USING ENTERPRISE ASSET MANAGEMENT SOFTWARE TO SURVIVE ECONOMIC DISRUPTION

KEY QUESTIONS:

2

How does disruptive change affect enterprise assets?

3

What is operational intelligence software (OI) and how does it help adjust to change?

4

How can EAM software help an enterprise shift production from one division, location or country to another?

IFS WHITE PAPER

By Colin Beaney, Industry Director, Energy, Utilities & Resources, IFS

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Capital assets like process manufacturing plants, highly automated assembly lines, energy, utility & resource facilities have lifecycles that extend into several decades. Yet the business cycles that determine the cost to build and operate them and the return on that investment work across shorter cycles—years or even months. Sometimes, as is the case today, these cycles seem to be less predictable than usual. Supply chain volatility, import/export and other regulatory compliance legislation, changing consumer tastes and disruptive change driven by advancing technology can all affect the return on capital assets in ways that could not be predicted when the asset was originally planned, engineered and constructed. The resulting supply and demand shocks can affect the return on investment as the output produced by the asset fluctuates in value:

- An increase in supply of the output of the asset, which will drive prices down. This means it will take longer to capitalize the asset and could mean the asset is put on standby or idled

- A decrease in demand for what the asset produces, which also drives prices down, which means the return on capital employed may be drastically lower

- Constrained supply or availability for the output of the asset, which will increase prices. This may require new capacity to be brought online or idled capacity to be started back up

- Government intervention and regulation, which can affect the cost to operate the asset. This may necessitate production be moved from one geographic region to another

- An increase in demand. This again may require new capacity be brought online, although executives will need to determine if the increased demand will be significant enough or last long enough to justify the expense and risk

It does not take much imagination to understand the implications of this level of volatility on business:

- Financial stress as executives balance fluctuating revenue and profit fluctuations against asset lifecycle

How do we plan for the build of new assets, overhauls and lifecycle extensions of current assets and make buy/replace/decommission decisions given the volatility of business?
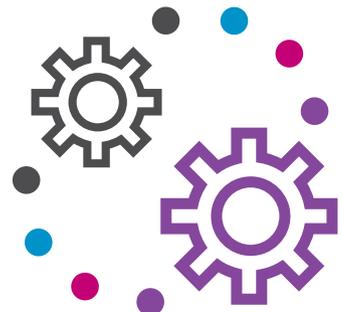
- Periodic layoffs and loss of a skilled workforce, along with skill and leadership gaps in front line management

- Regular needs to activate and deactivate equipment

- Difficulty meeting commitments from customers and stakeholders during peak times

- Safety issues due to inexperienced workers and inadequate staffing during boom times

Because capital assets have long lifecycles of 10, 20, maybe even 50 or more years, executives, corporate boards and financiers must see a way to liquidate the cost of these assets given fluctuating conditions. It is simple enough to profitably manage assets during periods of sustained economic growth or even a typical recession. But during a drastic change in demand, significant portions of an asset portfolio may be idled. Regulatory changes or changes in global trade patterns similarly can render useless the assumptions used to justify an asset in one region while placing a premium on productive capacity in another region. Mothballing equipment and then bringing it back in to operations carries hefty price tags, and the equipment is not worth much from a resale perspective on the open market.

How do we plan for the build of new assets, overhauls and lifecycle extensions of current assets and make buy/replace/decommission decisions given the volatility of business? How can enterprise asset management (EAM) software and supporting technologies put executives back in control of asset portfolios in times characterized by disruptive change?

OPERATIONAL INTELLIGENCE SOFTWARE

EAM software should provide a high degree of visibility and control over asset operation and cost.

Standard business intelligence (BI) tools let executives see what has just happened. Operational intelligence goes one step further than BI by closing the loop between past observations and immediate, rapid action—which lets executive teams adapt to rapidly changing business conditions. The system has origins in the most competitive sector of all—warfare. It was invented by Col. John Boyd, who was trying to determine why a disproportionate number of US warplanes were shot down during the Vietnam War, despite the technical superiority of US jets. His approach helped decision-makers rapidly progress through the stages of observation, orientation, decision and action (OODA) and has influenced multiple fields including current operational intelligence tools.

