KONECRANES®
Lifting Businesses™

Lifting Safety through Data

Sustainable Business by Konecranes

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Konecranes' Vision

We know in real time how millions of lifting devices perform. We use this knowledge around the clock to make our customers' operations **safer** and more productive.

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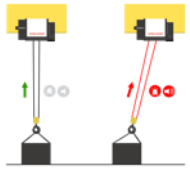
There are several options to improve active and passive safety of the equipment

Various sensors and control mechanisms are available to avoid unwanted operating situations.

To additionally eliminate typical lifting related risks, Konecranes has innovated additional **smart features** to augment crane operators' actions.

Side Pull Prevention

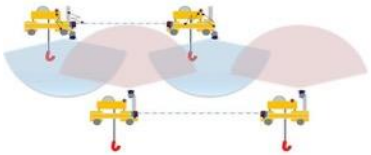


Sway Control

Protected Areas

Snag Prevention

Collision Avoidance



Automation

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Safety innovations and developments improve **“as-available”** -safety of equipment.

Real workplace safety is however driven by **“as-used”**, not by “as-available”.

How can you access and improve “as-used”-safety?

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Safety can be effectively addressed through the access to multifaceted operational data - and sharing it with customers

EQUIPMENT

Over 30 000 connected assets worldwide.

Provides information how customers are using, and misusing, the equipment.

SERVICE

Over 3M transactions recorded annually.

Visual inspections and measurements, anticipated and unanticipated repairs.

SYSTEMS

Uniform processes and single-instance systems.

Full 360 customer view, globally harmonized and integrated master data.

USERS

Apps for daily inspection and fault reporting.

