plan date, shift and work centre (machines/operation) to a work order/Item.

digiPLN *Benefits*

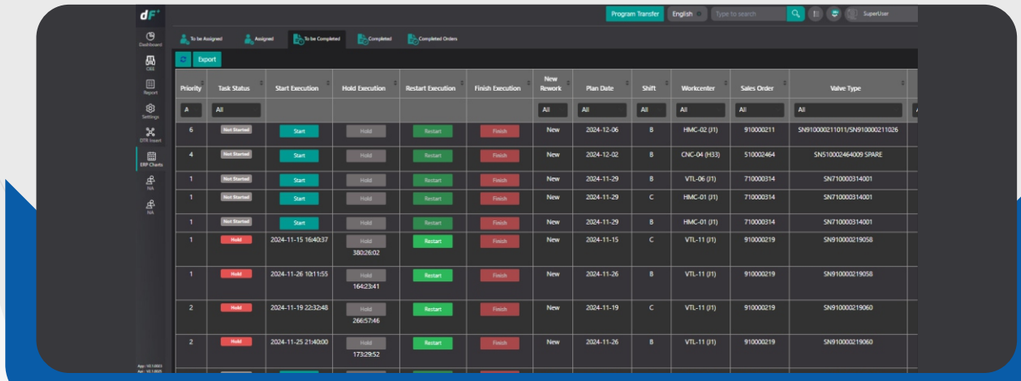
- It supports decision-making during complicated business insights, gets real-time details, etc. Via ERP/SAP integration.
- With planning and scheduling, goals become more achievable. If you're prepared with a solid plan and a realistic schedule, your goals will suddenly be more tangible.
- With ERP/SAP integration, the interaction between production, vendors, dealers, and consumers can be better than it used to be.
- Planning and scheduling allow you to stick within a budget. Without a careful plan and Timeline, you will definitely go over budget.

Scheduling For Supervisors/Engineers: Assigned WO



Schedule Chart: Supervisor can also see which work order has been already assigned; on which machines and for which date.

Screen For Operators Machine Wise Planned Items!



1. Operators can see the planned items on his machines.
2. He then just has to press 'Start' and 'Finish' by entering the quantity (output) with rejection qty and reason for the rejection