SIEMENS
Ingenuity for life

MindSphere Product Intelligence

Benefits

- Close the loop between product design and performance
- Discover emerging product trends to prevent recalls
- Eliminate time and costs required to repeatedly consolidate and search big data
- Leverage Tableau visualization to interpret contextualized big data
- Empower data-driven decision making across the organization
- Improve customer experience by quickly resolving field issues

Features

- Cloud-based, SaaS MindSphere application
- Limitless data sources consolidated into a single unified data lake
- Search and analyze billions of events in seconds
- Layer and compare multiple user-created or automated KPIs
- Impromptu or scheduled analysis and monitoring
- Prioritized results to easily identify abnormalities

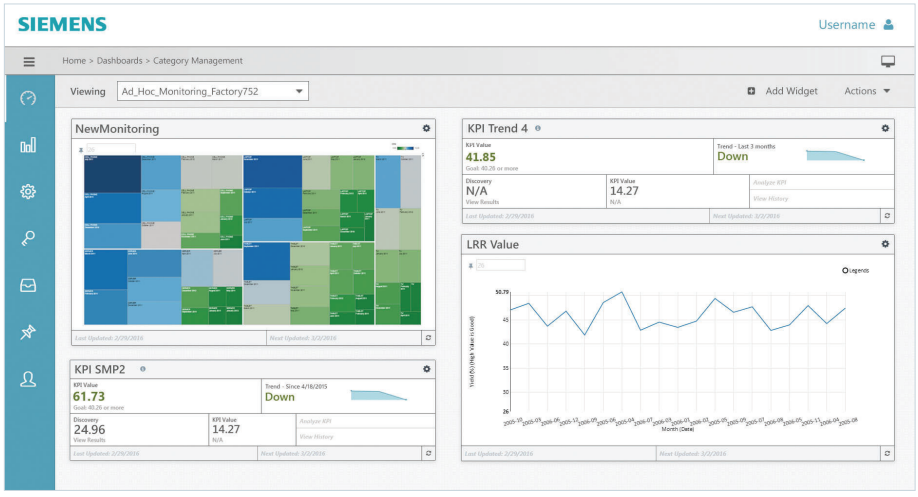
Automate insights gained from product performance data to create actionable intelligence

Summary

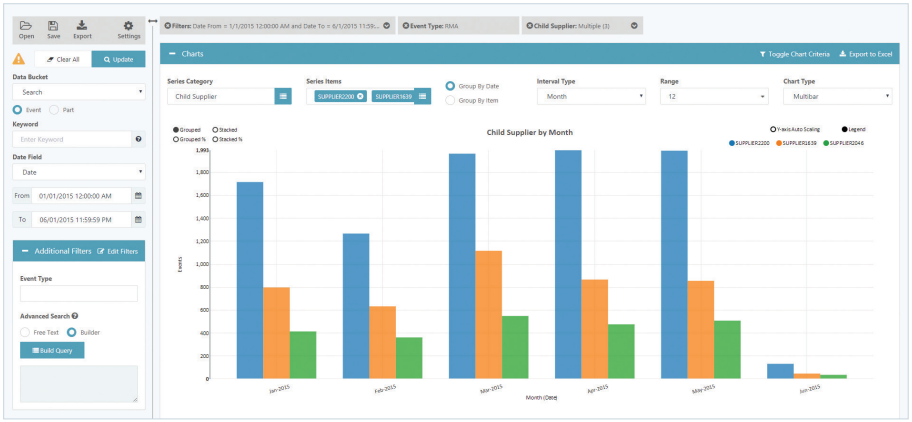
Product Intelligence is a cloud-based, software as a service (SaaS) MindSphere application that is used to automate insight from product performance data to create actionable intelligence. MindSphere is the cloud-based, open Internet of Things (IoT) operating system from Siemens that connects real things to the digital world and provides powerful industry applications and digital services to drive business success. MindSphere is an open platform as a service (PaaS) that enables a rich partner ecosystem to develop and deliver new applications.

It is difficult to obtain visibility into product and supply chain performance in a complex global value chain. Data is disparate and often inaccessible, yet customers increasingly demand more rapid resolution of product issues. Using Product Intelligence enables you to clean, unify, search and analyze contextualized big data to deliver actionable intelligence.

The solution significantly reduces the cost and time spent searching for the source of value chain problems, enabling your teams to focus on solutions. You can empower your global decision makers with the intelligence needed to quickly resolve value-chain problems, increase revenue and improve customer satisfaction.



Product Intelligence



Creating the complete big-data picture

Product Intelligence connects your products with a worldwide value chain by unifying all your big-data sources – such as product lifecycle management (PLM), enterprise resource planning (ERP), manufacturing execution systems (MES), quality management systems (QMS), customer relationship management (CRM) and the IoT – into one easily accessible hub. Providing the ability to search and analyze billions of contextualized supplier, manufacturer and customer field data events in seconds gives you a complete picture of your entire value chain.

