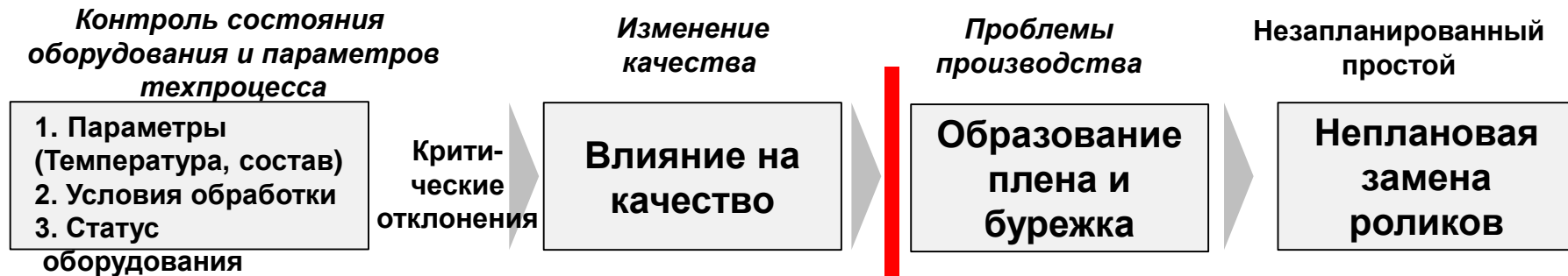




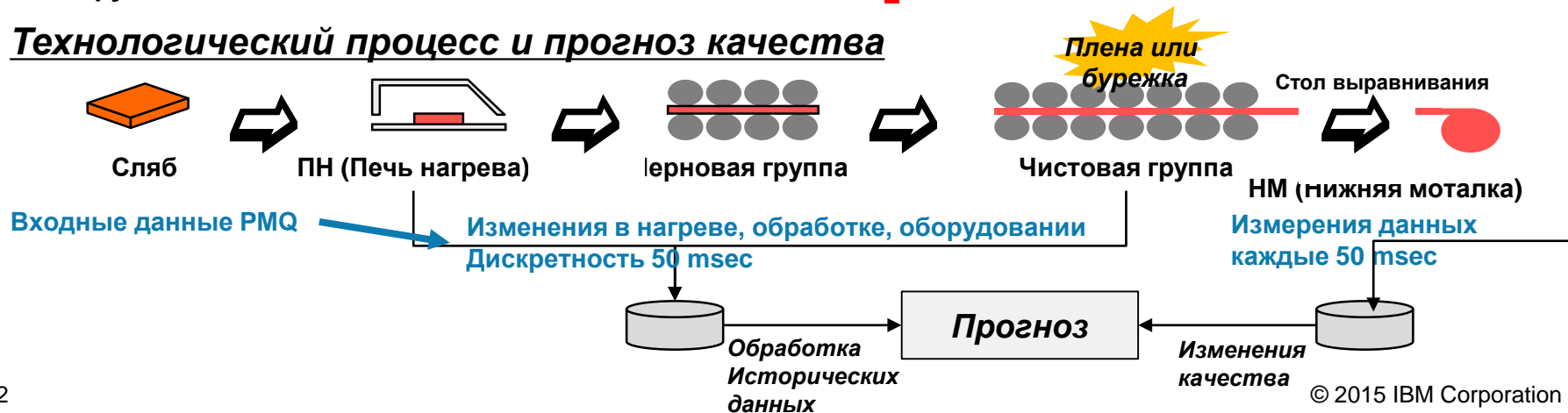
Когнитивные решения для индустрии - технологии,
которые расширяют и дополняют экспертизу человека
Аникин Алексей, alexey.anikin@ru.ibm.com