>60k subscriptions on first year after launch – tools co-created with customers

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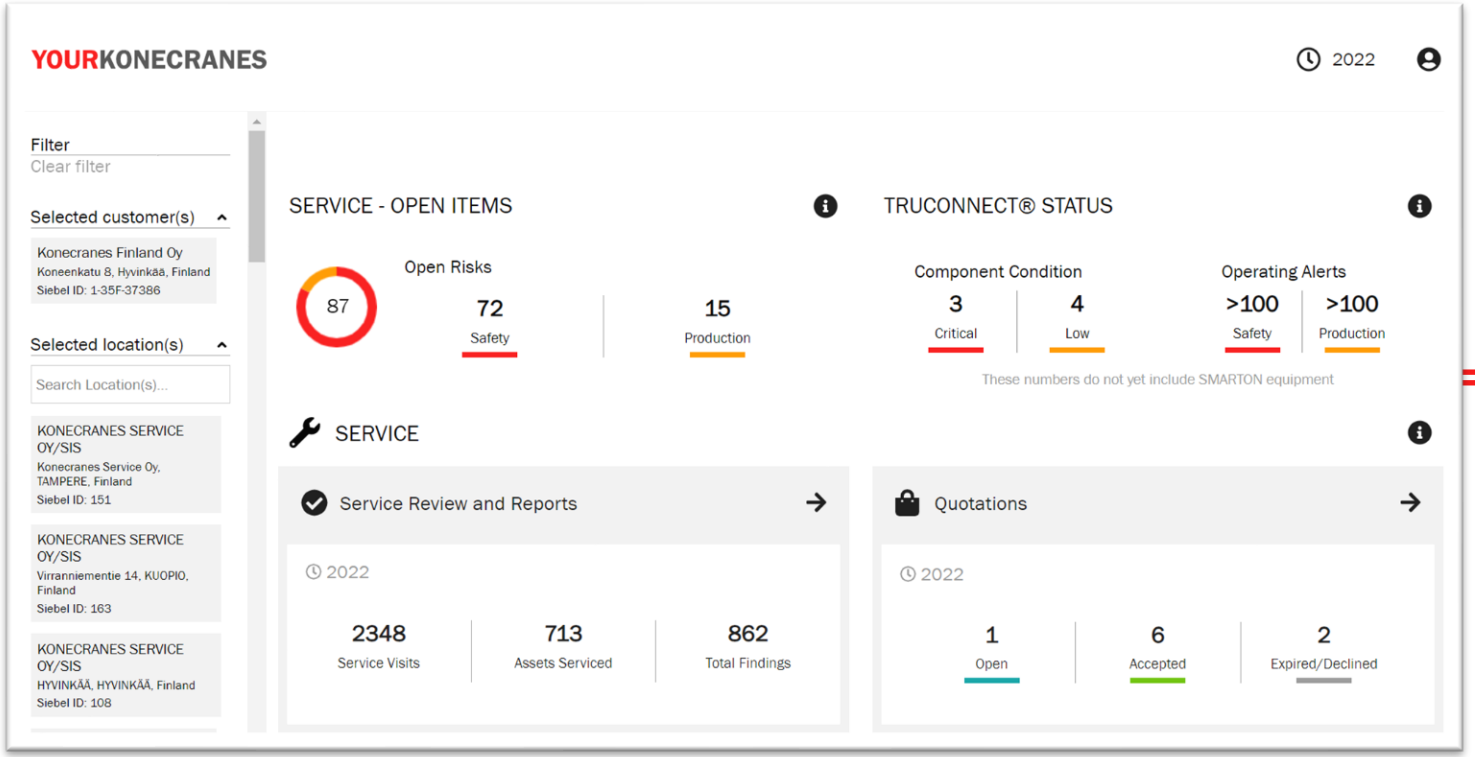
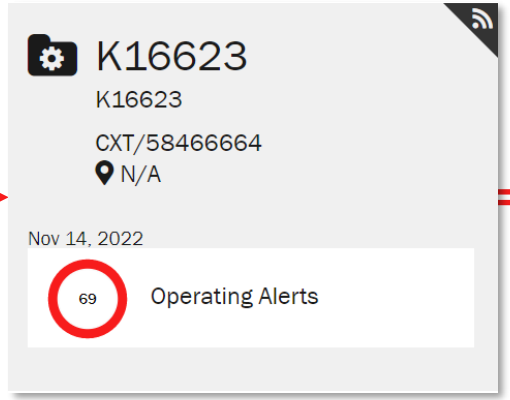
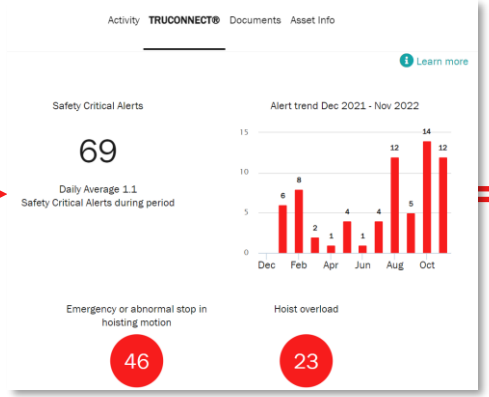
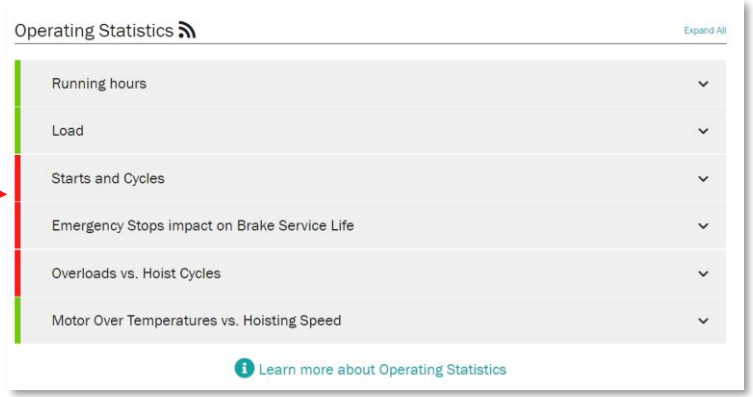
Close to home -example









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Digitalization and data have driven internal efficiencies, but also provided competitive differentiation

Multifaceted data, shared with our customers, enables Konecranes to discuss impact made on safety and customer process based on hard facts

Preventive and predictive services can be individualized and made more accurate

Insights derived from the data help to identify the potential for further improvements, product lifetime extension, and safety issues

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Getting here has required years of persistent work on standardization, digitalization and process implementation

Still ten years back, our processes were inconsistent, unit-specific, and manual. Information was stored locally on paper or on personal drives. Data was of low quality and without common identifiers.