Operational Intelligence speeds up movement through the OODA look because it:

- Starts with a business map—a clear visualization of how value flows through the organization

How can enterprise asset management (EAM) software and supporting technologies put executives back in control of asset portfolios in times characterized by disruptive change?
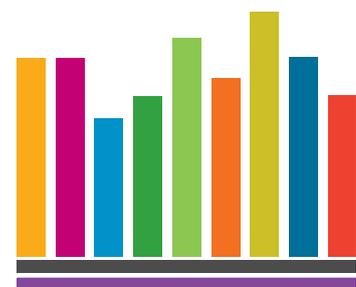
• Aligns metrics from numerous enterprise or point source systems with the business map to better identify constraints in the enterprise value stream

• Provides a way to take immediate action directly in those operational systems, enabling a very rapid response to emerging information

But for organizations impacted substantially by external factors including commodity prices, operational intelligence can provide advance notice of potential business impacts before business signals would manifest themselves looking simply at internal metrics. Operational intelligence will also provide a way to act on this advance notice.
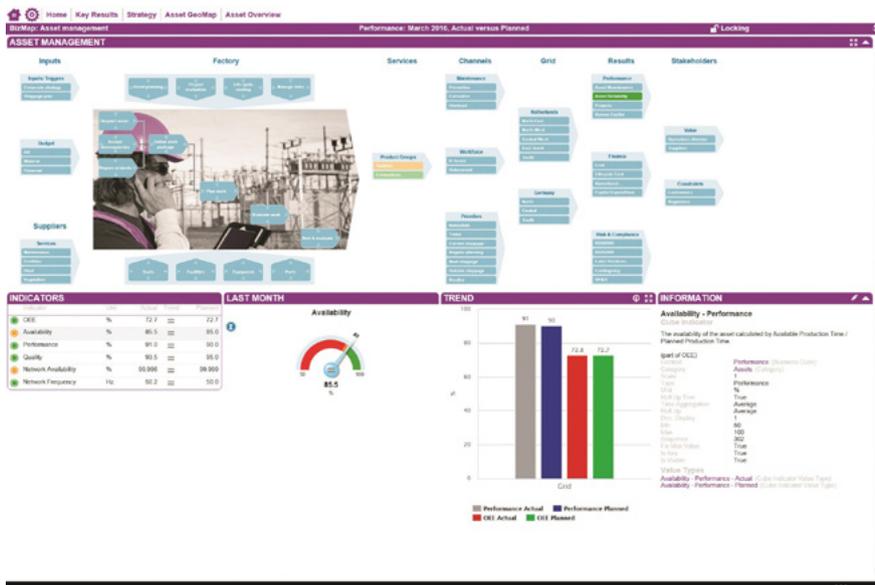
IFS Enterprise Operational Intelligence maps real-time performance against goals and provides forward-looking, actionable views based on data from inside and outside the company.

OPTIMIZED FOR COMPLEX, MULTI-SITE ENVIRONMENTS

As they move through that OODA loop, executives need to adjust assets in a geographically disperse, global portfolio. EAM software must support them in this by enabling them to streamline refits, shutdowns, decommissioning and construction and commissioning of new assets, while ensuring that all health, safety, environmental and corporate social responsibilities are cleared and adhered to.

So modern EAM should include templates used to manage similar assets or asset classes at multiple sites without creating each asset separately in the system. Entire classes of assets should be rapidly created with standard maintenance, parts, tools and other data. Managers must be able to edit these objects to accommodate individual site differences including regulations in different countries. Organizations with multiple divisions moving capacity from one location or division to the other will reduce non-value-added work while increasing standardization and consistency in asset management operations and visibility.

OODA

• Starts with a business map
• Aligns metrics
• Enable immediate action

Operational intelligence can provide advance notice of potential business impacts before business signals would manifest them-selves

SUPPORT FOR E-COMMERCE

For decades, maintenance, substantive refits and overhauls have been under-taken increasingly by contractors rather than maintenance department staff. The percentage of industrial organizations outsourcing maintenance increased sixfold between 1990 and 2000 alone. As volatility increases, this b2b collaborative approach to maintenance and even operations contracting will become more common because contractors can staff operations in a more flexible fashion than they could with direct employees. Contractors can scale up resources on a contract as an asset-intensive business adds shifts or capacity. And the contract can be modified or cancelled or just not renewed if operations draw down or discontinue. If operations are moved to another facility in a different geography, it will likely be easier and less disruptive to transfer the contract for operations and maintenance than dismiss hundreds or thousands of employees or encourage employees to relocate with their jobs, perhaps to new countries or continents.

Some of this contracted maintenance work may be performed by equipment vendors as part of a full lifecycle support contract. In others, maintenance of equipment, the facilities themselves, and projects requiring specialized tools and facilities, materials testing and other maintenance work may be put out to bid or handled under a contract framework agreement with maintenance or construction organizations.
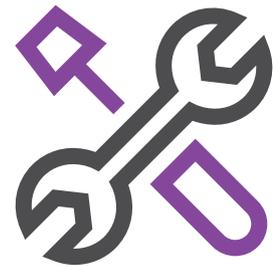
To better manage the broad spectrum of maintenance organizations, execu-tives of asset-intensive companies will need EAM software that automates the process of letting work to bid, accepting bids and tracking performance against the contract. EAM must also often offer contractors web-based portals to report completion of tasks and submit invoices, helping them act as a more integral part of the organization.

