# In the Mix.

How RS Industria could help to make significant savings for industries utilising homogenisers and mixers.

# USE CASE

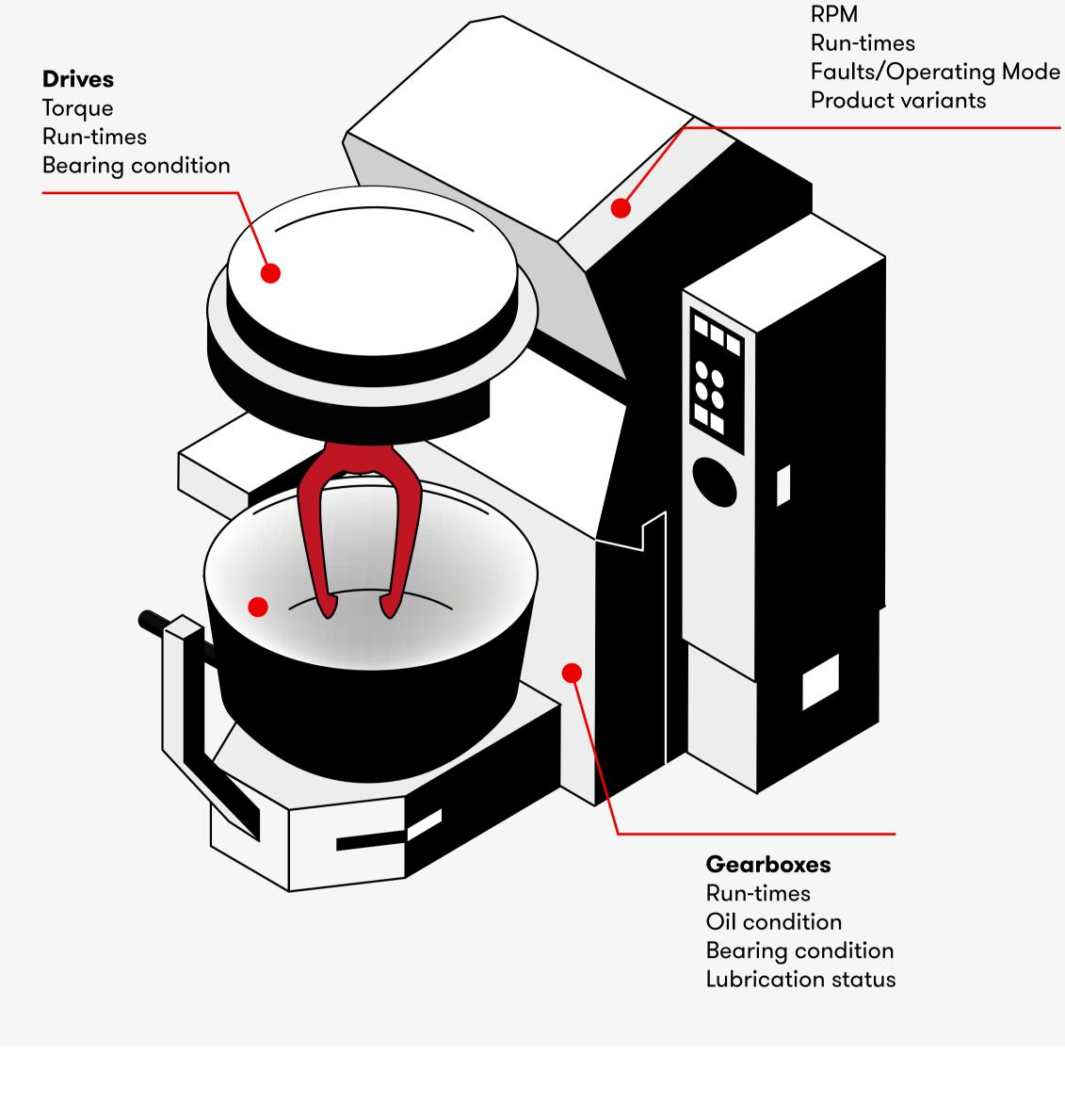
### Introduction. Industrial homogenisers and mixers are used across a