LEGACY

Customer experience was dependent on the **quality** of individual service **technicians**

Performed service **work** was driven by the **experience** of individual service technicians

Service actions were recorded on **paper** and stored **locally** at service branches

Turnaround times on quotes for customer or technician-recommended jobs took **weeks**

Work scheduling and job reporting was performed at branches by backoffice staff

RESULT:

Inconsistent customer experience and **long** lead times

Training qualified technicians took **years** by inhouse experts

All detailed customer and asset data in **local** paper records

Despite global presence, knowledge was local and **scattered**

CURRENT

Work packages for every inspection, asset type and component have been **standardized**

All reporting is done on **mobile devices**, including recommended jobs and work scheduling

Backoffice work has been **consolidated** to regional centres and dedicated staff supported by AI, branches have closed

Quote turnaround times have been **reduced** to hours

Induction times for technicians have **dropped** dramatically thanks to digital tools and support systems

RESULT:

Consistent, managed customer experience & **fast** responses

Simplified roles for technicians with **enhanced** support

Intake of **structured** data & digital shadows for >300k assets

Global, **data-driven** knowledge accrual

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Insight-led development of new products improves safety and predictability

ROPE-Q

Analysing magnetic flux in steel rope

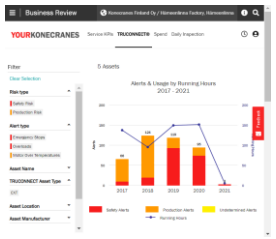
Steel rope, most safety-critical and periodically changed crane component, wears from inside and is invisible to plain eye. Rope-Q uses magnetic flux to measure rope condition.

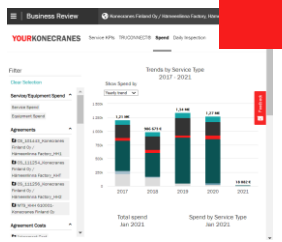
BRAKE-M

Measuring air gap through induction

Hoisting brake, a critical safety component, wears out non-linearly and is not inspectable without deconstructing the hoist. Brake-M analyses brake condition through changes in electric current.

rLTC





Estimating remaining lifetime & costs

Using real inspection and repair data, estimate the remaining lifetime costs of an asset to determine optimal time for replacement or modernization.

