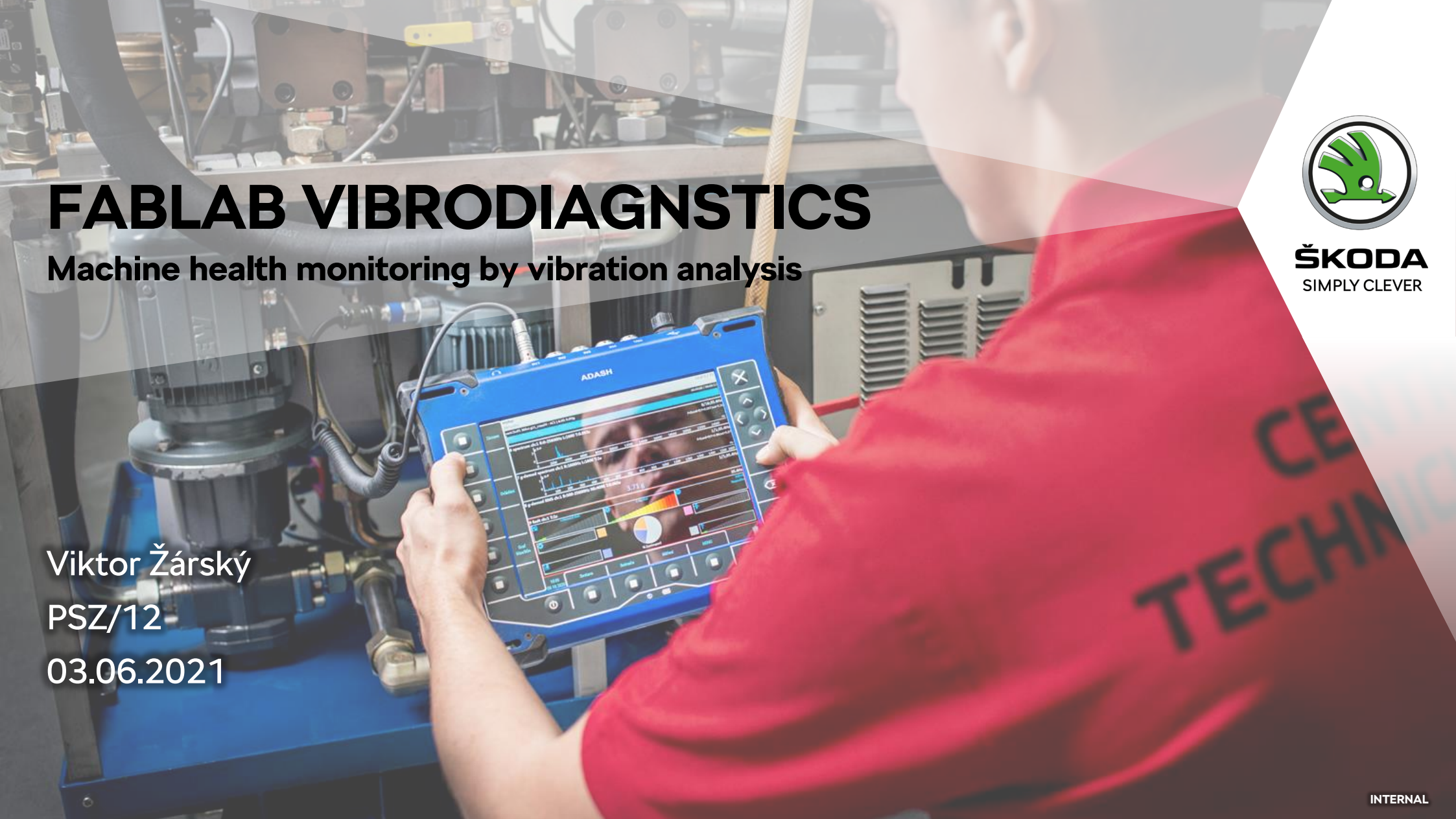
FABLAB VIBRODIAGNSTICS

Machine health monitoring by vibration analysis



Viktor Žárský
PSZ/12
03.06.2021

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THE PRESENT

Overview of current situation

Offline monitoring

„Periodical measurements for predictions“

Online monitoring

„24/7 under control“

Technical production support

„Communication and information sharing“.

