





**WSA®** - real time data managing system to improve your business performance

**WeSenseAll®**



### WeSenseAll® system functionality:

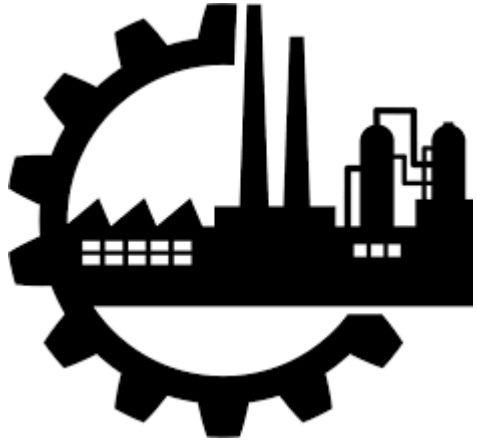
- predicting machine park failures through the following **sensors**: vibration, temperature, humidity, light intensity and measuring the effectiveness of the value added time

#### **Predictive TPM & OEE**

- **Statistical Process Control (SPC)**
- **7 SECONDS** – manufacturing disruption management & Andon



## Problem statement



*"What's measured improves" - Peter F. Drucker*

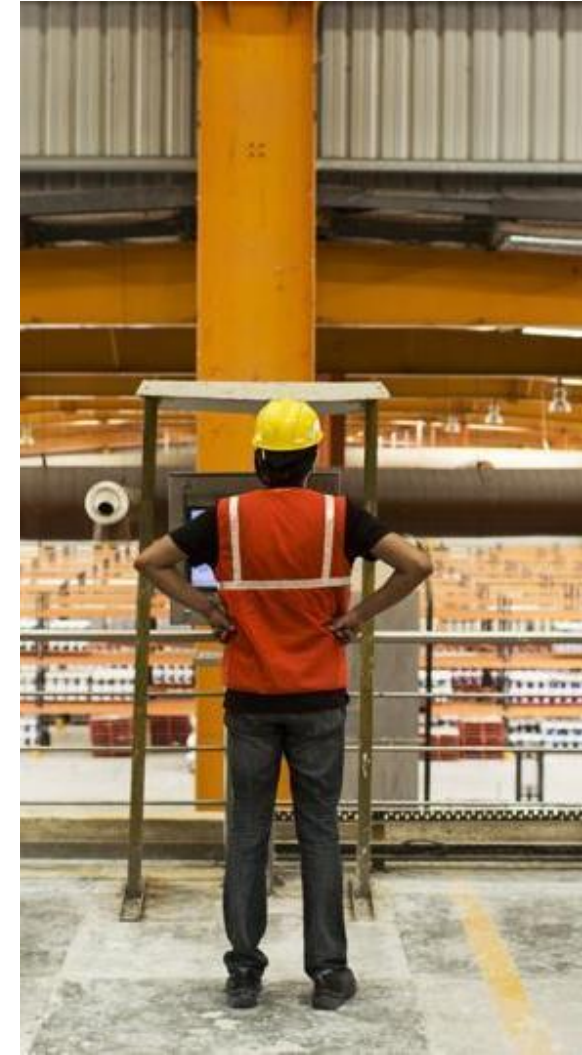
Only in Poland there are about 20k manufacturing sites that are producing good of value from 2 to 20 mln PLN a year.

Every manufacturing or operational manager is struggling with foreseeing the future to eliminate the risk and increase the profits.