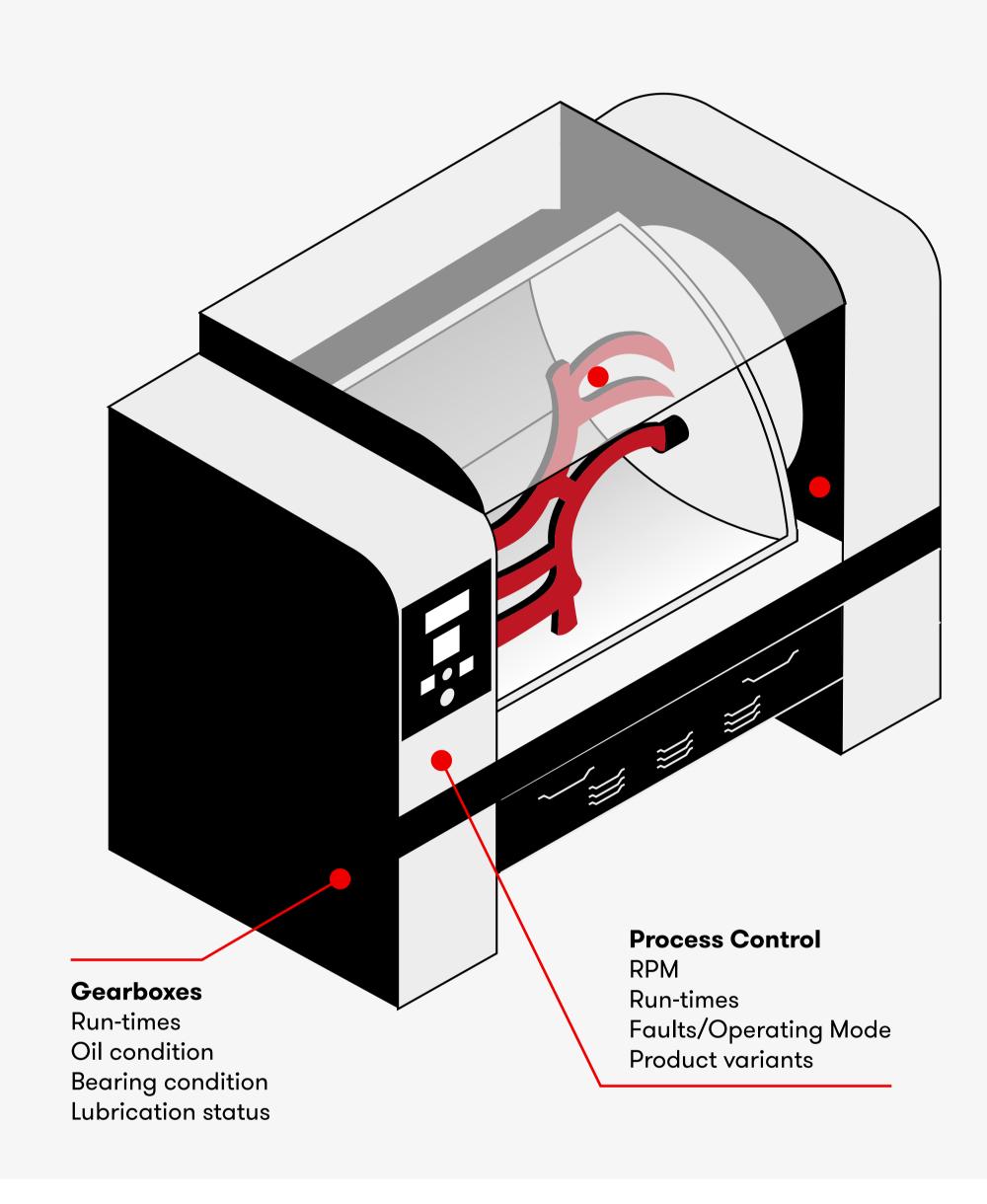
range of different sectors from bakeries through to the preparation of lubricants. They can be designed to mix a range of products across all three phases and can be both batch and inline.

applications such as bakeries and in the production of potato snack, crackers, hard biscuits, rotary, wire cut and pet food biscuit dough with mixing capacities up to several tonnes in capacity. They can be either vertical or horizontal shaft arrangements and are fitted with a variety of systems to handle the feedstock and the finished mix.

High speed batch mixers are used in a range of different

What we monitor.





# **Energy**

The Challenges.



### Mixers tend to be large, but

intermittent, power users, with a soft start. It can be difficult to see how energy consumption is changing over time, leading to potential energy losses going unnoticed.