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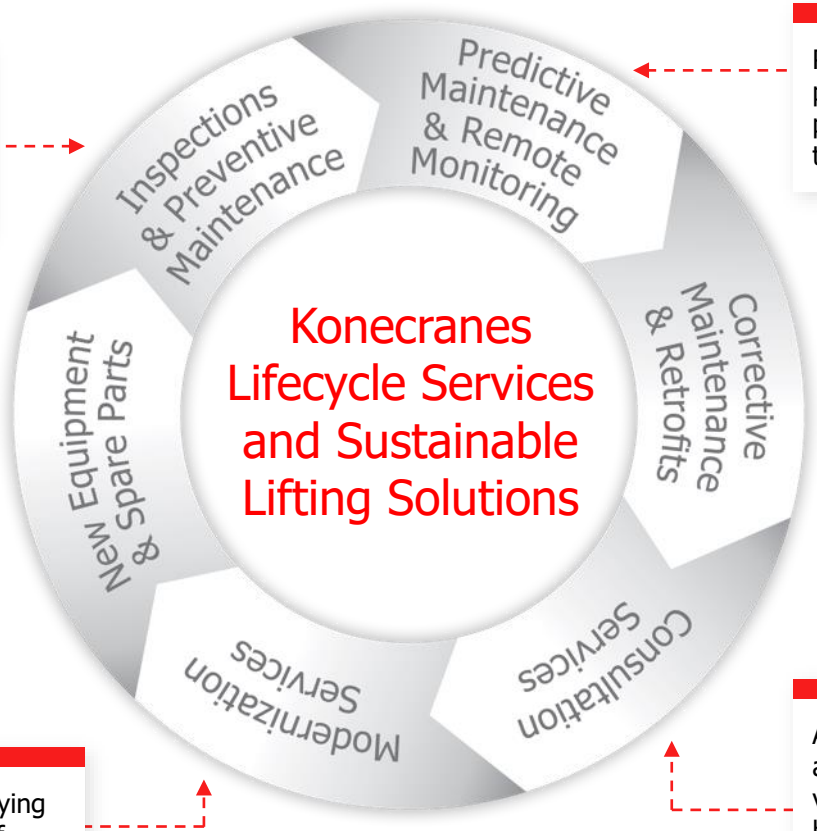
Data-enhanced safety is deeply embedded in equipment lifecycle management services

A regularly inspected and well-maintained crane experiences less breakdowns which means less parts and less travelling for technicians.

Predictive maintenance and Remote Monitoring provide vital information for optimal maintenance planning and component replacement and reducing the need for breakdown service.



Retrofits can bring benefits from newer technologies while improving equipment performance and energy efficiency.

Parts packages keep frequently needed parts on location, reducing the need for transport. Parts can also be refurbished or rebuilt which helps reduce waste.

Advanced services take a deeper look at your crane and can reveal issues that aren't apparent with a visual inspection. This can reduce the need for breakdown service and extend the life of the crane.

Modernizations are an alternative to buying new equipment and gives the benefit of more efficient and updated technology.

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As we ask your data to keep you safe, we need to keep your data safe

Access to customer operational data is a key differentiator and source of innovation for Konecranes. Our focus in keeping our customers' data safe must be in line with this priority.

VERIFICATION

INFORMATION SECURITY MANAGEMENT SYSTEM
DNV
ISO/IEC 27001

COMMITMENTS

Systematic investments in improvements of cyber security for information technology, operational technology, and product technology.

Tested practices for identifying, managing, reducing, detecting, responding, and recovering from cyber threats.

Verification of developed processes and practices by an independent, external auditor.

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We’re ready for the next step – supported by our ecosystems

ZERO^4

ACCIDENTS
EMISSIONS
INFORMATION BARRIERS
WASTED ENERGY

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Human-centred material flow optimization can help to bridge gaps between automation islands and boost productivity

Current approach: Automation of value-adding tasks

1. Automated machine tools

2. Islands of automation

3. Automated production lines

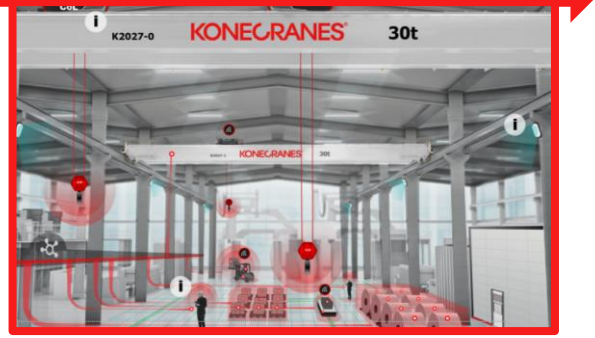
4. Automated factories

ZERO⁴ approach: Human-centred material flow optimization

1. Manual tools and offline-optimized material flow

2. Intelligent tools and online view of material flow status

3. Digital tools leveraging live data to help with specific tasks



4. Interconnected material flow equipment and production system

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NOT JUST LIFTING THINGS, BUT ENTIRE BUSINESSES