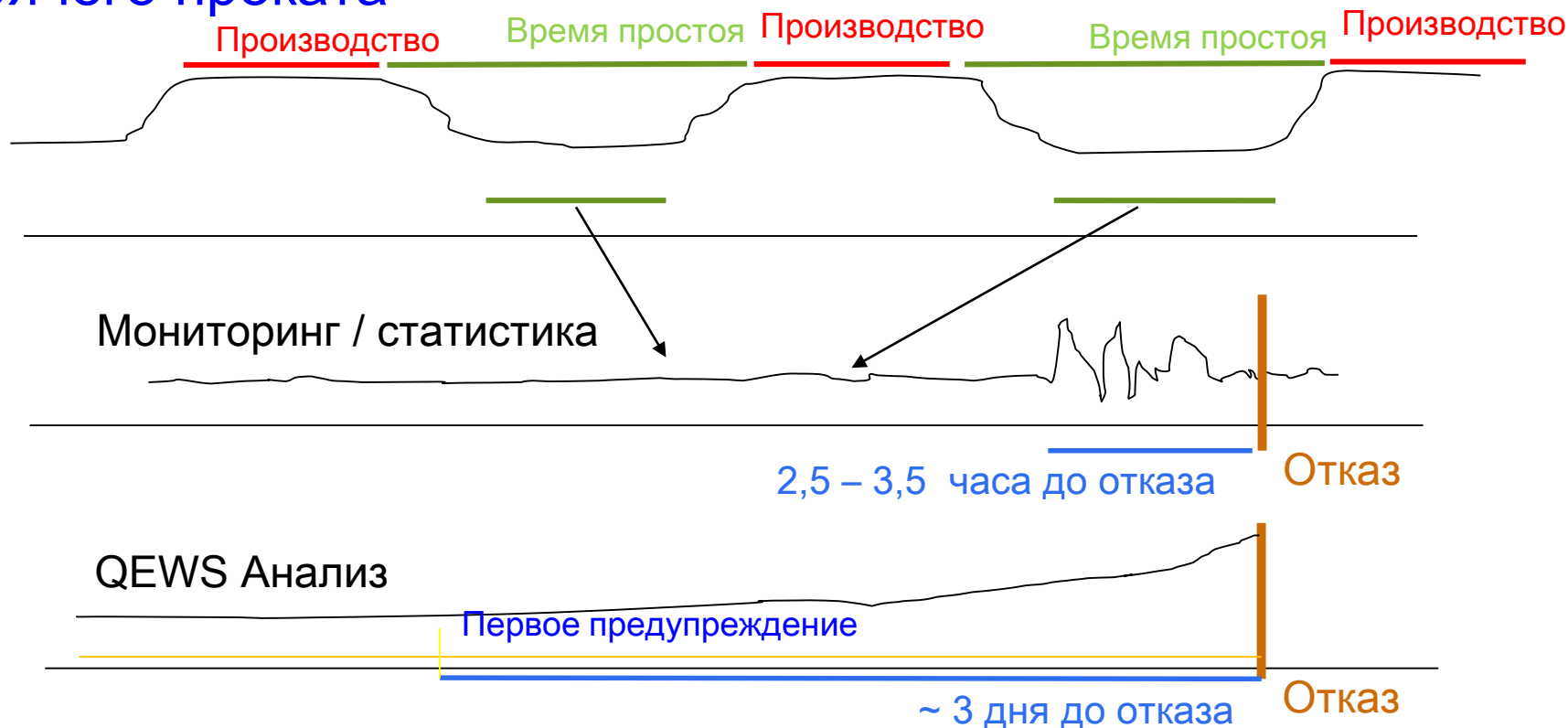
Анализ изменений значений параметров прокатного стана (дискретность 50 мсек) позволяет исключить выпуск некачественного проката и одновременно сократить затраты на профилактическое обслуживание