Inovation

„Looking for new technologies“

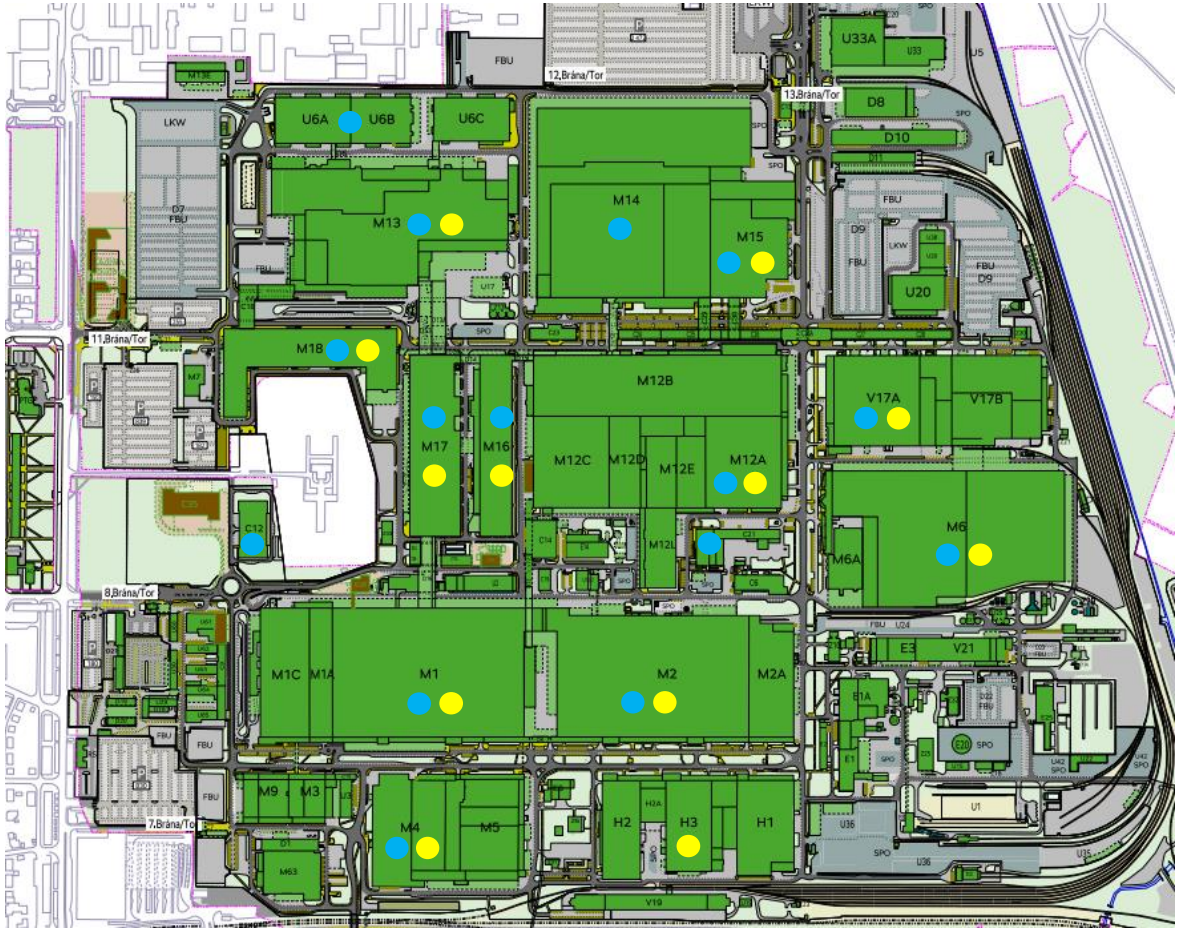
The frequency of failures is about 6% of the total number of monitoring points (3112) per year is about 187 failures

Practical examples:

- **M15 Press shop: Fault detection on MW 31 press**
- **U6 Logistics: Fault detection on the AKL stacker (M13 main flow supply)**

Mladá Boleslav

- **Offline monitoring:** 892 measuring points / year
- **Online monitoring:** 1493 Active measuring points