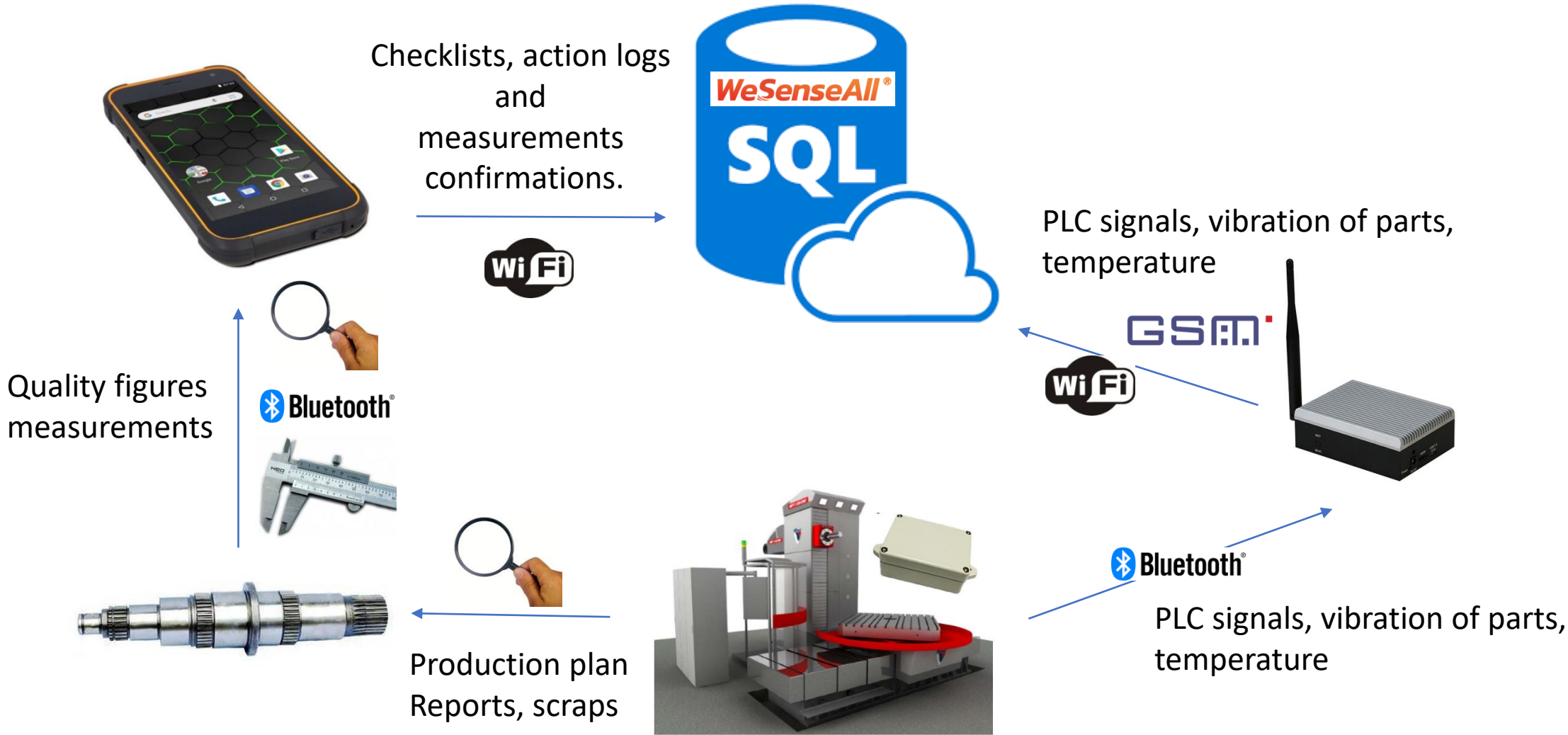
Future is always coming with variations and changes.

Managers get data:

- to late
- from wrong and inaccurate sources
- not relevant to the customer's expectations and business needs
- without pre-selection and
- as a result, they lose the ability make good decisions and to generate valid profits!



We bring right data at right time - „One click, one entry, one check”







What is the overall equipment efficiency?

Where is my bottle neck?

What are the main reasons of downtimes?

Is my process capable to deliver right quality?

What is current process variation?

What is the condition of my machines?

When should I stop the production to replace wear parts?

When should I replace tools to be back in tolerance?

What is the status of production plan realization?

Which lot is overdue?

What will be the quality tomorrow?

Who from my operators reacts on time on production problems?

Is the all check lists fulfilled on time?

