Maximizing production and minimizing costs are priorities for mine management today. With operating and maintenance costs of heavy equipment representing such a large proportion of a mine’s operational expenditures, managers are looking for better methods of ensuring the mine’s profitability.

3D-P’s Machine Health, powered by Honeywell’s Mobile Equipment Monitor (MEM) allows you to remotely monitor, analyze and improve fleet and operator performance in real time by retrieving and analyzing operating data that might not be readily accessible. Its comprehensive and scalable monitoring system meets the requirements of small mines to large and multiple-site enterprises.

Developed as an open system, MEM connects to all your critical mine assets and applications, including maintenance management, dispatch, tire monitoring, fuel and lube systems,

---

**The MEM Value**

1. **Increase Asset Utilization**
   - up to 10%
   - Reduce unplanned downtime by predicting failures and providing pro-active response
   - Minimize rate and efficiency losses

2. **Reduce Maintenance Costs**
   - up to 10%
   - Pro-active response to minimize equipment damage and emergencies
   - Optimize maintenance based on real asset conditions
   - Improve reliability and extend equipment life

3. **Increase Operating Efficiency**
   - up to 10%
   - Monitor energy usage to achieve up to 10% reduction in costs
   - Improve engineering effectiveness with continuous monitoring, remote collaboration, and ready access to required information
   - Increase engineering efficiency with an integrated decision support environment

4. **Increase Safety**
   - Minimize risks by ensuring normal and stable operations
   - Eliminate production stops for safety system verification

---

**Mobile Equipment Monitor (MEM)**

Maximizing production and minimizing costs are priorities for mine management today. With operating and maintenance costs of heavy equipment representing such a large proportion of a mine’s operational expenditures, managers are looking for better methods of ensuring the mine’s profitability.

3D-P’s Machine Health, powered by Honeywell’s Mobile Equipment Monitor (MEM) allows you to remotely monitor, analyze and improve fleet and operator performance in real time by retrieving and analyzing operating data that might not be readily accessible. Its comprehensive and scalable monitoring system meets the requirements of small mines to large and multiple-site enterprises.

Developed as an open system, MEM connects to all your critical mine assets and applications, including maintenance management, dispatch, tire monitoring, fuel and lube systems,
**Toolset**

MEM comprises a comprehensive toolset including:

**MEM Data Logger** — This on-board data collection device extends typical OEM data collection, providing delivery of asset intelligence in real-time. Running on board the 3D-P Intelligent Endpoint, the data is wirelessly sent to your remote monitoring center via your site’s wireless network.

**MEM Server** — The MEM server provides the hardware and software infrastructure to receive the data from the data logger and subsequently process, historize, and analyze this data into a system that enables the end user visualization, trending and analysis. This is where the analytics and intelligence is provided to support the detection of problem conditions and assess the impact and determine the best corrective action.

**The MEM server includes:**

- **Process History Database (PHD)** — Captures and stores in real-time all your asset data (ie. The Data Historian).
- **Alarm Viewer** — Displays alarms in real-time for immediate action from both OEM and custom alarm settings.
- **Alarm Archiver** — Closes-out and stores alarms with documentation including estimated savings, allowing capture of knowledge gained and tracking value of the system.
- **Asset Sentinel** — Analyzes sensor data with powerful trending and analysis tools to quickly assess and diagnose possible cause and corrective actions. Asset Sentinel goes even further by detecting and predicting risks and opportunities with asset-centric advanced analytics.

---

**Figure: Mobile Equipment Monitor (MEM)**

- **Analytics** (3rd Party, i.e. Azure, etc.)
- **Historian** (3rd Party, i.e. OSIsoft PI)
- **Alarm Viewer**
- **Event History** (Dynamo)
- **Data Concentrator**
- **Data Logger**
  - OEM Alarms & Events
    - Near real-time updates
  - Sensor Data (temperature, pressure, etc.)
    - Configurable, typical 30 sec. updates
  - VIMS Files
    - Configurable, typical daily updates
The modularity of the MEM solution means that you have the choice to implement only the Data Logger solution while leveraging a third party analytics package and historian, such as OSIsoft PI. Or you may choose to leverage the Data Logger and PHD, but still feed data to a third party analytics package. Or, finally you may choose to leverage the complete MEM solution all the way through analytics and alarm viewing. Additionally, the solutions can be added over time as your business requirements evolve.

**3D-P offers 3 main Honeywell solutions:**

**Data Only** (Data logger + Concentrator)

**Data + Historian** (Data logger + Concentrator + PHD)

**Full MEM Solution** (Data logger + Concentrator + PHD + Alarm Archiver and Alarm Viewer + Sentinel)

---

### The Intelligent Endpoint at the core

#### The Intelligent Endpoint

Running natively on-board the Intelligent Endpoint® (IEP), MEM leverages the application integration capabilities of the IEP. Designed as an open computing platform, the Intelligent Endpoint not only allows hosting and integration of native and 3rd party application but also provides interfaces for communications to all mobile equipment systems. Its broad suite of onboard applications provides you with the tools to manage data flow over the network, trigger actions based on geo-fences and monitor network performance. Designed to survive the harshest environments, the IEP also provides a built-for-purpose, rugged, networking device for heavy equipment platforms.

#### A Consultative Approach

Our approach to network design and data access is consultative. We partner with our customers to understand their needs and engineer solutions that will enable them to access the data they need through best-of-breed machine health software, edge computing, and reliable and redundant wireless networks.

Our team consists of radio-frequency, software and hardware engineers with an expertise in mining. Our mission is to enable our customers’ success through smart solutions and relationship with key partners, like Honeywell.

---

To know more about the MEM solution, contact sales@3d-p.com or visit 3d-p.com