Kvasiny

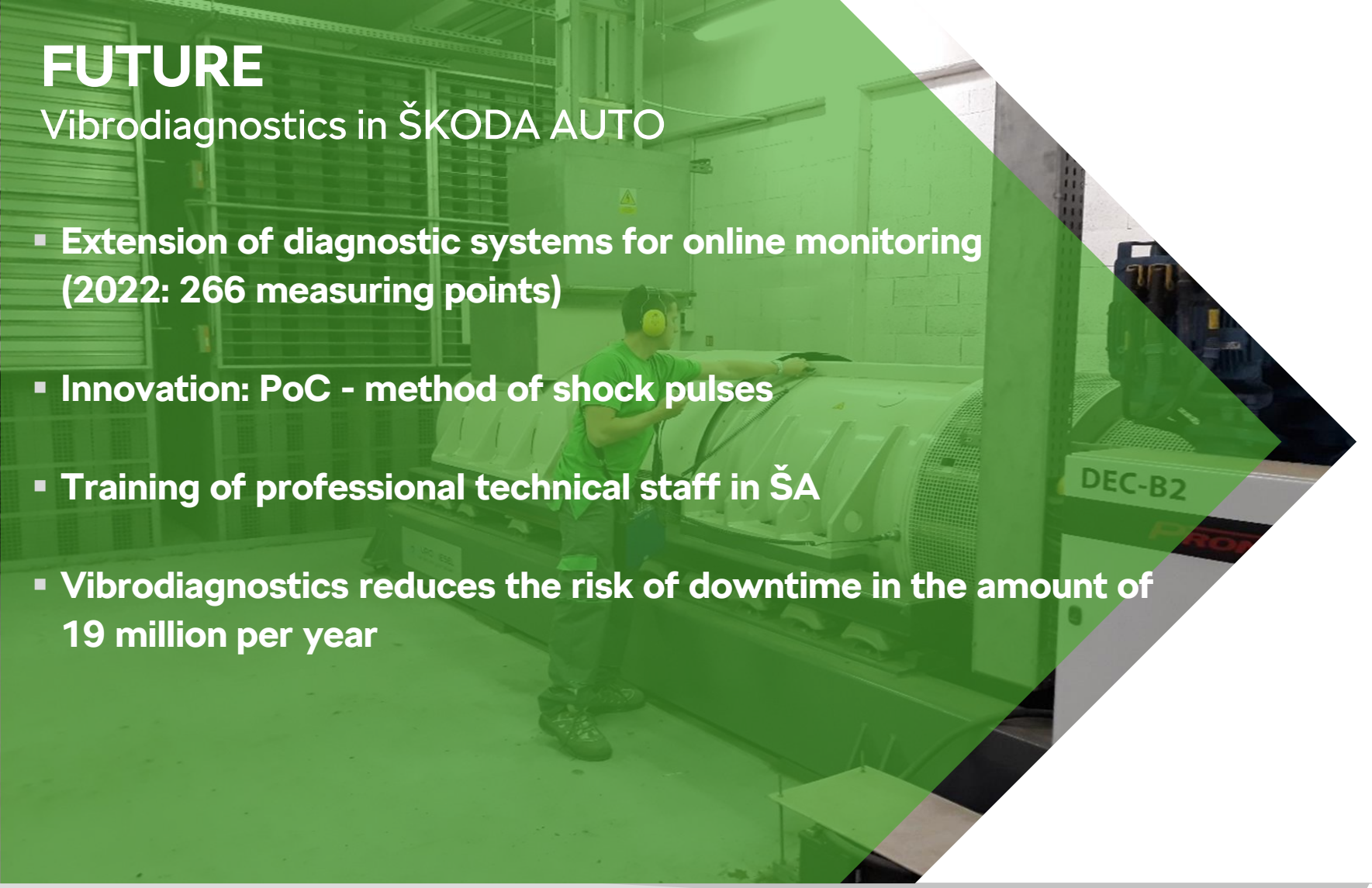
- **Offline monitoring:** 150 measuring points / year
- **Online monitoring:** 483 Active measuring points

Vrchlabí

- **Offline monitoring:** 90 measuring points / year
- **Online monitoring:** 4 Active measuring points

FUTURE

Vibrodiagnostics in ŠKODA AUTO



- **Extension of diagnostic systems for online monitoring (2022: 266 measuring points)**
- **Innovation: PoC - method of shock pulses**
- **Training of professional technical staff in ŠA**
- **Vibrodiagnostics reduces the risk of downtime in the amount of 19 million per year**

THANKS FOR YOUR ATTENTION!

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Contact person:

Viktor Žárský

Backup

VIBROBOX

Portable box for on-line vibration monitoring

Benefits:

- Processes optimization and better effectiveness
- Mobility, speed and flexibility
- Less transport and overhead costs
- Continuous data collecting and regular checking
- Savings for wide-area sensors

Diagnosable failures:

- Engines and bearings failures
- Imbalances and misalignments
- Deformation and wear damage
- Wrong machine positioning
- Seizure failure

VIBROSTAND

Vibration test stand

Benefits:

- Real failures simulation
- Machine learning (Models)
- Databasae (Big data)
- SW and HW testing
- Training and presentation

Diagnosable failures:

- Engines and bearings failures
- Imbalances and misalignments
- Deformation and wear damage
- Wrong machine positioning
- Seizure failure

Vibrodiagnostics – in practice

Failure examples

Damaged rolling bearing of the flywheel – hydraulic press MW 31 located in M15 (October 2020)

- Serious failure type
- Risk of production shortage in case of not detecting the failure in time (spare parts delivery time 2-3 weeks)
- Early detection allowed us to order the spare part and schedule the
- Avoiding the unscheduled downtime