Contractors can scale up resources on a contract as an asset-intensive business adds shifts or capacity

IFS Applications includes powerful contractor management functionality that automates bid letting and contract management while providing a device-agnostic administrative portal for the contractors themselves.

GENERAL LEDGER-ASSET INTEGRATION

None of the above functionality will truly help executives close that OODA loop unless EAM software is designed as a pure play application from the general ledger right down to the individual equipment object on a facility floor. To help executives deal with volatility, EAM must be the system of record—not a point solution that lives alongside the software truly used to run the business. And it must address the entire design-operate-maintain asset lifecycle.

Consider the conundrum faced by an executive team as new productive capacity comes online. A head pressure problem develops in a critical compressor unit. Maintenance finds it lacks the information to diagnose the problem because it is in a memory stick or a separate file share left by the consulting engineers that designed the asset. Other data is contained in as-built documentation left by the contractors. Tracking down the information necessary to operate and maintain the asset winds up costing downtime, staff hours and dollars the company can ill afford as it adjusts to rapid change. Often, executives also find a new asset suffers from unplanned stoppages caused by the same design flaw as the asset it replaced. Although historical maintenance records offer guidance on the design changes that were necessary, the system engineers were unable to review that data in a meaningful way as part of a continuous improvement and redesign process. As a result, an opportunity to increase productive capacity and lower cost is lost simply because of inefficient handling of asset data.

During drawdowns of operations at an existing facility, visibility into maintenance spares and repairs inventory is crucial. How much cash is tied up in spare parts, and how useful would those parts be at other facilities? What is their market value? If there are new or reconditioned parts or components, what is their condition and useful remaining life? Without a fully integrated software system, executives may leave money on the table during the sale of a plant or duplicate the purchase of existing parts and equipment that could be consumed at a new location where production is being ramped up.

Unfortunately, most EAM software was designed more as an isolated computerized maintenance management system (CMMS) that really amounts to a work management tool for maintenance technicians. A point-to-point integration with the finance, inventory, risk management and quality functionality of enterprise resource planning (ERP) software may be possible. But as business conditions and the financial return on asset operation change, executives relying on separate systems with a limited set of integrated fields will be hard pressed to make decisions based on real-time visibility of operational cost and asset readiness.
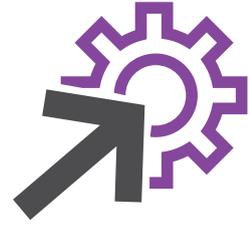
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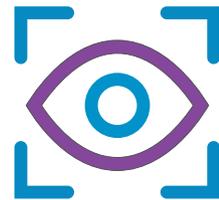
CONCLUSION

Geographic, market and technological changes are obsoleting assets and requiring new capital investments more rapidly than ever before. This means asset-intensive businesses need the visibility and control to react to changing conditions. Without an operational intelligence system, they will face a delay in action and decision-making that will leave them exposed to enterprise risk. They will also need the streamlined asset lifecycle management tools that enable them to stand up and reconfigure assets quickly enough to adapt to changing conditions. And they will need the systems to optimize maintenance and operations contracting flexibly enough to make rapid course corrections in the face of disruptive change.
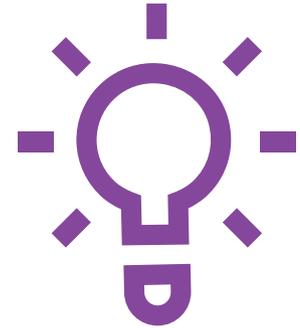
Colin is the Global Industry Director for Energy and Utilities within IFS where he has worked for nearly 15 years. Colin has been involved in implementing and project managing IFS software into many project and asset-intensive organizations in Europe and worldwide. These cover many industries including Energy, Utilities, Pulp & Paper, Aviation and Defense. He is therefore ideally placed to understand the real challenges faced by organizations working in the Service and Asset Intensive Industries. He is a key member of the IFS product directions board and plays an instrumental role in the decisions regarding IFS product strategy. Prior to this Colin worked as management consultant specializing in maintenance continuous improvement philosophies such as TPM and RCM. He completed a mechanical engineering apprenticeship many years ago and spent over 15 years working in automotive manufacture including time as a maintenance and facilities manager.

ABOUT IFS

IFS develops and delivers enterprise software for customers around the world who manufacture and distribute goods, maintain assets, and manage service-focused operations. The industry expertise of our people and solutions, together with commitment to our customers, has made us a recognized leader and the most recommended supplier in our sector. Our team of 3,500 employees supports more than ten thousand customers worldwide from a network of local offices and through our growing ecosystem of partners.

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