**Process Control** 

### of mixers can be key to the quality

**Operations** 

of the mixed products. On older systems this can be challenging, relying on operators to manually start and stop the mixers and record the mixing times. Where quality issues do arrive, it can be hard to accurately track back to the actual operating conditions, making problem solving extremely difficult.

Accurately tracking the run time



## Mixers and homogenisers have

Maintenance

high, but intermittent, loads on the moving parts, particularly on start up. Bearings can fail due to over tension of drive belts and wash out

of lubricant, lubrication systems can be blocked, shafts can be bent out of true and gearboxes can suffer from water ingress. All of these will dramatically shorten the life of the asset whilst in service failures can lead the the need to waste the current batch, with a high cost in terms of wasted ingredients.

# **Energy**

Our Solutions.



### direct from the soft start of inverter

drive, when used. If no electrical consumption data is available, then energy meters can be easily installed which can pass data direct to RS Industria.

Energy data often be collected



#### speed, stop, fault and operating mode can often be captured

**Operations** 

Process data such as running

directly from the PLC or control system. This will aid accurate operational recording as well as aid problem solving. Often other setup and operating parameters can also be captured, further enhancing the ability to problem solve production issues. Where PLCs are not used, a separate data collection unit can be fitted to mirror existing control signals.



# can also be used as leading

Maintenance

indicators of failure. Through tracking current and torque, changes in the electrical load can be used to indicate changes in the mechanical system being drive. Where more granularity on the potential failure is required,

Much of the energy data collected

perhaps to increase the warming time, we would look to use vibration and temperature sensors on the motor, gearbox and shaft with the sensor choice driven by the application. This would provide real-time data on the assets and pickup leading indicators of failure.

# Typical Cost Savings

**Energy** 

Your Benefits.

A 300 kW mixer will consume around £200,000 worth of electricity (June 2022 prices). Unresolved mechanical issues with motors can drop the efficiency of the motor by 10%, increasing electricity cost by

£20,000 per annum.

maintenance monitoring would be included in that core plan.



600% ROI

Better operating insight means better management of processes and their assets, resulting in lower operating

costs. Here are some examples, based on our real-world experience in production environments. The annual

monitoring cost is only included in the Energy example, as the monitoring costs for both operational and

## in excess of £3,000 per tonne.

**Operations** 

Saving just three batches of batter in year 1 would pay for the set-up and monitoring costs.