Data Quality

The Data Quality module of Product Intelligence enables you to clean, maintain and analyze big-data integrity at the source. It validates data based on your master data management rules during the extract-transform-and-load process and then stores the nonconforming data in a separate, searchable environment. Accurate decisions are based on complete and high-quality big data. Data Quality gives you the trust and confidence to make rapid, accurate decisions. These decisions dramatically improve efficiencies across supply, manufacturing and field/customer service that ultimately improves the customer experience.

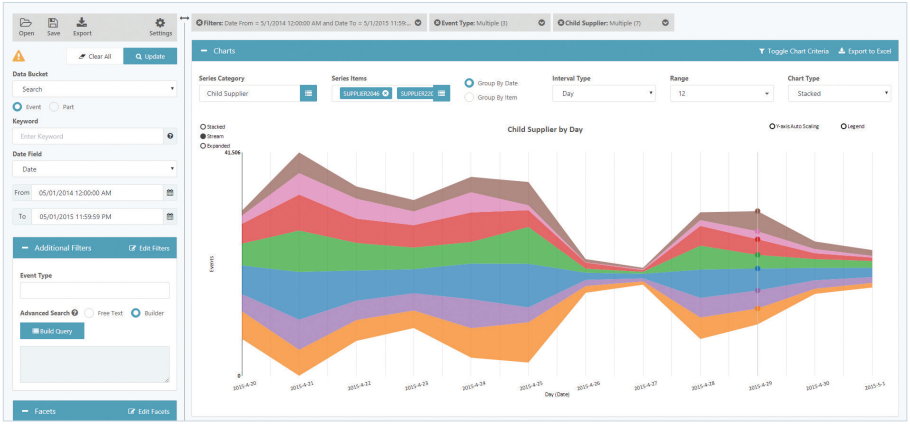
Performance Analytics

The Performance Analytics module of Product Intelligence enables you to monitor data across the entire supply chain, including the customer experience, while quickly analyzing billions of data combinations in seconds, significantly reducing the cost, time and resources needed for big-data analysis.

By searching, analyzing and monitoring user-determined key performance indicators (KPIs), Performance Analytics enables you to uncover global value-chain issues that are disrupting or about to disrupt product performance and the customer experience. Revealing the product performance intelligence that pinpoints the source of product issues, using Performance Analytics provides proactive analysis for big data.

Discovery

Discovery is a tool in Performance Analytics that allows companies to ask the questions they didn't know they should ask by analyzing billions of data combinations to create big-data insights. Discovery enables users not only see what happened, but why it happened by revealing the combinations that create data outliers. Using the discovery tool exposes emerging data trends and allows you to quickly analyze a KPI and drill down further into findings to better understand the trend. Discovery can be used to create on-demand charts and reports that give the user unprecedented flexibility and granular analysis so they can interactively change parameters on the fly. Using the innovative technology of the discovery tool enables you to rapidly improve your product performance and the customer experience.



Product Intelligence

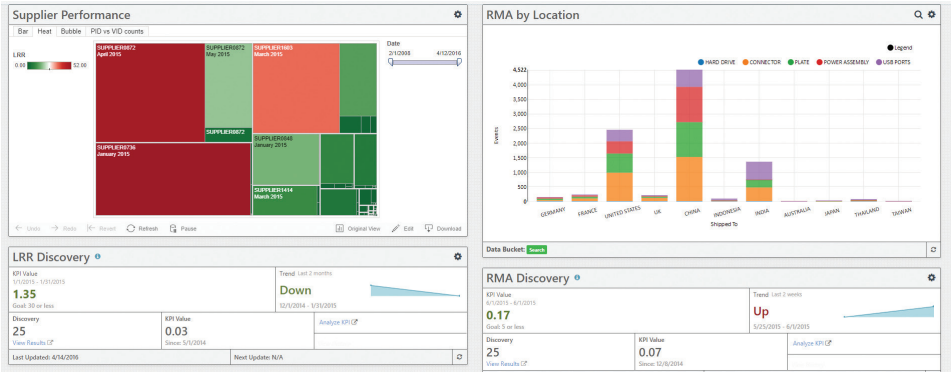
Monitoring

The monitoring tool in Performance Analytics enables you to track and observe trends for all your big-data sources in a single hub for comprehensive analysis. Globally defined, fully customizable data analytics definitions and KPIs ensure your users can leverage the same criteria across teams, plants and divisions. Definitions and KPIs are built as modeling objects with multi-level definitions for easy re-use. This structure enables users to interactively explore data analytics and KPIs, providing users with on-the-fly customization that deep analytics demand. You can schedule metrics for systematic monitoring to easily view the results whenever needed. Simply configure the KPIs to be monitored, view the results and then drill down into items that warrant attention.

