

INTRODUCING KRTI 4.0® - THE NEXT GENERATION AI PLATFORM FOR OPERATIONAL EXCELLENCE

A 'single pane of glass' providing complete intelligent learning-based insights from your smart 'connected plant' assets anywhere in the world. Manage your enterprise-wide asset management challenges, harness the Industry 4.0 revolution.

ASSET LIFECYCLE MANAGEMENT

No current solution can solve asset lifecycle management challenges fully. You need to be smart and wise, focusing on the critical areas rather than everything, to solve the problem holistically, increasing the asset value and reducing the associated risks.

KRTI 4.0, a model based data driven framework incorporates at its core a **Pöyry** RAMS (Reliability, Availability, Maintainability, Safety) model which defines the asset criticality, thus enabling the advanced analytics and machine learning capability of the **Infosys Nia**, a knowledge based Artificial Intelligence (AI) platform, to provide smart decision making on all levels of the organisation. KRTI 4.0's open and intuitive machine-to-machine (M2M) interface provides for seamlessly connecting with different OT systems for collecting data. KRTI 4.0 makes pervasive and secure industrial IoT connectivity real across all levels on the enterprise. KRTI 4.0 brings prescriptive maintenance solutions to asset management. The framework provides reliability engineering, system safety and probabilistic risk assessment.

KRTI 4.0 has been designed as an enterprise wide decision support tool where learnings from one facility are seamlessly shared across the whole enterprise, accelerating analytical knowledge. KRTI 4.0's hierarchical smart dashboards enable CEOs to profile enterprise risk and understand potential exposures at a glance.

AUGMENTED REALITY

The world of augmented reality is about amplifying the real object with additional

metadata. The purpose of augmentation is to instil greater information about "intent" into the observation of reality. For example:

- Understanding alerts for possible failures through additional operational/ maintenance data
- Understanding process behaviour to improve productivity through additional operational data

The intent drives the observation of unfolding reality. KRTI 4.0 is a single pane of glass that provides complete intelligent learning based insights from smart connected plant assets from any part of the globe.

EMPOWERS SMART DECISION MAKING

KRTI 4.0 empowers people at all levels of the organisation to make smart intelligent decisions. KRTI 4.0 creates 'Smart Hands' at all levels. At the highest level, through KRTI 4.0's real time dashboards, CEOs have in-depth intelligence about their assets across the enterprise. For Plant managers, KRTI 4.0 RAMS modelling allows for scenario building, enabling the continuous improvement of assets (i.e. easy assessment of different scenarios, scenario/option analysis).

Scenario analysis provides feasibility information (monetary) of the available risks/ options for intelligent decision making. At the shop floor, KRTI 4.0 empowers maintenance engineers with smart augmented virtual reality applications enabling smart decision making during equipment repair interventions. Technical data is shared and captured effortlessly through smart digital devices and seamless connectivity within the plant.

ACCESS KNOWLEDGE 24/7

Our unique Chat Bot Application is your window to KRTI 4.0's knowledge and wisdom. This knowledge is at your fingertips 24 hrs a day, 365 days a year. It evolves and grows every minute of every day allowing smart decision making at all levels within the organisation.

The KRTI 4.0 RAMS models drive intelligent data collection from plant sensors through smart M2M IoT connectivity. KRTI 4.0 planning provides a basis to understand what information is important (smart instrumentation and sensors), rather than collecting any data with no clear plan, thus concentrating on the critical issues. This real time data is continuously analysed through advanced analytics on the Infosys Nia platform, enabling sophisticated learning and predictive algorithms to immediately alert the Plant Manager of potential events which could affect production. In emergency situations, KRTI 4.0 advanced robotics and cognitive automation can automatically schedule operations and maintenance activities to safeguard equipment and assets.

SMART ALERTS

If KRTI 4.0 detects an abnormality and predicts a future potential equipment failure, Plant Operations Staff are alerted, indicating predicted time to possible failure, based on current trends and implications of such a failure on availability, reliability and safety of the plant. KRTI 4.0 will have also assembled all relevant information to enable smart intelligent decisions to be made by Plant Operations Staff. E.g. spare parts required for repair, their availability, maintenance repair procedures and skills, plant isolation requirements, etc. Following maintenance interventions, KRTI 4.0 will update all learning from the event, ready to provide smarter intelligence in the future.

OUR PARTNERS

KRTI 4.0 is possible because of the unique and complementary strengths of leading global corporations Infosys and Pöyry.