Better understanding of quality

issues during mixing could avoid

the scrapping of a batch of batter



Savings - £38,000

Electricity - £20,000

#### and production downtime. A typical breakdown would be 12

Maintenance

Preventing a catastrophic

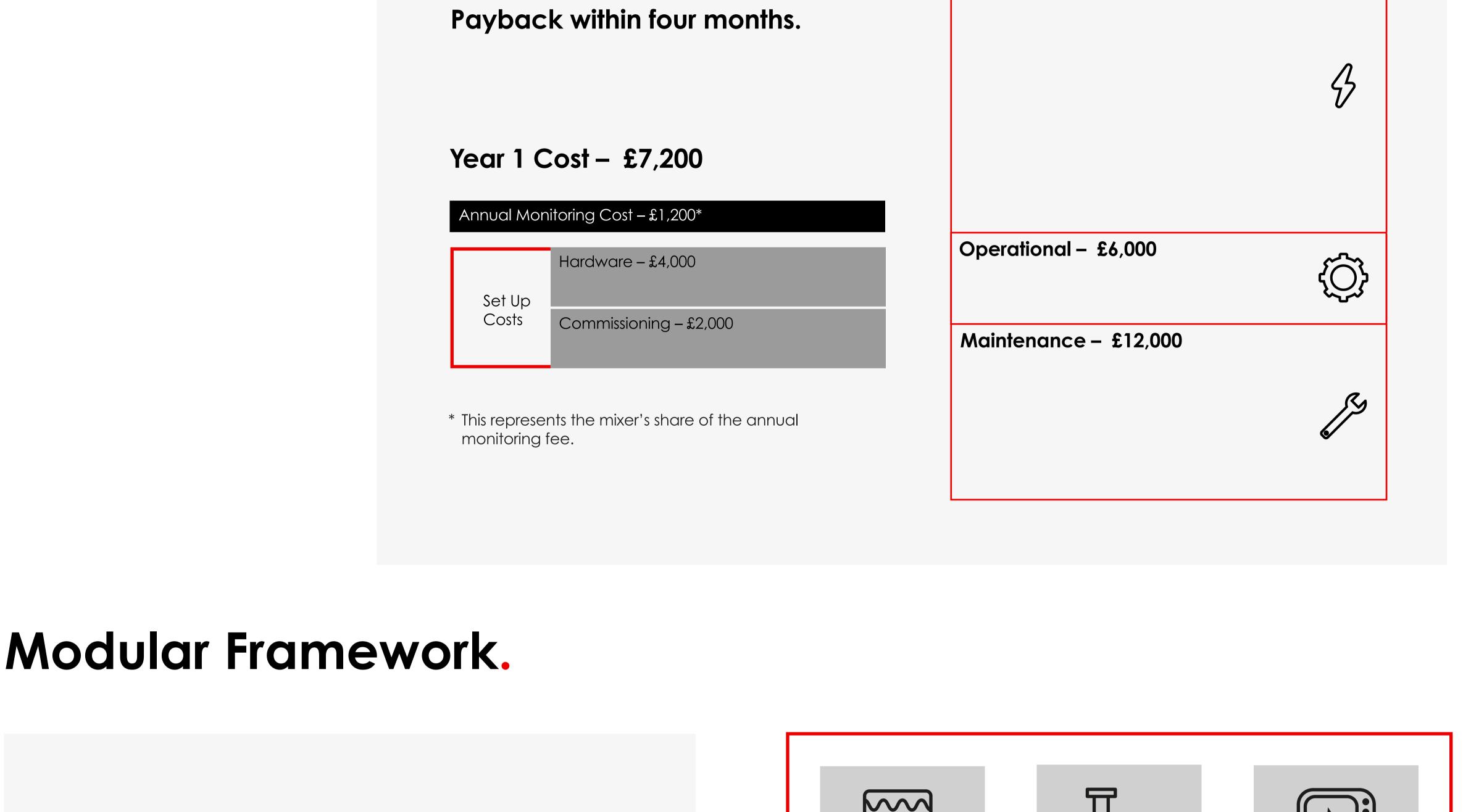
hours lost time at £1,000 per hour, resulting in a £12,000 cost.

breakdown will avoid spares spend

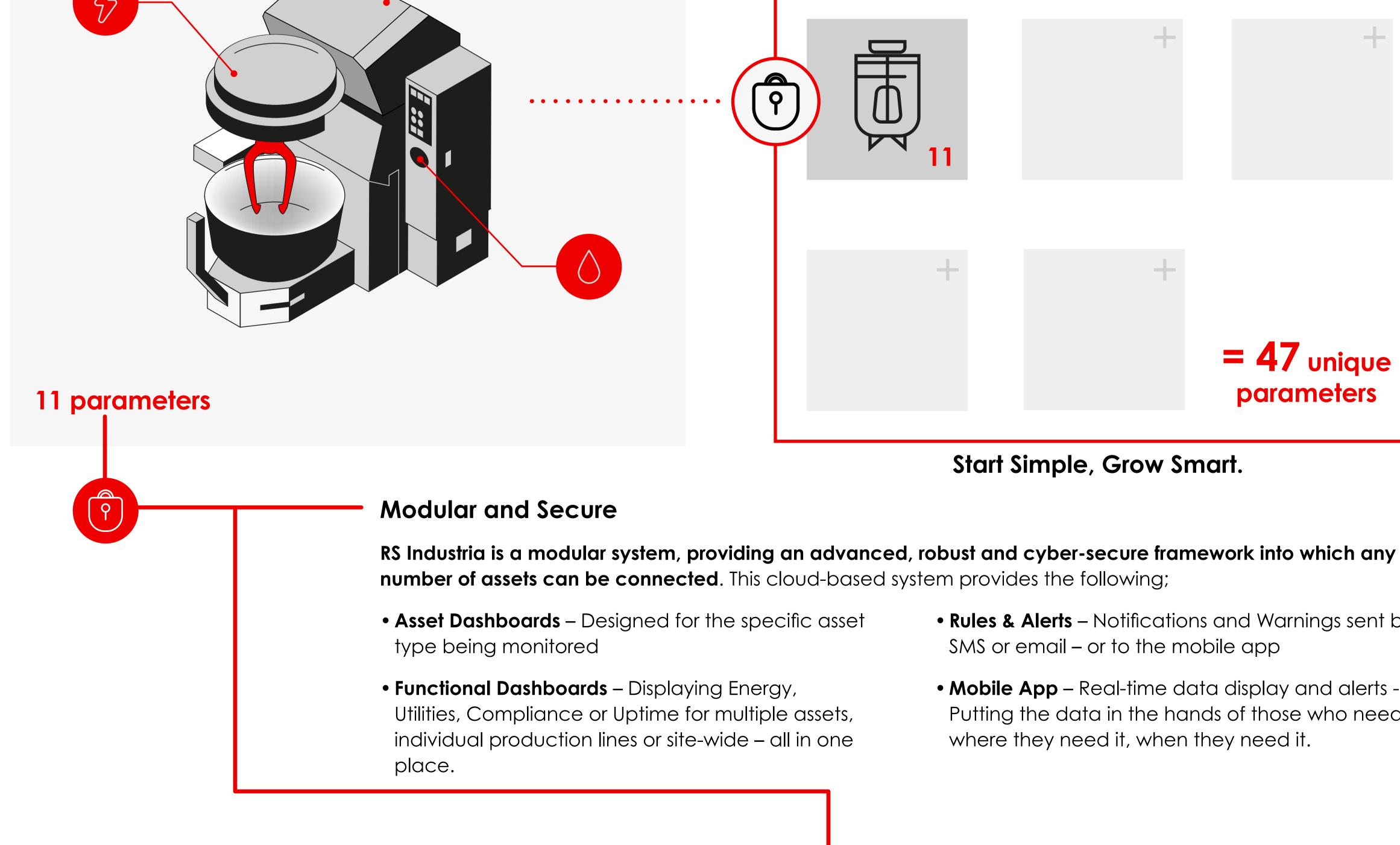
#### show that the system could potentially pay for itself, on electricity savings alone, within just four months.