Parametric data analytics

Parametric data is captured by multiple sources in a supply chain, including product testing during new product introduction (NPI), manufacturing during production and the IoT during field operations. The concern for the manufacturer is that simple pass/fail test data does not provide the necessary information to ensure quality products. Some examples of parametric data measured by sensors and testers include temperature, pressure, maximum speed, voltage, resonance, impedance, torque, dimension, force and test time. Without access to parametric data, the manufacturer assumes a larger risk of field failures and is unable to spot trends in values drifting toward the specification limits. Parametric data can also be used to tune operations and improve performance in future product designs.

Parametric data analytics, a component of Performance Analytics, is used to transform detailed test and field results into actionable intelligence. Parametric data analytics includes an easily configurable analysis and reporting tool that allows filtering, faceting and exporting of parametric data. These reports enable you to quickly pinpoint breakdowns in the manufacturing process and field operations. Having complete access to granular supply chain data not only reduces time to resolution, but also enables companies to make rapid, data-driven decisions to improve product performance and refine their design and manufacturing operations.



Advanced Data Visualization

The Advanced Data Visualization module of Product Intelligence integrates Tableau® software and is used to create simple, clear charts and graphs from layers of complex data-set KPIs.

By simplifying information displayed to users, Advanced Data Visualization can be used to expedite interpreting intelligence, allowing you to increase decision-making velocity across your company. Greater speed of decision making heightens the responsiveness and flexibility of companies, divisions and departments to improve product performance and maximize the customer experience.

Fuse external data with Product Intelligence data

Using Advanced Data Visualization provides you with the flexibility to visualize your data by allowing ad hoc additions of external data sources not connected to your Product Intelligence big data. Simply upload the additional data into Advanced Data Visualization to combine, analyze and visualize these new dimensions in a single view. You can now easily slice and dice the fused data in Tableau® software workbooks for quick investigation of issues.

Layer multiple, cross-departmental KPIs

Analytics, even KPIs that reach across the organization, are often viewed and interpreted in silos. By layering multiple KPIs in a single display, Advanced Data Visualization enables a true interpretation of value-chain performance. Correlate and visually compare performance results between multiple sources, such as supplier quality and manufacturing performance or supplier performance and customer feedback. These multiple KPI comparisons allow you to swiftly understand how and why KPIs fluctuate and if this will create an impact on product performance and the customer experience.

Product Intelligence

Fast Contextual Search
Users of search engines know that you have to search in the right context to get meaningful results. Typically, it requires days or weeks to create an accurate context for multiple big-data sources, and much longer to search and analyze this data. The Fast Contextual Search module saves valuable time by only searching fully contextualized big data. Simply type in a keyword as you would in a web-based search, and discover new insights about your products. Fast Contextual Search offers a wide range of advanced search options and allows for complex search expressions, including string values. All types of searches (keyword, filter, facet, etc.) can be combined.

Drilling for insights
Along with results displayed as graphs, the solution also provides detailed text listings of search results. Individual rows can be selected for further investigation and analysis. Each drill down brings you closer to fully understanding the data connections throughout your value chain. Finding these connections will be the key to making impactful and financially beneficial product improvements.

Global sharing
All searches and facet combinations can be saved and shared with other users. Now everyone from suppliers and manufacturers to the field and customer service can use the same criteria to gain global intelligence to improve products and the customer experience.

Secure supplier access
With the secure supplier access in Product Intelligence, suppliers can see how their components are performing in the original equipment manufacturer (OEM) products. Using Product Intelligence provides OEMs with visibility into all supplier data, but individual suppliers only see information pertaining to their parts, components and subsystems. Giving suppliers direct access to their performance data enables them to provide higher-quality components, which improves product performance.

Alerts and notifications
Overlooking important information and emerging trends can occur within a global supply chain. Product Intelligence alerts and notifications enable system users to be alerted when necessary. Users receive an email based on defined thresholds. The email messages can be customized to provide notifications to multiple users for each threshold. Product Intelligence comes in three plan sizes: small, medium and large.

Product Intelligence comes in three plan sizes: small, medium and large. Each plan provides companies with tools that will optimize product data in order to improve product performance and the customer experience.

Product Intelligence	S	M	L
Data storage (in TB)	10	15	15
No. of named users	10	10	10
No. of data sources	2	3	3
Frequency of incremental data loads	Daily	Daily	Daily
Modules			
Data quality	✓	✓	✓
Perfomance analytics	✓	✓	✓
Advanced visualization		✓	✓
Fast contextualized search			✓

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