Технологический процесс и прогноз качества



Пример – система раннего предупреждения для стана горячего проката



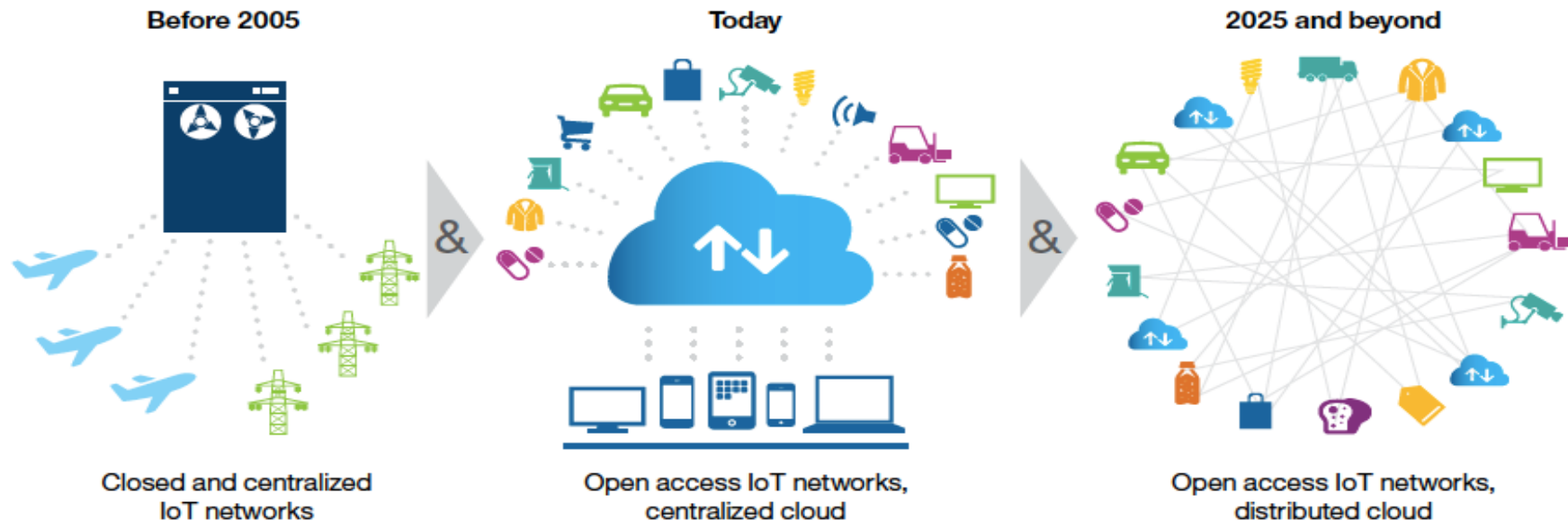
Прогнозное обслуживание и управление качеством :



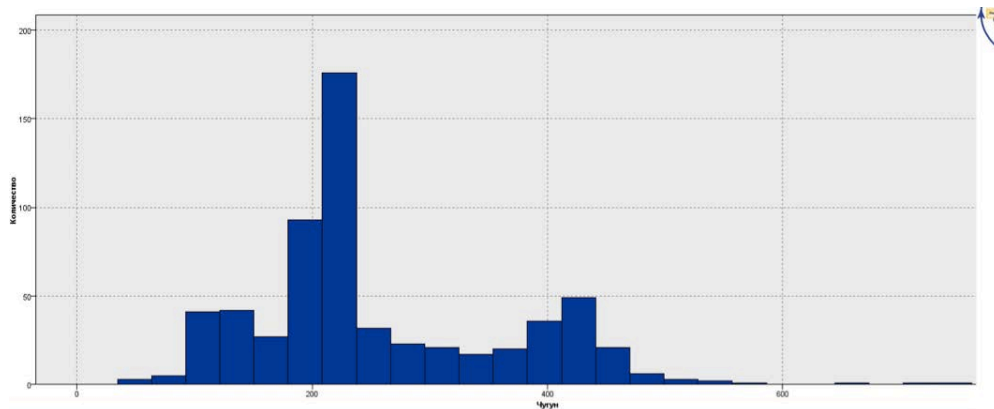
Выделение закономерностей в оперативных данных для определения вероятности наибольшего риска перераспределения ресурсов *до того, как вероятность становится реальностью*