Payback & ROI

These indicative calculations



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# • Rules & Alerts – Notifications and Warnings sent by SMS or email – or to the mobile app • Mobile App – Real-time data display and alerts -Putting the data in the hands of those who need it, where they need it, when they need it.

**Data Options** 

Operations

= 47 unique

parameters

Maintenance

## Start/Stop Fault/Operating Mode

Multi-Purpose Data.

Voltage

Current

Torque

**Data Integration** 

asset insight.

As RS Industria integrates data

can re-purpose and combine

data to extend the scope for

from multiple sources, the system

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Energy

- identify when a bearing is being damaged, long before such damage is evident, or a failure occurs. 2. Lubrication Failure Indicator – this value uses

1. Bearing Damage Indicator – Using frequencies

specific frequencies to warn if a bearing is

manually or automatically delivered.

insufficiently lubricated, whether the lubricant is

from selected areas of the spectrum to rapidly

These indicators can be further enhanced by using

the operating data to provide context such as

Multi-Purpose data offers significant benefits over

the use of dedicated single-purpose monitoring

• Single point of integrated data – enables

comparison between different variables,

potentially offering greater insight

variable loading.

systems:

operational variances to avoid false alarms

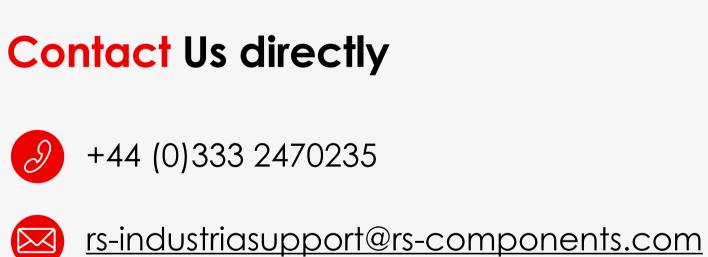
• Context-sensitive alerts – take account of normal

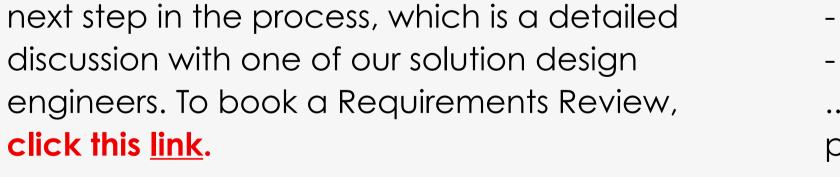
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