ENERGY

INDUSTRY



INFRASTRUCTURE

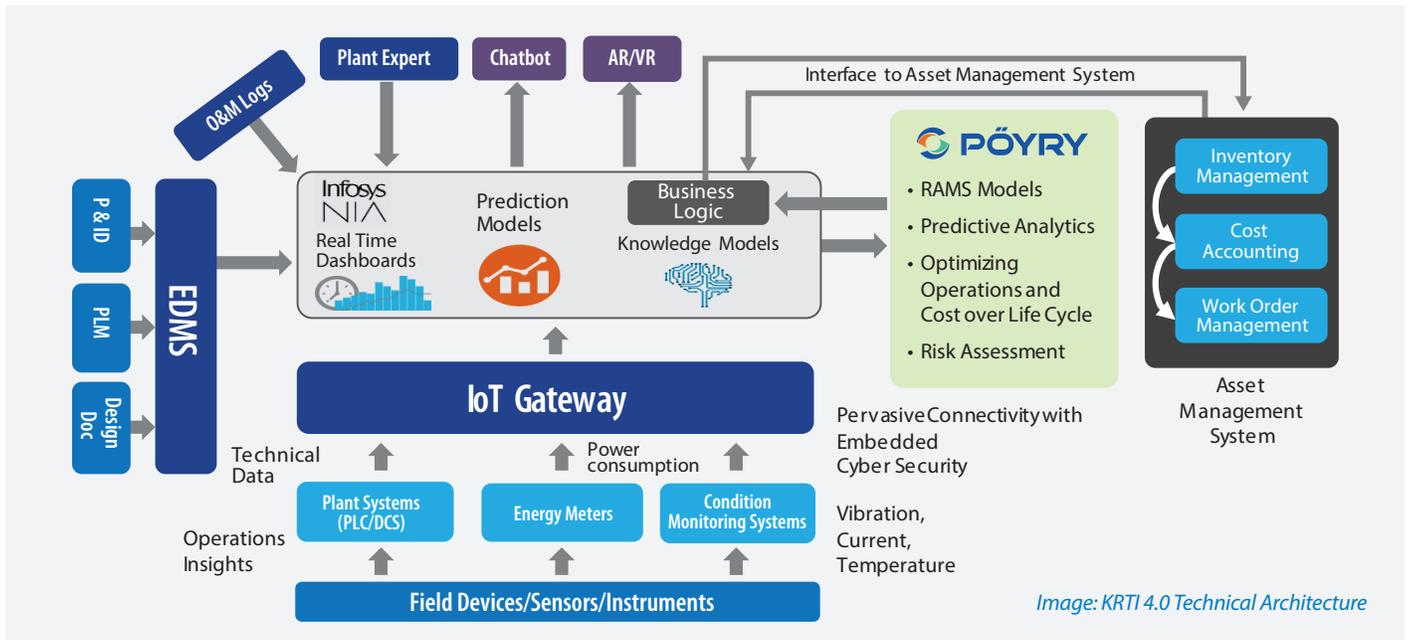


Image: KRTI 4.0 Technical Architecture

SMART HANDS

'Smart Hands' are created across the organisation through our Smart Hands Applications. Through its continuous learning capabilities, KRTI 4.0 can support organisations to deal with the increasing challenges resulting from loss of skills. KRTI 4.0 does not retire, it gets smarter and smarter, learning every minute of every day and shares its knowledge across the organisation in a smart intelligent manner. KRTI 4.0 Smart Hands Applications can include augmented reality and equipment 'digital twins' to enable plant engineers to make smart decisions when executing maintenance interventions.

KRTI 4.0 will revolutionise asset management by improving both operational and maintenance efficiencies in a smart intelligent disruptive way, allowing organisations to achieve operational excellence. It will enable organisations to significantly reduce their lifecycle costs but maintain and possibly enhance their assets performance, availability and reliability thus improving margins and shareholder value, with reduced risk.

In summary, KRTI 4.0 will allow owners, managers, operating personnel and users to focus their attention beyond monitoring and control of systems and assets to:

Data: Collecting the right data continuously from assets and systems to

enable continuous situational learning and acting.

Knowing: Gaining a deeper understanding of situational behaviour of critical systems, assets and components.

Learning: Using Artificial Intelligence and Machine Learning to develop deeper and new insights into situational behaviour, leading to significant enhancements in Operations, Maintenance and Safety.

Acting: Initiating proactive measures to improve system reliability, and availability; asset and component maintainability and efficiency; and overall safety of operations through real-time connectivity.

In other words, if your company hires an AI consultant to develop AI to improve the company's analysis capability, the consultant's first question will be "what kind of data is available?" Based on the availability of relevant data, you are able to get some benefits from the AI.

The KRTI 4.0 approach is totally different; by analysing the system and understanding what is important and critical, we are able to define what kind of information is required in order to analyse, understand, predict and improve the efficiency of assets. This enables you to collect the right data and have holistic and comprehensive analysis.

Our KRTI 4.0 RAMS methodology puts the 80/20 rule at the heart of the analysis. We know the criticality of each part of the asset and focus our data collection strategy and analytical capabilities where it matters most. This is the difference.

IMPLEMENTATION OPTIONS

KRTI 4.0 is offered in 3 evolutionary options:

Standard: Basic framework with RAMS modelling, sensor data capture and predictive analytics.

Professional: Standard framework augmented with technical data and operator logs ingestion, asset knowledge models and chatbot teaching.

Ultimate: Professional framework enhanced with 3D augmented reality, Asset Management Systems interfacing with full Robotics Process Automation.

Can you afford to miss out on KRTI 4.0 supporting you in dealing with your future enterprise wide asset management challenges and enabling your team to effectively navigate through the Industry 4.0 revolution?

Contact Ram_Kulkarni01@infosys.com

For more information, contact askus@infosys.com



© 2018 Infosys Limited, Bengaluru, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.