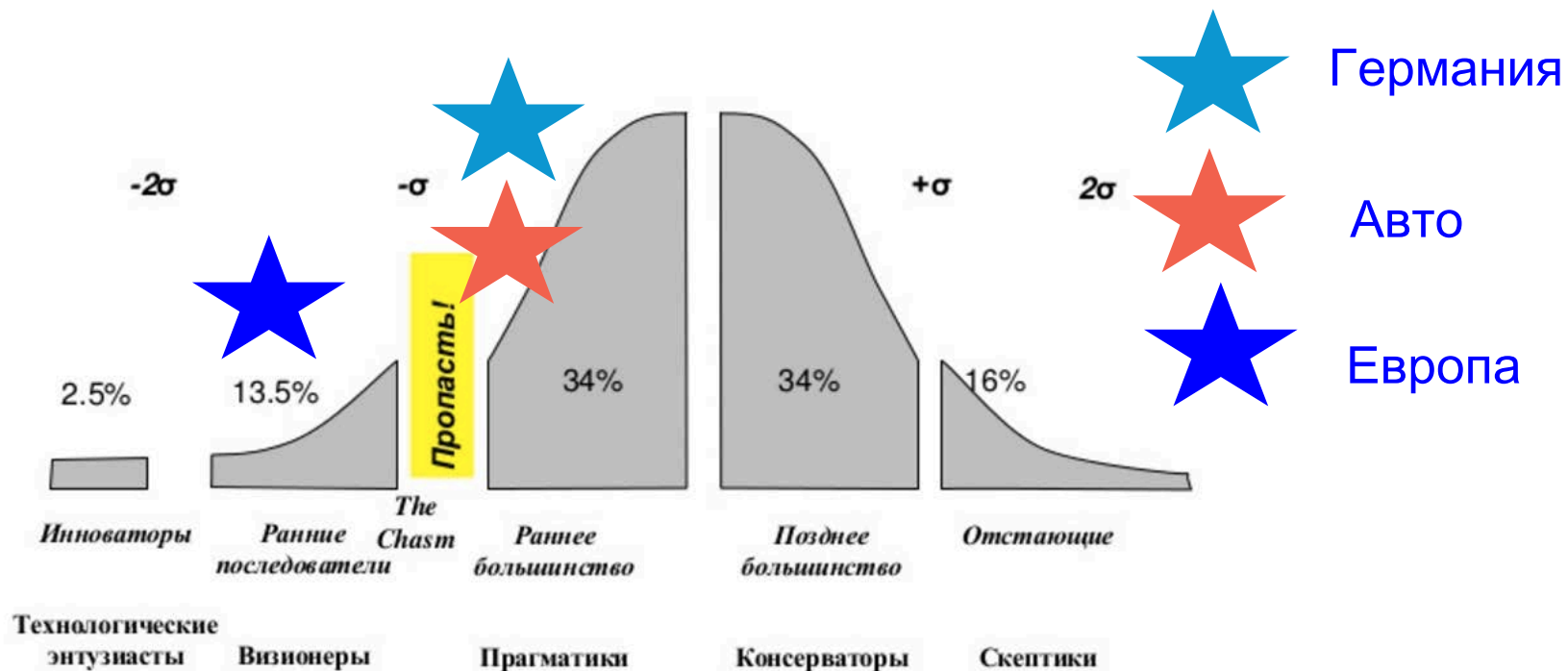
Для сохранения безопасности и масштаба
IoT будет развиваться в сторону открытости и децентрализации