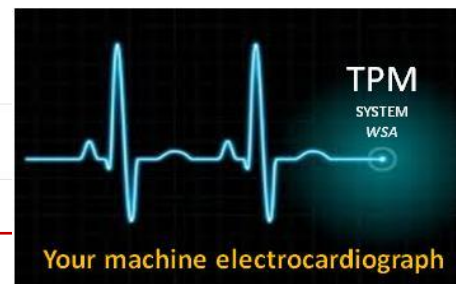
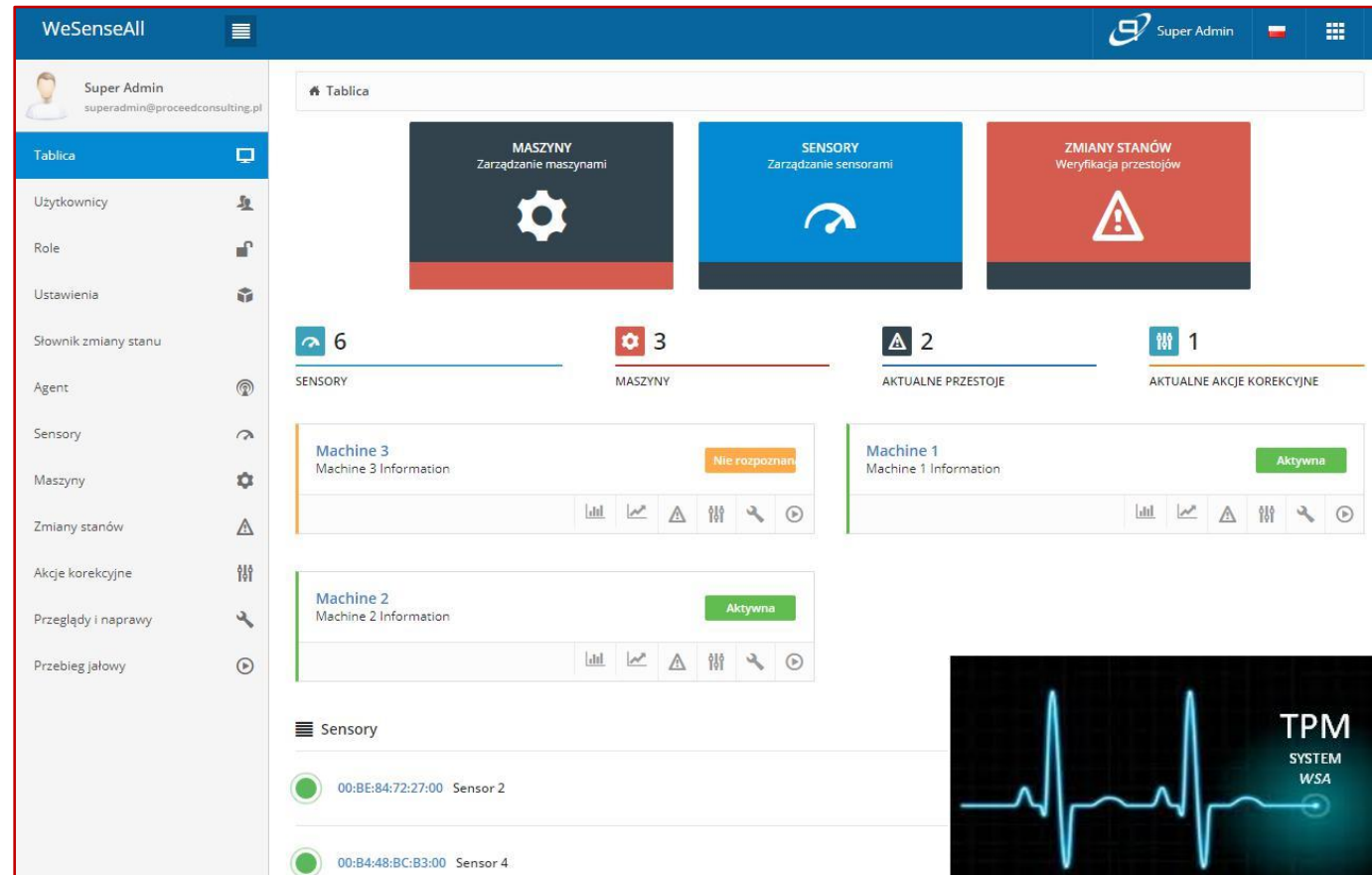
If I will not change anything what profit can I expect tomorrow?

*"Without big data, you are blind and deaf and in the middle of a freeway" – Geoffrey Moore*

# Control panel

# WeSenseAll®

WSA is used for all types machines - not relevant brand new, old or unique one.