Практические сложности при внедрении IoT



Кривая инновация для IoT

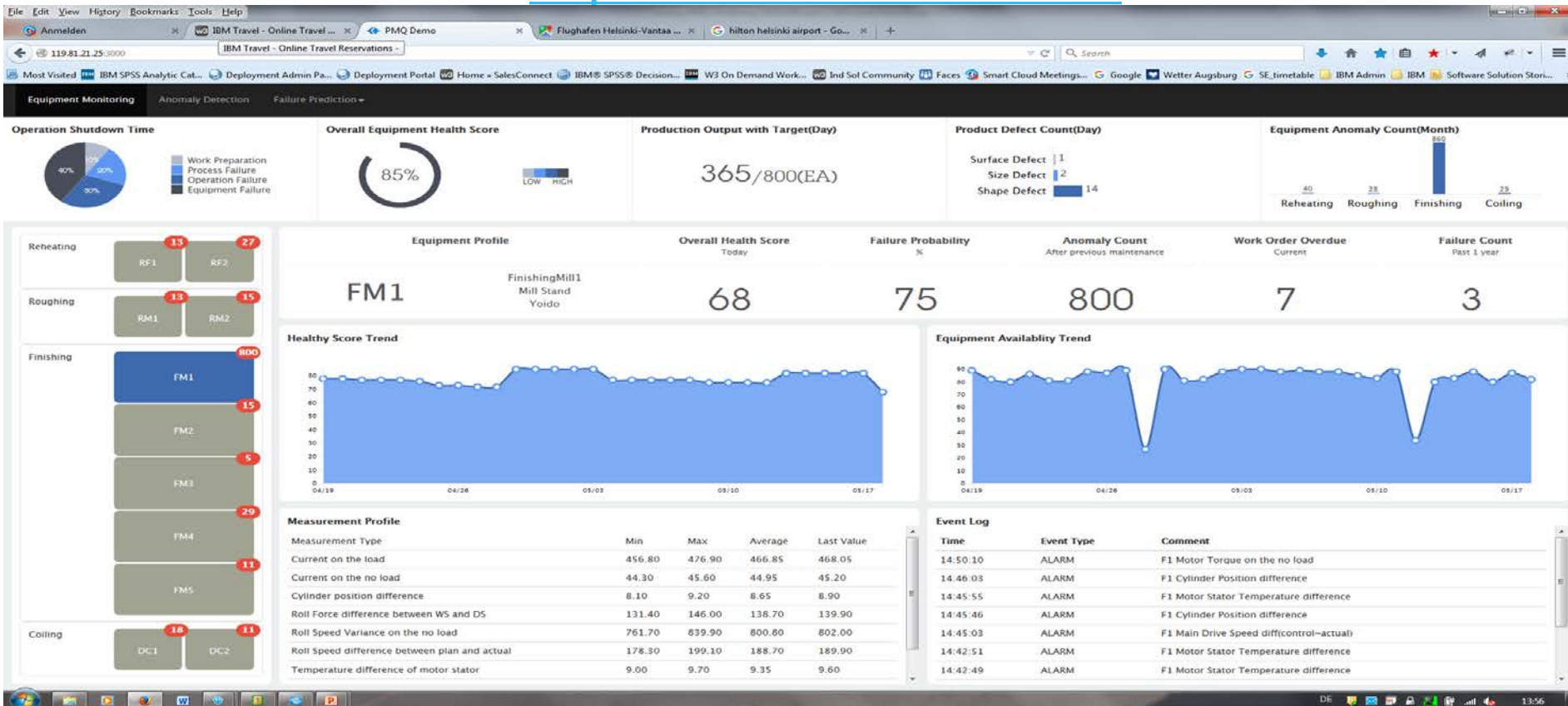


Для 52 крупных предприятий Европы
44 IoT/ Cognitive, 11 Data Integration, 4 outsourcing, 3 Mobile