- How much time does the spindle cut effectively?
- How much time does disruption takes?
- What kind of interference: changes, micro failures, waiting for the material, take real time?
- What level of vibration, temperature does the spindle have?

**Predictive TPM** – failure prediction, e.g. by measuring the vibration trend, temperature

**OEE Overall Equipment Effectiveness key machines KPI**

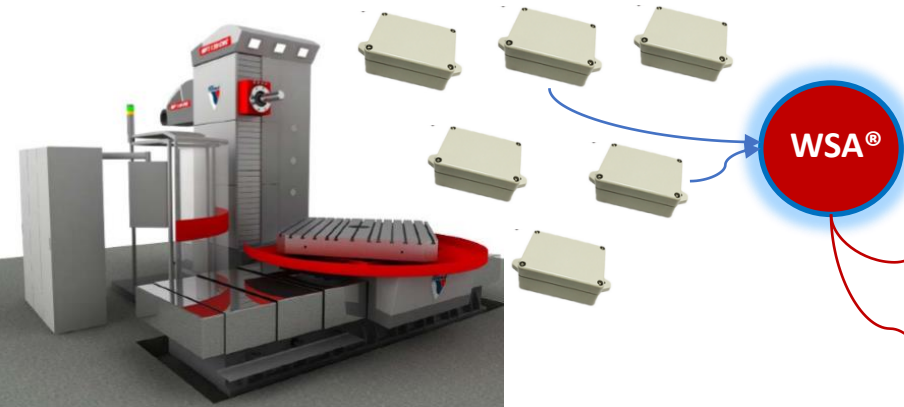
**OEE** = Availability **x** Efficiency **x** Quality

85% OEE is used as a World In Class Benchmark level

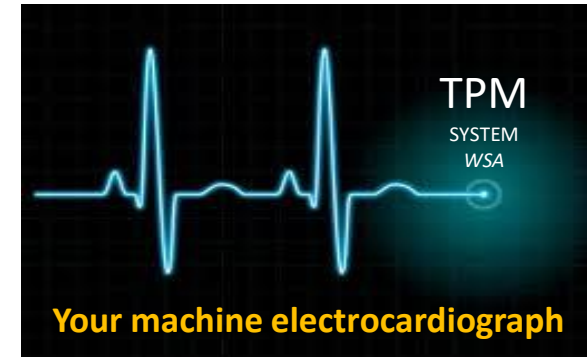
# Predictive TPM & OEE – Implementation process

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WSA® system sensors



Daily vibrations, temperature history of the selected sensor

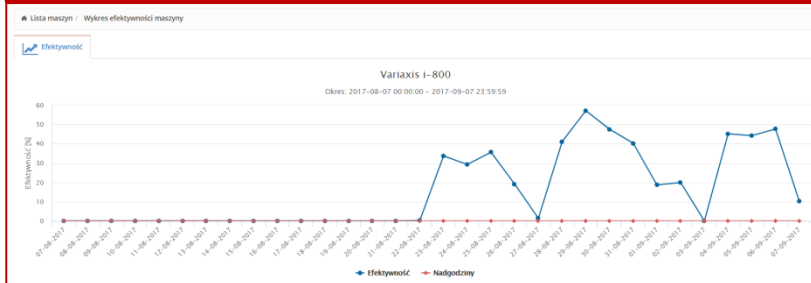


Goals:

- ✓ 2 days machine FMEA event
- ✓ 2 weeks for implementation
- ✓ 0 unplanned failures thanks to vibration prediction
- ✓ Pareto OEE for Continues Improvement



OEE daily trend



改善



1

KROK 1.  
Warsztaty FMEA dla maszyny

2

KROK 2.  
Wdrożenie SYSTEMU WSA

3

KROK 3.  
Wyniki OEE, Pareto i analiza trendów zużycia maszyny

4

KROK 4.  
Warsztaty Kaizen i zapobieganie awariom

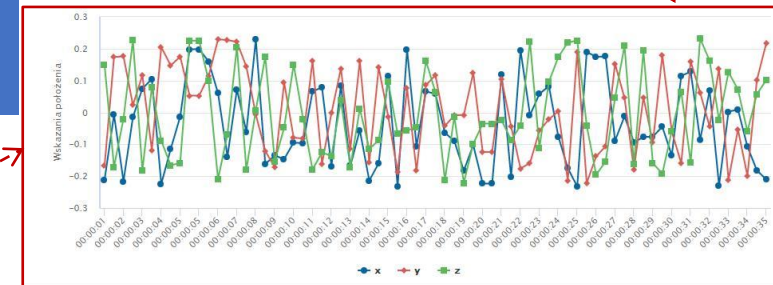
- ✓ ZERO awarii
- ✓ ZERO braków
- ✓ ZERO wypadków