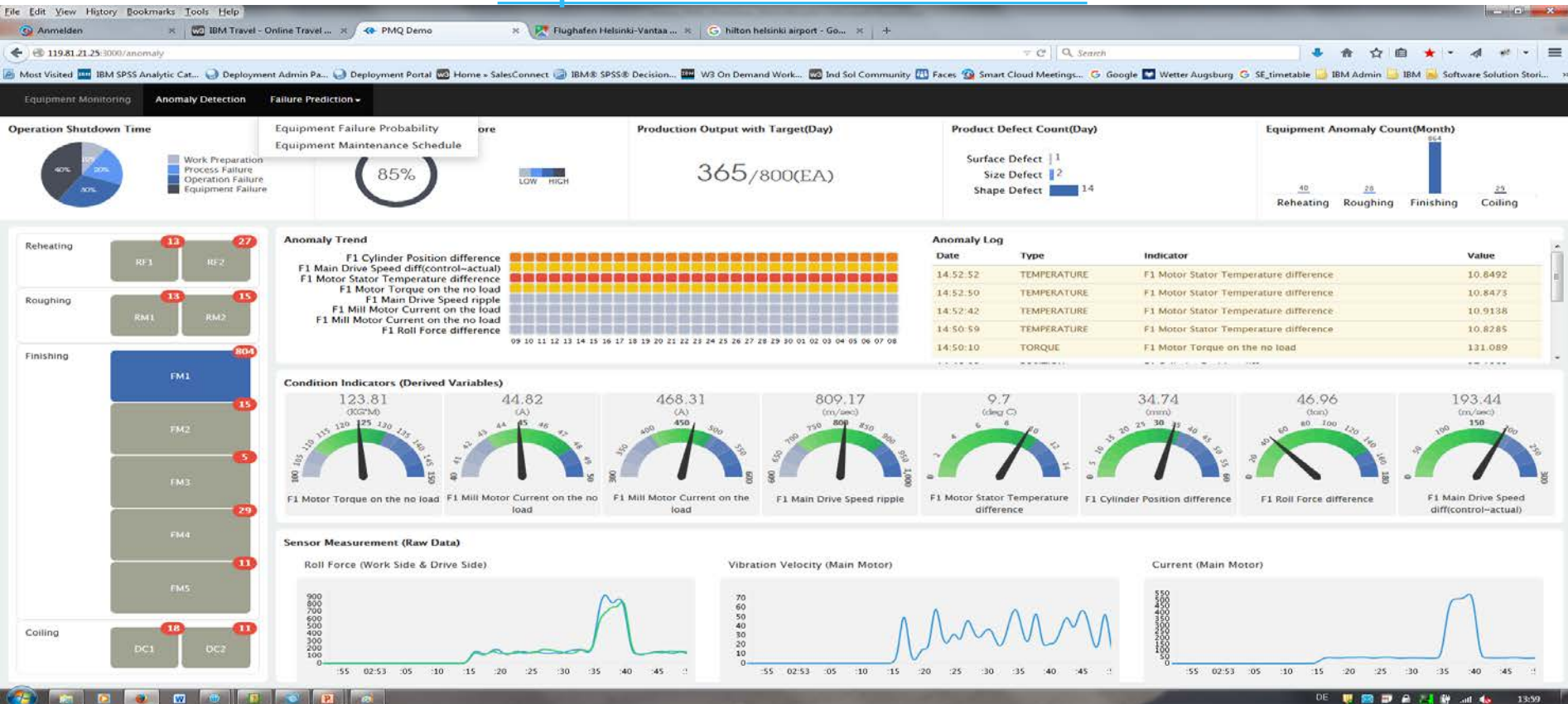
В основе IBM PMQ – проверенная архитектура, созданная на основе SPSS, Cognos, Ilog, DB2, Message Broker