## Our advantages

# WeSenseAll®

### OUR ADVANTAGES:

- own programmers team and customization possibility for the specific needs of each organization
- vibration and temperature measurement of key machine points in continuous time. Alerts for exceeding warning levels
- the machine mode is automatically included when a load on spindle is detected by the sensor (Poka Yoke solution - no possibility to pass work on a rotating spindle, not cutting a detail)
- Bluetooth data collecting – no tampering with the machine
- any language
- Pareto OEE for your Continuous Improvement events
- idle vibration trend analysis
- used for all types machines - not relevant brand new, old or unique one
- available on Smartphone





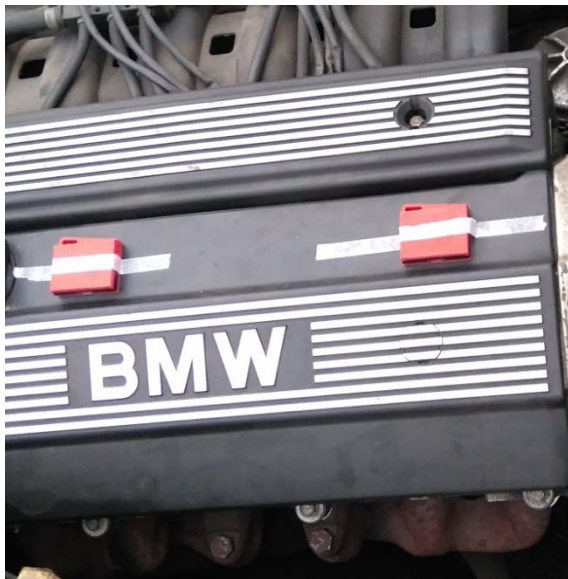
The financial values from the implementation of the **WSA r19** system vary depending on the client, his current situation, processes and work organization performance.

The system generates financial savings in the following areas:

- increasing the efficiency of the use of machines and production lines working time - impact on OEE,
- replacing manual operations with automatic or semi-automatic data collection - saving on the number of employees,
- reducing the cost of poor quality:
- level of waste and shortages,
- costs of modifications, sorting
- customer complaint costs.



## Our success story



**03.2015** - creation of the concept,  
**11.2015** - first tests of sensor communication with the base on vibrating devices,  
**10.2016** - first installation on a CNC milling machine in Stalowa Wola,  
**01.2017** - commencement of an R&D project co-financed by PARP, PLN 400k in eligible expenditure.  
**06.2017** - system installation on the MAZAK machine in PWR, data reading from the PLC,  
**07.2017** - new hub supplied from 3City Electronics from Gdańsk,  
**11.2018** - system sales at Philips and Danfoss,  
**12.2018** - successful completion of the R&D project,

### Currently:

- 7 working environments
- 9 working hubs
- 28 working sensors

# WeSenseAll®



STEICO





signify

Danfoss

HT Hydrotor S.A.

mardom

## Proceed Consulting Group

	<b>Igor Łęgowski</b> – Lean Six Sigma Master Black Belt. 22 years of experience in production processes - the originator of WeSenseAll.	WSA: Technical Director. Creating a system concept, technical arrangements with clients, installations and implementation supervision, trainings.
	<b>Stanisław Nowak</b> - IT project leader. 19 years in the IT industry, Prince2, ITIL.	WSA: President of the Board. IT supervision - programmers, communication and databases.
	<b>Krzysztof Gwadera</b> - practitioner of lean manufacturing and continuous improvement, Lean Manager.	WSA: Training manager. Creating Lean Six Sigma support offer.
	<b>Marcin Szeffka</b> - For 15 years directly involved in the sale of CNC machines and equipment for industry, and management of sales organizations.	WSA: Sales manager. Creating a marketing plan and sales network. Customer acquisition.



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