PMQ steel demo - <http://119.81.21.25:3000/>

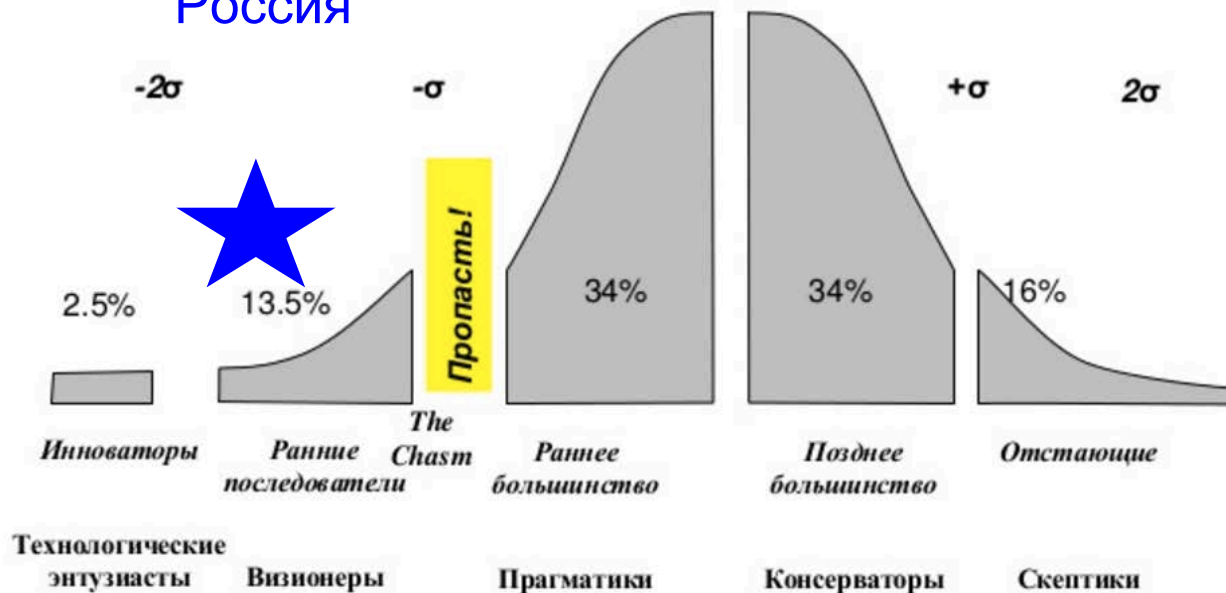


PMQ steel demo - <http://119.81.21.25:3000/>



Кривая инновация для IoT

Россия





Аникин Алексей, alexey.anikin@ru.ibm.com



Back Up

Pratt Whitney uses predictive analytics to prevent costly aircraft-on-ground engine events

100% prediction

of aircraft-on-the-ground events for high-risk engines

97% accuracy

in predicting engine events that lead to airline disruption

USD63 million

in extrapolated cost savings to airlines if prediction had been available in the previous year



Business challenge: This US-based aircraft engine manufacturer collects a vast amount of data about its engines through various databases and sensors, but it had no holistic way of integrating and analyzing the information to proactively address engine issues.

Solution: An analytics platform creates predictive models that automatically alert the manufacturer to different types of impending engine events. These alerts, and a 360-degree dashboard visualization of engine-fleet health and risk status, enable the company to take proactive measures such as ordering and arranging preventive maintenance. These can help prevent a range of engine issues and potentially help the company's customers avoid millions of dollars in costs associated with grounded planes.

A mining equipment manufacturer in the US uses analytics to move to a predictive maintenance model, avoiding equipment failure

USD500K saved

by repairing instead of replacing an engine

Maximizes lifespan

of equipment by providing the right maintenance at the right time

Improves reputation

of the manufacturer and dealers through better equipment performance



Challenge: Downtime from unexpected equipment failure or unnecessary scheduled maintenance is costly to mining companies. This mining equipment manufacturer needed to find a way to enable its dealers and fleet managers to implement preventive, rather than reactive, maintenance.

Solution: A new predictive asset optimization solution enables the mining equipment manufacturer to help its operators spot potential maintenance problems before equipment can fail while avoiding unnecessary downtime for unneeded scheduled maintenance. The solution identifies anomalies in the data collected from sensors on the heavy equipment that might indicate imminent or future problems, giving operators time to perform preventive maintenance.

Daimler, an auto manufacturer in Germany, uses predictive models to make the right production adjustments and meet tight tolerances

25% increase

in the overall productivity of the cylinder-head production line

>50% reduction

in the time required to ramp up the process to target levels

100% payback

achieved within two years



Business challenge: This auto company's managers had an anecdotal understanding of which variables were tied to [product-quality issues in the company's cylinder-head production line](#), but not enough to change it. What they needed was a way to more [precisely identify the complex patterns in machine settings, material temperatures and equipment maintenance activities that adversely affected product quality](#) so that they could take preventive steps to minimize production-line waste.

The smarter solution: Each day, production-quality [analysts run the more than 500 production-line variables they track through predictive models that tell them which specific parts of the line need to be adjusted to ensure that products remain within their tight tolerances](#). The solution also provides predictive insights on which

An iron & steel manufacturer employs analytics to predict equipment malfunctions and avoid product defects

\$2 Million

reduction of costs for every 0.1% improvement in production efficiency

Improved steel and iron production efficiency

by reducing the incidence of production shutdowns related to equipment failure and product defects

Boost skills transfer

by embedding process knowledge into equipment and process optimization algorithms



Challenge: The optimisation of plant production is the key to profitability. Some of the main parameters include throughput, product quality, machine availability and efficiency. Small flaws, such as temperature imbalances in a furnace or the wrong tension setting on a steel roller, can lead to defective products, customer dissatisfaction and costly delays. The company wanted to spot emerging equipment and product-quality problems early.

Solution: The IBM solution analyzes large volumes of production control data to seek patterns in equipment operations, product quality, failure patterns. Provide line staff with indications of future potential failures that can be avoided via pro-active intervention. Enable quality control personnel to do deep-dive analysis on a relationship between certain production variables and quality. Staff